



Contracting debt and the quality of financial reporting in private firms

Contratando deuda y la calidad de la información financiera en firmas privadas

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Abstract

This study investigates whether the quality of firms' financial reporting is influenced by the contracting of debt, using data on Portuguese private firms from 2013 to 2015. More specifically, the study uses earnings smoothing, magnitude of absolute discretionary accruals, and timeliness of disclosure as proxies for financial reporting quality. I find that private firms which contract more debt exhibit higher levels of financial reporting quality. Additionally, firms that contract larger amounts of debt and with a good financial performance tend to exhibit lower quality financial reporting. The results provide strong evidence that private firms have an interest in camouflaging their performance in the presence of higher levels of bank debt.

JEL classification: M41; G32; G20.

Keywords: Private firms; Financial reporting; Bank debt; Discretionary accruals ;Timeliness.

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Resumen

Este estudio investiga si la calidad de la información financiera de las empresas se ve influenciada por el aumento de la deuda, utilizando los datos de las empresas privadas portuguesas de 2013 a 2015. Más concretamente, el estudio utiliza el alisamiento de los resultados, la magnitud de los ajustes discrecionales absolutos y la puntualidad de divulgación como medidas de calidad de informe financiero. Los resultados muestran que las empresas privadas que contratan más deudas presentan niveles más altos de calidad de informes financieros. Además, las empresas que contratan grandes cantidades de deuda y con un buen rendimiento financiero tienden a mostrar informes financieros de menor calidad. Los resultados proporcionan una fuerte evidencia de que las empresas privadas tienen interés en camuflar su desempeño en presencia de niveles más altos de deuda bancaria.

Códigos JEL: M41; G32

Palabras clave: Empresas privadas; Informe financiero; Deuda bancaria; Acreditaciones discrecionales; Puntualidad de divulgación.

Introduction

It is now widely recognized that access to finance fosters growth and competition and is therefore of the utmost importance for the economy, and for firms in particular. Private firms often find it difficult to raise debt or equity. The European Commission has gradually been working with financial institutions to improve the funding available to small and medium firms (SME) by stimulating the provision of loans and venture capital through financial instruments. European Union programs like Competitiveness of Enterprises and SMEs, Horizon 2020, European Structural and Investment Funds, and the Employment and Social Innovation program seek to boost lending and risk capital for SMEs (European Commission, 2015). Nevertheless, the private debt market remains a predominant source of new external funding for most private firms (Ding *et al.*, 2016).

The quality of publicly reported financial information of firms is relevant to the world economy as external users make decisions based on this information and depend on its accuracy. A large number of research studies have shown that firms exercise discretion in the preparation of financial statements and use accounting policies to affect earnings levels, with the main purpose of influencing financial reporting numbers. The extensive previous literature has focused on publicly listed companies and discussed the better earnings quality of these firms (Leuz *et al.*, 2003; Ball & Shivakumar, 2005; Francis *et al.*, 2005). While the quality of financial reporting and contracting debt has been studied in listed firms, limited research has been conducted on the financial reporting choices of private firms (Gassen & Fülbier, 2015).

The objective of the present study is to fill this gap by investigating whether financial reporting quality is influenced by the bank relationship in private firms. To this end, the empirical analysis was conducted in Portuguese private firms for 2013-2015. The Portuguese private firm is an interesting setting to study the influence of the lending relationship on financial reporting quality. My choice of the Portuguese context to examine medium-sized private firms with similar agency problems and similar reporting and disclosure rules is explained by the following three reasons. First, private firms are of great relevance to the Portuguese economy. More specifically, they form a large proportion, about 96%, of total businesses. Second, banking

debt is a predominant source of new external funding for most private firms. Finally, Portugal is classified as the country of civil-law origin with the highest ownership concentration (La Porta *et al.*, 1998).

I measure the lending relationship using the ratio of bank debt divided by total liabilities (Choi, 2007). I focus on three dimensions of financial reporting quality: (i) earnings smoothing, which is equal to the correlation between standard deviation in net income and the standard deviation in operation cash flow; (ii) absolute value of discretionary accruals estimated according to Dechow *et al.* (1995); and (iii) timeliness of disclosure proxied by the difference between the actual date of publication of the financial report and the mandatory date of disclosure.

I find strong and robust evidence that private firms contracting larger amounts of debt exhibit higher quality financial reporting. The results suggest that these firms conduct less earnings smoothing, report a lower level of absolute discretionary accruals, and the delay in disclosure of financial reporting is shorter. Controlling for other variables, the results show that as the contracting of debt increases, the quality of financial reporting improves significantly.

