

EARNINGS MANAGEMENT AND DEBT MATURITY: EVIDENCE FROM ITALY

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Abstract

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In this work, we examine whether earnings management affects the debt maturity structure of Italian non-SMEs. We employ accruals quality as a proxy for earnings management. We measure the accrual quality as the absolute value of residual reflects the accruals that are not related to cash flow realized in the current, following or previous year. We measure the debt maturity in two ways. First, we consider it as a dummy variable that takes the value equal to 1 if some of the debt is long-term (exceeding one year), and 0 otherwise. Second, we compute the debt maturity as the ratio of long-term debt to total debt. We employ a quantitative approach, carrying out several regressions (probit, logit, and tobit) analyses to investigate the effect earnings management on debt maturity structure, using financial statement data of 1,001 Italian non-SMEs sampled over the period 2011-2017. This paper provides theoretical and practical findings that support the literature on earnings management. First, the study confirms that accrual quality can use as a proxy of earnings management by the academic community. Then the findings show that earnings management is negatively associated with the possibility to access to long-term debt, and with a proportion of long-term debt in total debt. This evidence may support the managers when they have to plan the financial structure, the lenders and the creditors in their decision-making processes, and the policymakers when they have to set programs aimed to make easier the access to external financial resources.

Keywords: Debt Maturity, Earnings Management, Accruals Quality, Information Asymmetry, Italy, Accounting Quality

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1. INTRODUCTION

In this paper, we investigate whether earnings management affects the debt maturity structure of Italian non-SMEs. Specifically, this paper draws from several studies dealing with the role of earnings management in determining the cost of capital and debt (Francis, LaFond, Olsson, & Schipper, 2004; 2005), audit committee quality (Benkel, Mather, & Ramsay, 2006; Rainsbury, Bradbury, & Cahan, 2009;

Susanto, Pradipta, & Djashan, 2017), CEO and CFO equity incentives (Shabeeb Ali, Ismael, & Ahmed, 2020), and investment efficiency (Biddle, Hilary, & Verdi, 2009; Chen, Hope, Li, & Wang, 2011). García-Teruel, Martínez-Solano, Sánchez-Ballesta, and Pedro (2010) and De Meyere, Vander Bauwhede, and Van Cauwenberge (2018) also provided first empirical evidence on the relationship between earnings management, financial reporting quality, and debt maturity structure in Spain and Belgium respectively.

In a context of information asymmetry, we consider earnings management as an intentional behavior of managers to extract private benefits by influencing the information of financial reporting, reducing its quality. Therefore, the underlying issue is to what extent managers are motivated to activate earnings management practices to have access to long-term debts when the firm's creditworthiness is in doubt.

In the literature, scholars used accruals quality as a proxy for earnings management. Healy and Wahlen (1999) found that higher (lower) accrual quality decreases (increases) information asymmetry because financial reporting quality and disclosure can reduce adverse selection and moral hazard issues. Furthermore, Leuz and Verrecchia (2005) observed that higher information quality rises expected cash flows. Thus, on one side, lenders may use the accrual quality as an indicator for executing more short-term debt on their loans; on the other side, firms with higher accrual quality may have access to longer debt terms. Therefore, this paper tests the relation between earnings management and the ability of firms to obtain long-term financing; in particular, we assess if earnings management affects the debt maturity structure, allowing firms to have access to longer debt maturity.

We investigated Italian context because scholars considered Italy as a civil law country characterized by inefficient and weak investor protection, high concentration of ownership, and without a developed capital market (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998; Bianchi, Ciavarella, Novembre, Signoretti, & CONSOB, 2011; Maglio, Rey, Agliata, & Lombardi, 2020a). In addition, Hung (2000) showed that Italy has, second only to Germany, the lowest level to which the accounting system moves away from a cash method measure of performance, demonstrating a lower use of accrual accounting. Therefore, we consider that it exists a relationship that supports the informative role of accruals. We focus on accruals quality because earning will be more explanatory of cash flows if accruals are of good quality. It means that poor accruals quality will make it more difficult for lenders to evaluate future cash flows (García-Teruel et al., 2010).