Findings also show that firms contracting larger amounts of debt and with a good financial performance tend to exhibit lower quality financial reporting. Private firms with these characteristics have an interest in camouflaging their performance, perhaps to avoid attracting competitors to the market or sector of activities.

This study makes several contributions to the literature. First, it contributes to the understanding of the relationship between contracting debt and financial reporting quality in the Portuguese context. Little is known about the lending relationship in European firms because most empirical evidence is based on the US (Bharath *et al.*, 2011; 2008). Second, whereas most literature addresses the lending relationship in listed firms, my focus is on the relationship between lending and financial reporting quality in private firms. I investigate medium-sized private firms where banking debt is a predominant source of new external funding. Finally, this study has practical implications for regulators, namely, it raises concern about the need for regulatory enforcement to improve the financial reporting quality in private firms.

The remainder of the study is organized as follows. The next section reviews previous literature about the lending relationship and financial reporting quality and presents our hypothesis. In the third section, we describe the data, variables and research method. The fourth section presents the descriptive analysis and regression results. Section five presents the conclusions of this study.

Related literature and hypothesis

The lending relationship is defined as a long-term implicit contract between a bank and its debtor. Due to information production and repeated interaction with the borrower over time, the bank accumulates private information and establishes close ties with the borrower (Ongena *et al.*, 2012). It is recognized in the literature that these ties allow the lending institution to provide certain benefits: reduction of asymmetric information, increased credit availability, and more efficient decisions if borrowers face financial distress (Boot & Thakor, 2000; Gassen & Fülbier, 2015).

In general, lenders will be concerned with the accuracy and reliability of the reported financial statements; in particular, it is important that a firm's earnings, assets, liabilities, and cash flows are reported accurately. However, it is difficult to measure and quantify shortcomings

when a firm has material weaknesses, because credit issues are usually only found in the details of the quantitative and qualitative analysis (Colquitt, 2007).

Debt contracts involve management, creditors, and shareholders. It is assumed that there is a two-fold relationship between contracting debt and financial reporting quality.

First, according to agency theory in the capital structure literature, contracted debt may lead to problems due to the divergence between the interests of shareholders and debtholders (Jensen & Meckling, 1976). Creditors are concerned about potential capital transfers from companies to shareholders, while managers are willing to favor the interests of shareholders to the disadvantage of creditors. The agency costs of debt can be mitigated by adjusting the properties of the debt contracts. The creditors would be able to modify and enforce debt contracts if they were granted the legal right to do so.

Additionally, large investors may also have more incentives to monitor managers (Jensen & Meckling, 1976; Shleifer & Vishny, 1986), reducing the agency costs of equity. The previous literature states that firms with higher contracted debt tend to disclose more information and have a higher level of accounting quality in order to reduce asymmetries and the agency costs of debt.

Moreover, proprietary costs theory developed by Verrecchia (1983) and Dye (1985) is based on the notion that managers take into account their concern about reputation and visibility and are likely to sense that the cost of supplying non-proprietary information to the public is minimal. This encourages managers to disclose more informative financial reporting in order to reduce the information asymmetry problem and, consequently, to decrease the cost of capital.

Second, debt can also have a negative influence on quality of earnings. Various agency conflicts between managers, owners and creditors can arise. Creditors secure their interests by designing contracts that limit a firm's ability to make decisions contrary to their interests. Broadly, debt contracts commonly contain covenants based on accounting numbers or ratios. Firms can modify the earnings reported when there are changes in accounting rules and principles, but debt covenants may include clauses that limit how the firm reports earnings (Smith, 1993). Studies show that firms manage earnings upward before the violation takes place. However, the findings depend on the level of financial distress in the sample of firms. Healthy firms that expect a permanent waiver do not manage earnings.

In this line, there is somewhat conflicting evidence from DeAngelo *et al.* (1994) and Sweeney (1994) on earnings management related to debt covenants. Both papers predicted that companies would engage in income-increasing behavior to avoid costly violation of debt covenants; there was no significant difference between the accrual behavior of companies with binding and nonbinding covenants. DeAngelo *et al.* (1994) provided some evidence that the more troubled companies with binding constraints had more negative accruals, but the accruals were related to inventory write-offs, which are probably a result of real problems and not discretionary decisions. In contrast, Sweeney (1994) found evidence that companies respond with more income-increasing accounting changes as they approach the violation of their debt covenants. Additionally, Dichev and Skinner (2002) uncovered unusual patterns in reported current ratios and net worth around the thresholds for these variables set in private debt agreements. Jaggi and Lee (2002) offered evidence that potentially reconciles the conflicting results. They found that some financially distressed companies use income-increasing discretionary accruals whereas others use income-decreasing discretionary accruals to manage earnings. By examining income smoothing, the study of Li and Richie (2016) provides evidence for whether income smoothing

enhances the quality of information disclosure, which can be further translated into a lower cost of debt. Authors also report that the effect of earnings smoothing on debt cost reduction is stronger in firms with more opaque information and greater distress risk. These studies were conducted for listed companies and the results on contracting debt and the quality of financial reporting are not conclusive.

Private firms often find it difficult to raise debt or equity due to the lack of promising assets. Compared to publicly listed firms that have access to both equity and debt financing, privately held firms do not have privilege to access capital in the equity markets. Hence, private held firms rely primarily on debt financing to satisfy their operational needs (Ding *et al.*, 2016). Most private businesses maintain a relationship with their commercial bank as it will facilitate their access and needed to financing (Berger & Udell, 1998; Berger *et al.*, 2011).

Empirical studies demonstrate that the lending relationship increases credit availability for private firms (Bharat *et al.*, 2011). More informative financial reporting is meant to improve access to financing. Hence, private firms are interested in maintaining a relationship with creditors and disclosing informative financial reporting. In this line, Kim *et al.* (2011) using a list of privately owned Korean firms, found evidence that private audited firms have a significantly lower cost of debt. In a more recent study, Chen *et al.* (2015) show that firms voluntarily adopting International Accounting Standards (IAS) increased their access to foreign banks, because the adoption of IAS leads to improved accounting information quality. Ding *et al.* (2016) explore the relationship between financial reporting quality and private held debt financing in China and found that better earnings quality increases private firms' access to debt financing and lowers their cost of debt.

Previous studies show that firms contracting higher debt generally have higher quality of financial reporting. Gassen and Fülbier (2015) investigate the relation between creditor financing and earnings smoothing for European private firms and found that leverage firms and firms with lower ownership concentration report lower smoothing, reflecting a higher quality of accounting numbers. In the same line, Bigus and Hillebrad (2017) found that financial reporting quality in private firms decreases as the number of banking relationships goes down. Additionally, the authors found that firms with fewer bank relationships publish their financial report later and are more likely to do so after the mandatory deadline.

Banks are likely to examine the financial report of borrowers because banks will compare with other sources of financing, and they will also evaluate the exposure of firms to higher risk of default (Chen *et al.*, 2011). Prior research suggests that better financial transparency mitigates information risk, and reduces the cost of debt. High quality financial reporting enables firms that contract debt to increase credit availability for private firms, and to assess the overall risk of the borrower when deciding whether to provide the loan. On the other hand, high quality accounting information helps creditors evaluate the borrower's ability to generate cash flow and to pay the loan.

In short, I test the following hypothesis:

Hypothesis: Private firms contracting a higher level of debt exhibit higher quality financial reporting.

Data, variables and methodology

Sample and data

The empirical study investigates medium-sized private Portuguese firms between 2013 and 2015. Portugal is classified as the country of civil-law origin with the highest ownership concentration (La Porta *et al.*, 1998). Additionally, the predominance of small and micro-sized companies is greater than the number of listed companies. This provides an interesting setting to investigate the influence of the lending relationship on financial reporting quality in private firms.

I focus on private firms because the agency problems that arise differ from those in public firms. Their controlling interests put them at a significant advantage over minority shareholders and could therefore provide greater opportunities for private rent extraction (Demsetz & Lehn, 1985). Additionally, financial reporting rules are different for private and public firms.

I focus on the medium-sized private firms using the criteria of total assets, sales and number of employees.² I do not include small private firms as the financial reporting requirements are much more simplified than for medium firms. Hence, the analysis concentrates on medium-sized private firms with similar agency problems and similar reporting and disclosure rules.

Data used to compute dependent and other independent variables are collected from the Amadeus Database and from each company's website. From the initial sample, I employ the following filters: first, I exclude finance industry firms because they operate in a highly regulated industry with different legal rules from those of other industries. Second, I delete firms with incomplete data to compute our dependent and independent variables. Third, I winsorized all variables at 1% and 99% percentile. The final sample is composed of a balanced panel of 540 firm-year observations in the three years (180 firms in each year).

Measurement of dependent variables

Following Bhattacharya *et al.* (2003), Leuz *et al.* (2003) and Bharath *et al.* (2008), and to capture different dimensions of the quality of financial reporting, I use earnings smoothing, earnings management and timeliness of disclosure.

Earnings smoothing. Leuz *et al.* (2003) state that managers of firms may use their discretion to report accounting numbers that offset economic shocks to a firm's operating cash flow, and this can affect the quality of financial reporting. That is, managers of firms may consider both a positive and negative cash flow shock to be unwelcome as it reveals the firm's actual performance.