To test the developed hypothesis, we use a dataset counting 6,434 observations from 1,001 Italian non-SMEs from 2011 to 2017. We employ a quantitative approach, carrying out several regressions (probit, logit, and tobit) analyses to investigate the earnings management on the debt maturity structure. We use the variable *DebtMaturity (DM)* as the dependent variable. In the probit and logit models, *DM* takes the value equal to 1, if a firm has long-term debts (exceeding one year), and 0 otherwise. Then, in the tobit model, we computed the dependent variable *DM* as the ratio of long-term debt (exceeding one year) to total debt. We employed accruals quality as an inverse proxy of earnings management practices. To calculate the accrual quality of sampled firms as an independent variable, we employ Dechow and Dichev's (2002) model, which asserts a relation between current period no-cash working capital and operating cash flows in the prior, current and future periods.

Our evidence confirms our hypothesis. The results reveal a negative association between Italian non-SMEs' earnings management practices and their

debt maturity structure. Therefore, in a bank oriented financial system like Italian one, our results support the idea that the adoption of fewer earnings management practices reduce the asymmetric information between the firm and the lender, and helps firms to have access to long-term debts. We also found that larger firms, with more tangible assets and more leveraged, may get into long-term debt.

This work contributes to the debate on the importance of earnings management in debt contracting of Italian non-SMEs and, in general, in decreasing information asymmetries. From our point of view, this work can be useful for managers when they have to plan the financial structure for the companies they work in. At the same time, these results can be useful for lenders and creditors in their decision-making processes. Policymakers may also set programs aimed to make easier access to external financing.

We structured the paper as follows. In Section 2 we review related literature and we develop the research hypothesis. Section 3 illustrates the methodology, the variables employed and the sampling method. Section 4 reveals the results that we discuss. Finally, in Section 5 we propose conclusions and implications of the study.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

When a financial institution has to finance a firm, it takes the risk of non-payment by the firm that receives funding. De Meyere et al. (2018) argued that the cash flow of a firm represents its capability to repay a debt. Therefore, users such as financial institutions can take information by a financial statement to protect themselves (García-Teruel, Martínez-Solano, & Sánchez-Ballesta, 2014b), trying to foresee the future cash flows of a firm.

However, the greater threat that users can face is the information asymmetry, consisting of an unequal distribution of information between creditors and debtors. The information asymmetry may give life to opportunistic behaviors (moral hazard) by firms aimed to withhold information to the banks, hiding or lowering its risk of non-payment.

In this context, the earnings management plays a crucial role because previous studies considered it as a "deliberate action by managers in the process of the financial information presented in order to gain private benefits" (Lakhal, F., Aguir, Lakhal, N., & Malek, 2015, p. 1110), or as "the choice by a manager of accounting policies so as to achieve some specific objective" (Scott, 2003, p. 368). Related to this issue, Healy and Wahlen (1999) argued that earnings management "occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company" (p. 368). Therefore, we consider the earnings management as an intentional behavior of managers to extract private benefits by influencing the information of financial reporting, reducing its quality. From this point of view, earnings management may also represent an agency cost (Maglio, Rey, Agliata, & Lombardi, 2020b).

In the literature, Healy and Wahlen (1999) found that higher (lower) financial reporting quality decreases (increases) information asymmetry. They also argued that earnings management could work as a tool to increase adverse selection and moral hazard issues. Related to this issue, Easley and O'Hara (2004) showed in their model that the amount and the precision of information disclosed to a financial institution can affect a firm's cost of capital. They pointed out that firms could decrease their cost of capital either by reducing the extent of private information or by increasing its dispersion across traders. Analyzing the relation between information quality and firms' cost of capital, Leuz and Verrecchia (2005) found that higher information quality increases expected cash flows, which in turn reduces the firm's cost of capital. Biddle et al. (2009) suggested that "information asymmetries between firms and suppliers of capital could reduce capital investment efficiency by giving rise to frictions such as moral hazard and adverse selection that can each lead to produce over- and under-investment" (p. 7).