Thus, I capture earnings smoothing as the correlation between the standard deviation in income before taxes and the standard deviation in operating cash flow (Burgstahler *et al.*, 2006; Dou *et al.*, 2013; Leuz *et al.*, 2003):

$$SMOOTH_{i,t} = \sigma(Net\ Income_{i,t}) / \sigma(CFO_{i,t})$$

² In accordance with Decree Law nr 158/2009, of 13 July, a medium-sized entity is understood to be one that has not exceeded two of the following three limits in the last three years: total assets of 20,000,000 euros, total sales of 40,000,000 euros and an annual average of 250 employees. Note that the criteria defining the limits for a medium entity in Portugal were altered on 1 January 2016; however, as the empirical analysis covers the period from 2013 to 2015, the criteria in force up to 2015 were applied.

Where, $\sigma(\text{Net Income}_{i,t})$ is the standard deviation of net income before taxes for firms i year t , divided by total of assets at the end of the year t ; $\sigma(\text{CFO}_{i,t})$ is the standard deviation of cash from operations for firm i year divided by total of assets at the end of the year t . In this model, the higher values correspond to little income smoothing and, consequently, better accounting quality.

Earnings management. Accruals are likely to capture evidence of earnings management because they reflect managers' accounting estimates and choices. Following Dechow *et al.* (1995), the magnitude of cross-sectional absolute discretionary accruals is calculated based on estimated abnormal accruals, where the latter are defined as total accruals minus estimated normal accruals.

I calculate total accruals (TA i,t) as follows³:

$$TA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta \text{Cash}_{i,t} + \Delta \text{STDEBT}_{i,t} - \text{DEPN}_{i,t}$$

Where, $\Delta CA_{i,t}$ is the change in current assets for firm i between year $t-1$ and year t ; $\Delta CL_{i,t}$ is the change in current liabilities for firm i between year $t-1$ and year t ; $\Delta \text{Cash}_{i,t}$ is the change in cash for firm i between year $t-1$ and year t ; $\Delta \text{STDEBT}_{i,t}$ is the change in debt in current liabilities for firm i between year $t-1$ and year t ; $\text{DEPN}_{i,t}$ is the depreciation and amortization expense for firm i , in year t . All numbers are scaled by average total assets for firm i , year $t-1$ ($A_{i,t-1}$).

Following Dechow *et al.* (1995), discretionary accruals are represented by the error term of the following equation, based on a cross-sectional estimation with at least 10 observations by industry and year cluster:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{(\Delta \text{REV}_{i,t} - \Delta \text{AR}_{i,t})}{A_{i,t-1}} + \alpha_3 \frac{\text{PPE}_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

Where $\Delta \text{REV}_{i,t}$ is the change in sales for firm i between year $t-1$ and year t ; $\Delta \text{AR}_{i,t}$ is the change in account receivables for firm i between year $t-1$ and year t ; $\text{PPE}_{i,t}$ is the gross amount of properties, plants and equipment for firm i year t ; $A_{i,t-1}$ is average total assets for firm i , year t and $t-1$. A higher magnitude of the cross-sectional absolute value of discretionary accruals (DA) indicates a greater level of earnings management, or lower accounting quality and vice-versa.

Timelines of disclosure. The timing of disclosure of financial reporting is another dimension of financial reporting quality. Timeliness refers to the need for accounting information to be presented in a timely manner to users so that it meets their decision making needs. Delaying the disclosure of the information reduces the value of that information (Hutton *et al.*, 2009). We measure timelines by DELAY, which is calculated as the number of days between the

³ Daske, Gebhardt, and McLeay (2006) and Dechow (1994) also use accounting provisions and tax payables to calculate total accruals. Since the Amadeus database generally lacks data on these variables, I have omitted these variables to calculate TA.

mandatory date for publishing the financial reporting and the actual date of its publication. The smaller the number of days' delay, the higher the level of financial reporting quality.

Measurement of independent variables

Contracting of debt. Previous literature uses several proxies to capture the lending relationship, namely: the number of banking relationships, duration of the relationship with a bank, the size of the largest financing portion (Ongena *et al.*, 2012; Bigus & Hillebrand, 2017; Choi, 2007; Bharath *et al.*, 2008). The Amadeus database has some limitations. For example, it does not include data on the banking relationships of Portuguese firms. Thus, in line with Choi (2007), I define the lending relationship by calculating the debt contraction variable (DEBT), which is the ratio of bank debt divided by total liabilities. In order to further validate results, I also use an alternative measure, high debt contraction (HIGH_DB) as the dummy variable that takes the value 1 for firms superior or equal to median contracting of debt and 0 otherwise. High levels of the debt contracting ratio (DEBT) indicate a lending relationship.

Control variables. The control variables that may also affect management manipulation are firm size (SIZE), frequency of reported negative earnings (LOSS), cash flow from operations (CFO), profitability (ROA), investment opportunity (GROWTH) and firm's risk (RISK). As a proxy for firm size (SIZE), I use the natural logarithm of annual total assets. I expect larger firms to have higher quality financial reporting; these firms have strong management and are concerned about reputation and visibility. Closer scrutiny by stakeholders can potentially reduce the managers' opportunities to exercise their accounting discretion in larger firms.

Negative earnings may induce managers to use more accruals to mitigate the impact of losses, and motivate them to use accounting discretion. As a control for negative earnings (LOSS), I use the dummy variable that takes the value 1 if the firm presented a net loss for the fiscal period and 0 otherwise. More incidences of loss may induce managers to use more accruals to mitigate the impact of the losses, which would negatively affect the quality of accruals (Francis *et al.*, 2004). I expect the quality of financial reporting to be lower in firms with more frequent losses.

Greater cash flow (CFO) indicates liquidity and more uncertainty in the operating environment. I measure this variable as the cash flow from operations scaled by beginning of year total assets. In a setting of greater uncertainty, managers need to use their judgment more often, so there is a higher probability of error estimation and poorer quality financial reporting (Francis *et al.*, 2004).

When firms have a strong economic performance, they face less pressing demands from stakeholders and this signals the presence of economic rents. These rents could proxy a rich investment opportunity that calls for additional external financing; it thus provides an incentive for better quality accounting numbers. A strong performance reduces the need and incentive to manipulate earnings (Cascino *et al.*, 2010). I measure economic performance as the return on assets (ROA) and expect firms with a better financial performance to have a higher quality financial reporting.

I control for a firm's growth opportunities by using annual sales growth (GROWTH). Although growth firms present more important investment opportunities, financing future investment implies a higher cost of capital. Therefore, growth firms have relatively strong incentives for accounting discretion, and this may help avoid increases in the cost of capital

(Sánchez-Ballesta & García-Meca, 2007). I expect firms with growth opportunities to have lower quality financial reporting.

I also considered the relationship between risk firms (RISK) and financial reporting quality, because riskier firms will have greater incentives to manipulate earnings in order to reduce the perception of risk (Warfield *et al.*, 1995) or to reduce the cost of equity capital. I control for RISK as the standard deviation of gross profit divided by lagged total assets. I expect that firms with higher risk to have lower quality of financial reporting.

Model

I explore the contracting of debt and financial reporting quality by estimating:

$$QUALITY_{i,t} = \beta_0 + \beta_1 DEBT_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LOSS_{i,t} + \beta_4 CFO_{i,t} + \beta_5 ROA_{i,t} + \beta_6 GROWTH_{i,t} + \beta_7 RISK_{i,t} + SIC_n + \gamma_t + \varepsilon_{i,t}$$

Where QUALITY stands for the financial reporting quality measures, defined in Table 1, for SMOOTH, DA, DELAY separately. I explore the principal model represented in equation (4) by estimation submodel (1), where QUALITY = SMOOTH, by estimation submodel (2), where QUALITY = DA, and by estimation submodel (3), where QUALITY = DELAY.

The main independent variable is DEBT, which represents the ratio of bank debt divided by total liabilities. SIZE is the natural logarithm of annual total assets. LOSS is the dummy variable that takes the value 1 if the firm presented a net loss for the fiscal period and 0 otherwise. CFO is the cash flow from operations scaled by total assets at the beginning of year. ROA is the return on assets. GROWTH is the annual sales growth. RISK is the standard deviation of gross profit divided by lagged total assets. SIC_n captures industry-fixed effects, γ_t is the year dummies and $\varepsilon_{i,t}$ is the error term. Table 1 shows the definition and measurement of all dependent and independent variables.

Table 1
 Definition of variables

Variable	Variable name	Variable Measurement
Earnings smoothing	SMOOTH	The correlation between the change in the operating income and the change in operating cash flow.
Earnings management	DA	The firm-level of the three-year absolute value of discretionary accruals estimates according to Dechow <i>et al</i> (1995).
Timeliness of disclosure	DELAY	The firm-level difference in days between the actual date on which the financial report was disclosed and the mandatory disclosure date.
Debt contracting	DEBT	The ratio of bank debt divided by total liabilities.
High debt contracting	HIGH_DB	The dummy variable with the value 1 for firms superior or equal to median contracting of debt and 0 otherwise.
Firm size	SIZE	The natural logarithm of a firm's total assets at the end of year.
Negative earnings	LOSS	The dummy variable that takes the value 1 if the firm represented a net loss for the fiscal period and 0 otherwise.
Liquidity	CFO	The cash flow from operations scaled by beginning of year total assets.
Profitability	ROA	Net income before taxes and interest expenses in the fiscal year divided by total assets at the start of fiscal year.
Sales growth	GROWTH	Change in a firm's total sales at the end of year over the three years.
Risk	RISK	The standard deviation of gross profit divided by lagged total assets.