In the literature, several studies used accruals quality as a proxy to measure earnings management. Chen et al. (2011) argued that the accrual quality of private firms operating in the emerging markets is positively associated with investment efficiency. They also found that the relation between accrual quality and investment efficiency "is increasing in bank financing and decreasing in incentives to minimize earnings for tax purposes" (p. 1255). Employing the accrual quality as a proxy for the information risk associated with earnings management, Francis et al. (2005) found that poorer accrual quality is associated with larger costs of debt and equity. Assessing the impact of borrower accounting quality on debt contracting, Bharath, Sunder, J., & Sunder, S. V. (2008) found that accounting quality measured by accruals-based metrics affects the choice of the market, with poorer accounting quality borrowers preferring private debt, i.e. bank loans because these firms face higher adverse selection costs in the public debt markets.

Moreover, recent empirical studies have confirmed this assumption. Focusing on Belgian SMEs, Van Caneghem and Van Campenhout (2012) showed that both information quantity and quality are positively related to SMEs leverage and that these firms reduce the cost of external financing by providing more information and/or higher quality of information. Furthermore, García-Teruel et al. (2014b) argued that higher precision of earnings reduces information asymmetries with banks and facilitates the access of firms to bank loans, showing a positive association between bank debt and accruals quality. García-Teruel, Martínez-Solano, Sánchez-Ballesta (2014a) also found that higher accrual quality facilitates the raising of funding from financial institutions. Examining Belgian market, De Meyere et al. (2018) stated that information asymmetry impacts on the maturity structure of the debt, showing that "earning quality is positively associated with the proportion of long-term debt in total debt and with the probability of having long-term debt" (p. 1). Therefore, most of these studies employed accruals quality as a measure for information quality and showed that creditors and lenders pay attention to the quality of accruals. In line with these studies, financial institutions may

oppose loaning requests demanded by those firms with lower accrual quality.

Therefore, our research aims to examine the effect of earnings management, measured by accrual quality, on the debt maturity structure of Italian non-SMEs. We expect that information asymmetry will have an influence on creditors' decision-making processes about lending long-term debt due to two main reasons (De Meyere et al., 2018). First, higher information asymmetry obstacles the forecasting of future cash flows more as the time horizon of calculating becomes longer. Second, Italy has a bank-based financial system with a low developed capital market (Hardie & Howarth, 2013); so, we expect that Italian firms can face difficulties in getting debt capital outside the bank contest.

Nevertheless, in the literature previous studies discussed above revealed that firms that earnings management practices can increase the asymmetry information, obstructing the access to long-term debts.

Therefore, according to the literature reviewed we have developed the following hypothesis:

Hypothesis 1 (H1): There is a negative association between earnings management practices and the debt maturity structure of Italian non-SMEs.

3. METHODOLOGY

3.1. Data and sample

In our research, we used data from AIDA Bureau Van Dijk database, collecting non-consolidated financial statements data over the 2009-2018 period. First, we included financial statements from Italian firms with limited liability (S.p.A., S.r.l., S.A.P.A.) and we have dropped financial statements from public firms and firms operating in the government, financial and utility industries. So, we first make create an initial database consisting of 890.862 firms.

Then, we sampled only those firms that in 2018 were non-SMEs. According to EU recommendation 2003/361 (The Commission of the European Communities, 2003), a firm is considered non-SME when 1) employs more than 250 persons; 2) has an annual turnover exceeding EUR 50 million or 3) an annual balance sheet total exceeding EUR 43 million. Then, we excluded firm-years observations without debt on the balance sheet because we cannot compute the dependent variable for these observations. Finally, we also discarded firm-years that entail missing values for the control variables. Therefore, the final sample counts 1,001 firms.

The computation of the independent variable *EarningsManagement_AccrualQuality (EMAQ)* has required non-missing data over multiple years on working capital accrual and cash flow from operations. As the data for this research are limited to 10 years (2009-2018), we could only compute a company- and year-specific *EMAQ* number for the 2010-2017 period.

Following De Meyere et al. (2018), we lagged one period the independent and the control variables in the model to reduce potential endogeneity problems, forcing us to narrow the analyzed period from 2011 to 2017. This selection step has implied a further drop in sample size to 6,434 firm-year observations.

3.2. Variables

3.2.1. Dependent variable: Debt maturity

We assigned a dummy value to the dependent variable *DebtMaturity (DM)* in the probit and the logit model. In particular, *DM* takes the value equal to 1 if some of the debt is long-term (exceeding one year), and 0 otherwise.

Then, we modelled the proportion of long-term debt in total debt using a tobit model. Following García-Teruel et al. (2010, p. 195), we computed the dependent variable *DM* as the ratio of long-term debt (exceeding one year) to total debt.

3.2.2. Independent variable: Earnings management and accrual quality

Following previous studies (Sadiq & Othman, 2017), we investigated the involvement of firms in accruals earnings management using earnings quality at first. Dechow, Ge, and Schrand (2010) refer to “earnings quality” in their study, pointing out that “higher quality earnings provide more information about the features of a firm’s financial performance that are relevant to a specific decision made by a specific decision-maker” (p. 344). Di Martino, Dicuonzo, Galeone, and Dell’Atti (2017) argued that earnings quality is “linked, with a negative connotation, to the one of earnings management” (p. 47). In addition, previous studies (Mahjoub & Khamoussi, 2013) employed the discretionary accruals to capture the earnings management practices.

Therefore, we used the model proposed by Dechow and Dichev (2002) to compute the independent variable *EarningsManagement_AccrualQuality (EMAQ)*. Dechow and Dichev (2002) model highlighted that accrual shift or adjust the recognition of cash flow over time; so that, the adjusted numbers (earnings) better measure firm performance. Dechow and Dichev (2002) derived an empirical measure of accrual quality regressing current working capital accruals (*WCA_t*) on past, present and future cash flows from operations, all deflated by an average total asset of year *t*. *WCA_t* represents the non-cash working capital.

$$\Delta WCA_{i,t} = g_0 + g_1 * CFO_{i,t-1} + g_2 * CFO_{i,t} + g_3 * CFO_{i,t+1} + \varepsilon_{i,t} \quad (1)$$

where:

ΔWCA_t is the change in working capital accruals from year $t-1$ to year t ;

CFO_t = cash flows from operations in year t ;

CFO_{t-1} = cash flows from operations in year $t-1$;

CFO_{t+1} = cash flows from operations in year $t+1$.

In the model presented by Dechow and Dichev (2002), the residual “reflects the accruals that are not related to cash flow realized in the current, following or previous year” (p. 40).

Following García-Teruel et al. (2010) model, we assume that “the absolute value of the residual for each firm-year observation is an inverse measure of accruals quality so that to higher residual value corresponds a lower accrual quality value” (p. 196). Therefore, we assume that $EMAQ_{i,t}$ is equal to $|\varepsilon_{i,t}|$. In

line with hypothesis development, we expect a negative coefficient for the independent variable *EMAQ*.

3.2.3. Control variables

In the regression analyses, we also added control variables. Heyman, Deloof, and Ooghe (2008) argued larger firms may have fewer complications in accessing long-term debt financing. Therefore, we used the natural logarithm of total assets (*LnTA*) as a proxy for firms’ size, expecting a positive coefficient of the variable (Sadiq & Othman, 2017). Then, following previous studies (Davila, Foster, & Gupta, 2003; Agiomirgianakis, Voulgaris, & Papadogonas, 2006; Van Caneghem & Van Campenhout, 2012) we employed as variable the natural logarithm of age in years that we called *LnYears*. Then, we added the variable *Asset_Tang* measured as net property, plant, and equipment to total assets. We included it to control for the potential to provide collateral (Sogorb-Mira, 2005; Van Caneghem & Van Campenhout, 2012; García-Teruel et al., 2014b). Then, Avallone and Quagli (2015) argued that the market has better consideration of those firms that are more profitable because they may reflect a positive estimation of future cash flows. In their study, Chung, Firth, and Kim (2005, p. 57) also found that “firms with free cash flow agency problems tend to take negative discretionary accounting accruals”. Leuz and Verrecchia (2005) found that higher accounting quality increases expected cash flows. Therefore, we added the variable *Profitability* computed as operating income divided by total assets, expecting a positive coefficient. Then, García-Teruel et al. (2010) considered useful adding as proxy a default risk score to measure the financial situation of firms. Therefore, we employed the default risk measured by EM-score² (Altman, Hartzell, & Peck, 1998) in order to control the effect of credit quality. In particular, we used two default-risk dummy variables (*EMDistress* and *EMGrey*) to classify the firms in relation to their riskiness (De Meyere et al., 2018). We have healthy firms with an EM-score above 3.75 (i.e. the base case) that have a value equal to 0 for both *EMDistress* and *EMGrey*. Then, we have the firms with a medium risk profile as determined by an EM-score in between 1.74 and 3.75 (*EMGrey* = 1), and the weakest firms having an EM-score of below 1.74 (*EMDistress* = 1). Following Sogorb-Mira (2005), Van Caneghem and Van Campenhout (2012), we used the ratio between intangibles assets to total assets (*Growth prospects*). Finally, in line with Diamond’s studies (1991), we introduced the control variable *Debt* measured as the average total debt to average total assets because firms with a high level of debt are likely to desire longer-maturity debt. Therefore, we expect a positive relationship between *Debt* and *DM*. Table 1 lists the variables employed.