Results

Descriptive statistics and correlations

Table 2 summarizes the descriptive statistics. Panel A illustrates the results obtained for financial reporting quality variables.

Table 2
 Descriptive statistics

Variable	Mean	Standard Deviation	10 th percentile	Median	90 th percentile
Panel A: Dependent variables					
SMOOTH	0.50	0.34	0.18	0.47	0.67
DA	0.05	0.04	0.01	0.04	0.07
DELAY	18	58	-50	20	60
Panel B: Main independent variables					
DEBT	0.57	0.29	0.10	0.59	0.80
HIGH_DB	0.48	0.52	0	1	1
Panel C: Control variables					
SIZE	8.56	2.06	5.76	6.68	10.20
LOSS	0.30	0.40	0.00	0.00	1.00
CFO	0.05	0.20	0.00	0.03	0.34
ROA	0.05	0.06	0.11	0.06	0.18
GROWTH	2.87	4.25	0.70	1.64	5.85
RISK	0.23	0.06	0.06	0.18	0.33

For a definition of variables, see Table 1.

The mean of earnings smoothing (SMOOTH) is 0.50 and the mean value of discretionary accruals (DA) is 0.05. All values are slightly higher than in private European firms (Cascino *et al.* (2010) reported 0.47 and 0.042 respectively for Italian firms; Gassen & Fülbier, 2015 reported 0.54 for European firms). The mean delay in firm disclosure of financial reporting is 18 days. This is a higher value than the mean reported in German firms (Bigus & Hillebrand, 2017). Panel B demonstrates the results for the debt contracting variables. The mean value of the proportion of bank debt (DEBT) is 0.57, which indicates that private medium firms are quite involved in banking relationships. The alternative variable of contracting high debt (HIGH_DB) presented a mean value of 0.48. Descriptive statistics for control variables are provided in Panel C. The mean values are: 8.56 for SIZE, 0.30 for LOSS, 0.05 for CFO, 0.05 for ROA, 0.05 for ROA, 2.87 for GROWTH and 0.22 for RISK. These values are consistent with previous studies (Bigus & Hillebrand, 2017; Cascino *et al.*, 2010; Sánchez-Ballesta & García-Meca, 2007).

Finally, Table 12 presents the pair-wise Pearson correlation among all continuous variables. Our first dependent variable, earnings smoothing (SMOOTH), is negatively correlated with the DEBT, SIZE, ROA and RISK variables. The second dependent variable, discretionary accruals (DA), is negatively associated with DEBT, SIZE and RISK variables. Finally, our third dependent variable, timeliness (DELAY) is negatively associated with DEBT, SIZE, CFO, ROA, GROWTH and RISK. This is consistent with prior research on earnings quality

providing evidence that higher leverage firms and profitable firms are more likely to reduce managers' opportunities to exercise their accounting discretion in these firms.

Table 3
 Pearson correlation matrix for continuous variables

	SMOOTH	DA	DELAY	DEBT	SIZE	CFO	ROA	GROWTH	RISK	VIF
SMOOTH	1									2.07
DA	0.367	1								2.40
DELAY	0.655	0.090	1							1.03
DEBT	-0.365***	-0.564***	-0.345**	1						4.76
SIZE	-0.654***	-0.653***	-0.236**	0.534	1					3.89
CFO	0.156	0.118	-0.127	-0.025	0.045	1				2.69
ROA	-0.191	0.222*	-0.054***	-0.665**	0.137*	0.367*	1			7.02
GROWTH	0.432*	0.211**	-0.365	0.024	0.462	0.010	0.453*	1		3.48
RISK	-0.037	-0.235	0.246	0.024	-0.536	0.137	-0.127	-0.06	1	1.00

As Table 3 show, there are no pairwise correlation coefficients in excess of 0.80, indicating that the threat of multicollinearity is limited. The highest coefficient represents the value – 0.665 between ROA and DEBT. However, we also conduct a formal test to ensure that multicollinearity is not present in our sample. In particular, we calculate the Variance Inflation Factor (VIF) for each independent continuous variable included in the estimated model. Kennedy (1992) suggests that a VIF greater than ten is indicative of problematic multicollinearity. As Table 12 shows, the highest VIF value is 7.02, which is well below 10 (i.e. the value indicating that multicollinearity might be present) (Kennedy, 1992). Therefore, we conclude that multicollinearity is not a problem in our sample.