2 The resulting model, which is the foundation for our EMS model approach, is of the form:

EM-score = 6.56(X₁) + 3.26(X₂) + 6.72(X₃) + 1.05(X₄) + 3.25 where X₁ = working capital/total assets, X₂ = retained earnings/total assets, X₃ = operating income/total assets, X₄ = book value equity/total liabilities (Altman et al., 1998, p. 393).

1 Where $\Delta WCA_t = \Delta \text{Current Asset} - \Delta (\text{Cash} + \text{Cash Equivalent}) - \Delta \text{Current Liabilities} + \Delta \text{Short-term bank debt}$ (García-Teruel et al., 2010).

Table 1. Dependent, independent, and control variables

Variable	Definition	Predicted sign
DM (Dependent)	In the logit and probit models: = 1, if firms have some long-term debts (exceeding one year); = 0, otherwise. In the tobit model: $DM = \text{Total long-term debts (exceeding one year)}/\text{Total debt}$.	
EMAQ (Independent)	$EMAQ_{i,t} = \varepsilon_{i,t} $ Where $ \varepsilon_{i,t} $ reflects the accruals that are not associated with cash flow generated in the current, following or previous year. It reflects the residual of following regression: $\Delta WCA_{i,t} = g_0 + g_1 * CFO_{i,t-1} + g_2 * CFO_{i,t} + g_3 * CFO_{i,t+1} + \varepsilon_{i,t}$	-
LnTA	Natural logarithm of total asset	+
LnYears	Natural logarithm of age in years	+
Asset_Tang	Net property, plant, and equipment/Total assets	+
Profitability	Operating income/Total assets	+
EMGrey	= 1, if $1.74 < \text{EM-score} < 3.75$; = 0, otherwise	-
EMDistress	= 1, if $\text{EM-score} < 1.74$; = 0, otherwise	-
Growth prospects	Total intangible assets/Total assets	+
Debt	Total debt/Total assets	+

4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

Table 2 shows a summary of the descriptive statistics of the variables employed. *DM* has a mean value of 0.173 that demonstrates that Italian non-SMEs included in the sample have an average of 17.3% of debts that expire in more than one year. In general, these values are higher than those that De Meyere et al. (2018) have found in Belgium market (13.0%) but lower than evidence reported by García-Teruel et al. (2010) for Spanish listed firms (29.1%).

Table 2 reveals a mean (median) value for the independent variable *EMAQ* equal to 0.118 (0.054). Comparing our *EMAQ* values with those one reported in previous studies (Francis et al., 2005; De Meyere et al., 2018; García-Teruel et al., 2010), we can highlight an interesting observation about the earnings management of Italian non-SMEs studied.