Multivariate results

Tables 4 provides the results of estimations of the regression model for the total sample in this analysis. The parameters of equation (4) are estimated using the most appropriate methodology, pooled or panel data (fixed or random effects) regression, based on the results from the Breusch-Pagan and the Hausman tests. The Breusch-Pagan Lagrange Multiplier and the Hausman tests were conducted for each submodel separately in order to determine which type of regression - pooled, fixed effects or random effects - is more appropriate to describe the relationship between the earnings quality and the explanatory variables included in the equations (4). The Hausman test indicates no rejection of a null hypothesis (the significance is 0.06 for submodel 1, 0.87 for submodel 2 and 1.05 for submodel 3) and the Breusch-Pagan test shows rejection of a null hypothesis (the significance is 0.00 for three submodels), what indicates that the random effects is more appropriate for all submodels estimated for columns C1, C2 and C3.

The results of three submodels are presented: column C1 includes QUALITY = smoothing, column C2 includes QUALITY = discretionary accruals and column C3 includes QUALITY = timeliness. The results show that as the contracting of debt increases, the quality of financial reporting improves significantly. Reported regression results in column C1 demonstrate that the coefficient on DEBT is -0.103 at the 1% level, suggesting that firms contracting higher debt conduct less earnings smoothing. Results in column C2 demonstrate that the coefficient

on DEBT is -0.050 at the 1% level, suggesting that firms contracting higher debt report a lower level of absolute discretionary accruals. Reported regression results in column C3 demonstrate that the coefficient on DEBT is -20.10 at the 5% level, suggesting that firms contracting higher debt have a shorter delay, in days, of the disclosure of financial reporting. These findings are consistent with the arguments presented in support of the hypothesis as well as with previous studies that private firms with strong bank relationships exhibit higher levels of financial reporting quality (Bigus & Hillebrand, 2017; Gassen & Fülbier, 2015; Bharath *et al.*, 2008).

Table 4
 Estimated regressions of financial reporting quality

Variables	Predicted sign	(C1) SMOOTH	(C2) DA	(C3) DELAY
		Coef. (p value)	Coef. (p-value)	Coef. (p-value)
Intercept		0.017*** (5.60)	0.038*** (6.05)	48.45** (4.26)
DEBT	-	-0.103*** (3.07)	-0.050*** (3.83)	-20.10** (2.46)
SIZE	-	-0.028** (2.22)	-0.017*** (2.93)	-0.001** (2.08)
LOSS	+	1.89*** (3.24)	0.020 (0.146)	-1.892 (0.24)
CFO	+	0.172 (0.190)	0.350 (1.07)	32.45 (0.95)
ROA	-	0.17 (0.10)	0.012 (0.143)	-98.45*** (3.26)
GROWTH	+	0.002** (2.25)	0.003* (1.89)	-0.008 (0.041)
RISK	-	-0.25 (0.95)	-0.67 (0.52)	120.89 (0.56)
Industry effects		Included	Included	Included
Year effects		Included	Included	Included
N		540	540	380
Adj. R ²		0.12	0.11	0.08
F-stat. (P-value)		4.578 (0.000)	10.670 (0.000)	2.987 (0.000)

For a definition of variables, see Table 1.

*, ** and *** indicates significance at the 1%, 5% and 10% levels, respectively.

The results for the control variables are also interesting. Firm size (SIZE) is found to be significantly negative, which implies that larger firms disclose their information more often and therefore have less tendency to manipulate earnings. The coefficients are not significant for

either cash flow (CFO) or risk (RISK), suggesting that these two variables do not affect a firm's decision to smooth earnings, manipulate their accruals or delay the disclosure of financial reporting. The coefficient of profitability (ROA) is significant and negative for timeliness of disclosure, signifying that firms with higher profitability are less likely to delay the disclosure of financial information. The coefficient of the reporting of losses (LOSS) is significant and positive for earnings smoothing, suggesting that firms with higher losses tend to conduct more earnings smoothing. Finally, the significant and positive coefficient of firms growth (GROWTH) on smoothing and discretionary accruals suggests that firms with higher sales growth tend to smooth and manipulate earnings.