First, the quality of accruals of the sampled Italian non-SMEs is lower than that of the US public firms reported by Francis et al. (2005). In effect, the mean and median *EMAQ* values found in this study (0.118 and 0.054, respectively) are higher than those revealed by Francis et al. (2005) on a set of US-listed firms during the period 1970–2001 (0.044 and 0.031, respectively). Since higher *EMAQ* values correspond to lower accruals quality, we can state that the accruals quality of Italian non-SMEs is tending to be lower than that of US-listed firms. These results are in line with Leuz, Nanda, and Wysocki (2003) that stated that earnings quality tends to be better in Anglo-Saxon countries. At the same time, this study reveals that the *EMAQ* mean and median values of Italian non-SMEs appear also higher than those of Spanish SMEs reported by García-Teruel et al. (2014b) (0.028 and 0.024, respectively), and higher than those of Belgian privately held firms reported by De Meyere et al. (2018) (0.052 and 0.042, respectively).

Table 2. Descriptive statistics

	Mean	Median	Max	Min	STDEV
EMAQ	0.118	0.054	1.878	0.000	0.911
DM	0.173	0.119	0.964	0.000	0.188
LnTA	11.789	11.700	17.000	1.338	1.151
LnYears	3.142	3.298	5.024	0.000	0.781
Asset_Tang	0.211	0.168	0.928	0.000	0.176
Profitability	0.049	0.034	0.854	-2.088	0.081
EMGrey	0.166	0.000	1.000	0.000	0.372
EMDistress	0.029	0.000	1.000	0.000	0.169
Growth Prospects	0.064	0.016	0.883	0.000	0.119
Debt	0.579	0.604	3.677	0.000	0.194

Notes: $N = 6,434$; *EMAQ* - see Section 3.2 for exact definition; *DM* = long-term debt (exceeding one year)/total debt; *LnTA* = \ln (total assets); *LnYears* = \ln (age in years); *Asset_Tang* = net property, plant and equipment/total assets; *Profitability* = operating income/total assets; *EMGrey* = dummy variable taking 1 if $1.74 < \text{EM-score} < 3.75$ and 0 otherwise; *EMDistress* = dummy variable taking 1 if $\text{EM-score} < 1.74$ and 0 otherwise; *Growth prospects* = intangible assets/total assets; *Debt* = average total debt/average total assets.

4.2. Correlation and regression analyses

To test the hypothesis developed, this work examined 1,001 firms and 6,434 firms-observation. The correlation matrix (see Table 3) reveals a

negative correlation coefficient between *EMAQ* and *DebtMaturity* equal to 0.054 ($p < .01$) and no multicollinearity among independent variables employed in the regression analyses.

Table 3. Correlation matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) DM	1.000									
(2) EMAQ	-0.054***	1.000								
(3) LnTA	0.124***	-0.151***	1.000							
(4) LnYears	0.031	-0.059***	0.149***	1.000						
(5) Asset_Tang	0.127***	-0.037***	0.152***	0.100***	1.000					
(6) Profitability	-0.101***	-0.062***	0.027	0.058***	-0.101***	1.000				
(7) EMGrey	0.058***	-0.011	0.067***	-0.052**	0.093***	-0.185***	1.000			
(8) EMDistress	-0.037**	0.043***	0.014	-0.185***	0.082***	-0.210***	-0.089	1.000		
(9) Growth prospects	0.094***	0.052***	0.060***	-0.309***	-0.204***	-0.054***	0.051***	0.122***	1.000	
(10) Debt	0.173***	0.079***	-0.082***	-0.144***	-0.121***	-0.253***	0.324***	0.236***	0.064***	1.000

Notes: N = 6,434; EMAQ - see Section 3.2 for exact definition. In the probit model and in the logit model, DM = 1, if some of the debt is long term, otherwise = 0. In the tobit model, DM = long-term debt (exceeding one year)/total debt; LnTA = ln (total assets); LnYears = ln (age in years); Asset_Tang = net property, plant and equipment/total assets; Profitability = operating income/total assets; EMGrey = dummy variable taking 1 if 1.74 < EM-score < 3.75 and 0 otherwise; EMDistress = dummy variable taking 1 if EM-score < 1.74 and 0 otherwise; Growth prospects = intangible assets/total assets; Debt = average total debt/average total assets. P-values (p) are reported between brackets ***, **, * denote significance at the 1%, 5% and 10% level, respectively.

To investigate the hypothesis developed, we used a quantitative approach. In particular, we carried out regression analyses (logit, probit, tobit) to estimate the impact of the independent variable

on the dependent variable *DebtMaturity (DM)* (Hair, Black, Babin, & Anderson, 2014).

To test H1, we estimated the regression equation as follow:

$$DM_{i,t} = \alpha_0 + \alpha_1 * EMAQ_{i,t-1} + \alpha_2 * LnTA_{i,t-1} + \alpha_3 * LnYears_{i,t-1} + \alpha_4 * Asset\ tangibility_{i,t-1} + \alpha_5 * Profitability_{i,t-1} + \alpha_6 * EMDistress_{i,t-1} + \alpha_7 * EMGrey_{i,t-1} + \alpha_8 * Debt_{i,t-1} + \alpha_9 * Growth\ prospects_{i,t-1} + \epsilon_{i,t} \quad (2)$$

Table 4 reveals the results of the regression analyses, using probit, logit, and tobit models. Therefore, we first estimate the regression equation using the dummy dependent variable representing whether a firm has (or has not) debt exceeding the year (in the probit model and the logit model) and

then using the ratio of debt exceeding the year to total debt as the dependent variable in the tobit model.

Table 4 shows the results of the reckoning regression equation.

Table 4. Regression results: Earnings management, debt maturity, and Italian non-SMEs

DM	α	(p)	α	(p)	α	(p)
EMAQ	-.287***	(0.000)	-.662***	(0.000)	-.017*	(0.081)
LnTA	.184***	(0.000)	.279***	(0.000)	.036***	(0.000)
LnYears	.034**	(0.024)	.105**	(0.029)	-.007	(0.214)
Asset_Tang	1.994***	(0.000)	.388***	(0.000)	.489***	(0.000)
Profitability	-1.951***	(0.000)	-2.994***	(0.000)	-.254***	(0.000)
EMGrey	-.499***	(0.000)	-0.990***	(0.000)	-.105***	(0.000)
EMDistress	-1.602***	(0.000)	-2.697***	(0.000)	-.299***	(0.000)
Debt	2.048***	(0.000)	3.801***	(0.000)	.331***	(0.000)
Growth prospects	2.177***	(0.000)	3.820***	(0.000)	.658***	(0.000)
_cons	-2.914***	(0.000)	-5.111***	(0.000)	-.535***	(0.000)
Observations	6,434		6,434		6,434	
R ²	0.1246		0.1564		2.9258	

Notes: N = 6,434; EMAQ - see Section 3 for exact definition. In the probit model and in the logit model, DM = 1, if some of the debt is long term, otherwise = 0. In the tobit model, DM = long-term debt (exceeding one year)/total debt; LnTA = ln (total assets); LnYears = ln (age in years); Asset_Tang = net property, plant and equipment/total assets; Profitability = operating income/total assets; EMGrey = dummy variable taking 1 if 1.74 < EM-score < 3.75 and 0 otherwise; EMDistress = dummy variable taking 1 if EM-score < 1.74 and 0 otherwise; Growth prospects = intangible assets/total assets; Debt = average total debt/average total assets. P-values (p) are reported between brackets ***, **, * denote significance at the 1%, 5% and 10% level, respectively.

We find that the parameter for the EMAQ variable is significant in all three models employed in this work. Particularly, in the probit and logit models, EMAQ is significant at 1% level. In the tobit model, EMAQ is significant at the 10% level. This evidence supports the idea that EMAQ can be used as a proxy of earnings management and it can explain the variation in the debt maturity structure of firms tested.