After taking the interaction variables into account, some important findings emerge. According to previous literature, loss firms reported aggressiveness of earnings and less informative financial reporting (Bharath *et al.*, 2011). Firms with a higher performance level report their earnings in a timely manner. Hence, I investigate whether the association between contracting debt and financial reporting quality depends on the characteristics of the borrowing firms. I take into account the risk variable (RISK), performance (ROA) and growth (GROWTH) and interact with DEBT in order to measure the marginal lending relationship and financial reporting quality. We estimated the regression model of financial reporting quality using interaction variables. The results are presented in Table 5.

Table 5
 Estimated regressions of financial reporting quality using characteristics of firms

Variables	Predicted sign	(C1) SMOOTH	(C2) DA	(C3) DELAY
		Coef. (p value)	Coef. (p-value)	Coef. (p-value)
Intercept		0.000*** (7.60)	0.001*** (10.05)	88.45*** (8.26)
ROA	-	0.12 (0.15)	0.20 (0.02)	87*** (2.96)
ROA_DEBT	-	0.028*** (3.278)	0.017 (0.08)	12* (1.95)
GROWTH	+	1.89*** (3.24)	0.020 (0.146)	-1.892 (0.24)
GROWTH_DEBT	+	0.172 (0.78)	0.350*** (3.07)	32.45 (0.95)
RISK	-	-0.17 (0.10)	-0.012 (0.143)	-98.45 (0.876)
RISK_DEBT	-	0.004 (0.476)	0.003 (0.890)	-0.008 (0.041)
Industry effects		Included	Included	Included
Year effects		Included	Included	Included
N		540	540	380
Adj. R ²		0.08	0.09	0.04
F-stat. (P-value)		3.853 (0.000)	8.029 (0.000)	2.536 (0.0002)

For a definition of variables, see Table 1.

*, ** and *** indicates significance at the 1%, 5% and 10% levels, respectively.

The coefficient of the interaction variable (ROA_DEBT) is significant and positive for timeliness of disclosure and earnings smoothing. These findings also show that firms contracting larger amounts of debt and with a good financial performance tend to exhibit lower quality financial reporting. Therefore, private firms with these characteristics have an interest in camouflaging their performance, perhaps to avoid attracting competitors to the market. The coefficient of the interaction variable (GROWTH_DEBT) is significant and positive for earnings management. These findings suggest that firms with a larger level of debt and higher growth tend to exhibit a lower quality of financial reporting.

Sensitivity analyses

I conduct several sensitivity tests to assess the robustness of the results reported. First, I confirm whether the results with panels corrected standard errors which allow for heteroscedasticity in the panel structure of my data. Secondly, I check whether the results of the models are robust to an alternative measure of contracting debt. I calculate the contracting high debt (High_DB) variable and estimate the research model of financial reporting quality. Untabulated analyses show that contracting high debt is significantly and negatively related to different measures of financial reporting quality, confirming my previous findings.

Conclusion

This study investigates whether the quality of firms' financial reporting is influenced by the contracting of debt, using data on Portuguese private firms from 2013 to 2015. I find strong and robust evidence that private firms contracting larger amounts of debt exhibit higher levels of financial reporting quality. The results suggest that these firms conduct less earnings smoothing, report a lower level of absolute discretionary accruals, and the delay in disclosure of financial reporting is shorter. Controlling for other variables, the results show that as the contracting of debt increases, the quality of financial reporting improves significantly.

I also investigate whether the association between contracting debt and financial reporting quality depends on the characteristics of the borrowing firms. Findings show that firms contracting larger amounts of debt and with a good financial performance tend to exhibit lower quality financial reporting. Private firms with these characteristics have an interest in camouflaging their performance, perhaps to avoid attracting competitors to the market. Additionally, findings also show that firms contracting larger amounts of debt and higher growth tend to exhibit higher level of earnings management, consequently, lower quality financial reporting.

There are several promising avenues for further research. The results of this study evidence that private firms contracting larger amount of debts exhibit higher quality of financial reporting. However, there are other external characteristics, for example, the state of the economy, that can influence quality of financial reporting of these firms. Empirical literature on this has argued that during recession periods, companies may experience more difficulties in contracting debt and that some of them become more leveraged (Lin *et al.*, 2014). Do the recession and expansion periods influence the quality of financial reporting in private firms? Further research might examine whether the relationships found in this study can be extended to other firms and periods.

Further research is clearly needed to capture incentives of earnings management through debt, governance, and country effects in private firms. For instance, it would be interesting

to further explore this relationship using a structural equation model, trying to combine the relationship of the dependent variables for the latent variable with the quality of financial reporting (Afiah & Rahmatika, 2014). Hence, building financial reporting quality models that capture the firm-level and country-level characteristics of private firms is both a challenge and an opportunity.

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