Further, we expected a negative coefficient for the independent variable EMAQ because firms with a higher value of EMAQ (and poorer accrual quality) have a lower likelihood of having long-term debt (i.e. probit model and logit model) as well as the relative importance of long-term debt in total debt (i.e. tobit model) than firms with higher accrual quality. Our

findings are consistent with what has been hypothesized. The parameter regarding the variable EMAQ is negatively associated with DM both in the probit model (-.287***), in the logit model (-.662***) and the tobit model (-.017*). Therefore, Italian non-SMEs that engage in earnings management practices (so lower accruals quality and higher EMAQ values) have less possibility to obtain a higher proportion of long-term debt in total debt than those firms that do not engage in earnings management activities (that present higher accrual quality values). This is coherent with previous studies (Healy & Wahlen, 1999; Francis et al., 2005; García-Teruel et al., 2010; De Meyere et al., 2018) that argued that accounting quality reduces information asymmetry between the firms and

financial institutions because accruals quality and disclosure can reduce adverse selection and moral hazard issues. Therefore, these results suggest that Italian non-SMEs that engage more in earnings management practices and with a higher value of *EMAQ* have less access to long-term financing.

Focusing on the control variables that affect the dependent variable *DM*, we find that variable *LnTA* is positively associated with the dependent variable ($p < .001$). This is consistent with previous studies of Guedes and Opler (1996) that highlighted that larger firms sampled are less likely to default, stating that "...firms with high liquidity risk issue long-term debt to avoid the risk of inefficient liquidation" (Guedes & Opler, 1996, p. 1828). These results are also in line with Hemyan et al. (2008) findings that revealed that larger firms have fewer complications in accessing long-term debt financing. Thus, these findings may reveal that larger firms use more long-term debt. In addition, Table 4 shows that in all models there is a positive and significant ($p < .001$) association between variable *Asset_Tang* and *DM*. This result is in line with evidence provided by De Meyere et al. (2018) that have argued that "this may point towards maturity matching, i.e. matching the time it takes to settle liabilities to asset liquidity" (p. 15). Therefore, it may indicate that Italian non-SMEs with more tangible assets usually have a higher debt maturity. Regarding the variable *Debt*, the parameter is positive and significant at 1% level in all the models adopted. This result is in line with previous studies (Diamond, 1991; García-Teruel et al., 2010; De Meyere et al., 2018) and it may reveal that firms that use the leverage choose long-term financing to short-term debt to reduce their financial exposure.

5. CONCLUSION

Using a dataset of 1,001 firms and 6,434 observations over the 2011-2017 period, we have examined the association between the earnings management practices of Italian non-SMEs and their debt maturity structure. We used accruals quality as an inverse proxy of earnings management practices. Then, we used two measurements for debt maturity. First, we employed a dummy variable that takes the value of 1 when the firm analyzed has long-term debts, otherwise 0. Then, we measure the debt maturity as

the proportion of long-term debt in total debt.

To assess the hypothesis developed, we carried out regression analyses (logit, probit, tobit models) to estimate the impact of the independent variable *EMAQ* on the dependent variable *DM*. Our results confirm the hypothesis developed, showing that Italian non-SMEs with higher accruals quality (and less earnings management practices) have more likelihood of having long-term debt and the proportion of long-term debt in total debt increase with accrual quality. Therefore, our empirical evidence highlight that firms with higher accrual quality can obtain longer maturity of their debt than those firms with lower accrual quality.

Our findings are also consistent with previous studies, confirming that accounting quality reduces information asymmetry and adverse selection problems. Consequently, lenders are more inclined to contract long-term debt if the asymmetric information between them and firms is lower.

In this way, this paper offers several implications. First, this work contributes to the literature on Italy's financial system and non-SMEs by providing evidence in support of a negative association between earnings management practices and their debt maturity. Second, this study contributes to the earnings management studies, showing and highlighting its relevance and effect in long-term debt contracting. Third, this study is, to best of our knowledge, the first that shows the effect of accruals quality on debt maturity in Italy.

Then, this work has also policy implications. From our point of view, this work can be useful for managers and consultants when they have to plan the financial structure for the companies they work in. At the same time, these results can also assist lenders and creditors in their decision-making processes. Finally, this work may be also useful for policymakers when they set programs aimed to make easier access to external financing.

Finally, this work presents several limitations, one of which relates to the proxy used to measure earnings management practices. Here, we only use the model proposed by Dechow and Dichev (2002) to compute the independent variable *EMAQ*. In this vein, further studies may use different proxies in order to confirm the results provided. Additionally, we consider it desirable and interesting to carry out cross-countries analyses and between industries.

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