



Full length Article

Earnings management strategies during financial difficulties: A comparison between listed and unlisted French companies

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ARTICLE INFO

JEL Classification:

C26
M41
M48

Keywords:

Financial difficulties
Earnings management
Listed firms
Unlisted firms
Demand hypothesis
Opportunistic behaviour hypothesis

ABSTRACT

This paper investigates and compares the earnings management strategies of listed and unlisted firms during situations involving financial difficulties. The evidence from a sample of 6407 French non-financial entities from 2009 to 2016 shows that, in the presence of severe financial problems, both listed and unlisted entities exhibit income-increasing earnings manipulation carried out through real activities rather than discretionary accruals. The findings consistently reveal a more extensive use of income-increasing earnings management behaviours among listed firms compared to unlisted entities, especially in the presence of high levels of indebtedness. Thus, they provide full support for the “opportunistic behaviour” hypothesis about the earnings management behaviours of listed firms, at least in the context where firms are highly dependent on external debt and the institutional setting does not provide strong protection to creditors. Finally, the results indicate that, under such circumstances, entities trade off earnings manipulation strategies and define earnings management behaviours based on the probability of being detected, rather than looking at the cost of such earnings management tools.

1. Introduction

Over their lifetime, companies can experience a deterioration in their financial performance for a number of reasons: economic crises, increasing competition, bad management strategies etc. When financial difficulties persist, stakeholders may incur significant financial losses (Habib et al., 2013) and managers may observe a decrease in their performance-related salaries and suffer reputational damage (Liberty and Zimmerman, 1986; Gilson, 1989). Accordingly, there are reasons to believe that, in such circumstances, managers have incentives to take actions aimed at concealing real companies' performance deterioration by resorting to income-increasing earnings manipulation strategies (e.g., Franz et al., 2014).

Listed and unlisted companies, however, may have different reactions in terms of earnings management, given their difference in numbers and types of stakeholders (Ball and Shivakumar, 2005). Hope et al. (2013) highlight two competing hypotheses in relation to differences in the earnings management behaviours of listed and unlisted firms. The first, called the “demand” hypothesis, assumes that listed firms engage in lower earnings management practices than unlisted companies because they need to provide their numerous stakeholders with reliable financial information. The demand for better-quality information is also driven by the presence of higher agency costs due to the separation between ownership and control and to the regulations that limit private communication between listed entities and their stakeholders. On the other hand, the stakeholders of unlisted firms, which are typically banks and capital providers, have greater access to internal information and therefore rely less on institutional annual reports (Hope et al., 2013). Thus, the latter are more likely to be affected by taxation and dividend policies (Ball and Shivakumar, 2005). A second

E-mail address: dcampa@inseec.com.<https://doi.org/10.1016/j.ribaf.2019.07.001>

Received 22 October 2018; Received in revised form 1 July 2019; Accepted 5 July 2019

Available online 18 July 2019

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hypothesis, called the “opportunistic behaviour” hypothesis, instead states that listed firms have higher incentives than unlisted entities to manipulate earnings because of market and stakeholder pressure to meet earnings expectations as well as the presence of equity-based compensation (e.g., [Beatty et al., 2002](#); [Givoly et al., 2010](#); [Hope et al., 2013](#)).

Based on these premises, it would be interesting to investigate if any of these two competing hypotheses prevails during financially problematic situations. Indeed, all entities, listed and unlisted, experiencing severe financial situations have incentives to increase income opportunistically ([Franz et al., 2014](#)). However, the fact that listed firms have more and different stakeholders than unlisted ones, and given that their annual reports are widely available, should, on the one hand, decrease the incentives to manipulate earnings in any situation in order to consistently deliver high-quality financial information, in line with the “demand” hypothesis. On the other hand, listed companies could suffer worse consequences than unlisted entities if financial problems are revealed because of the bigger interests around such firms and the negative market reactions they may experience. Thus, in accordance with the “opportunistic behaviour” hypothesis, managers of listed entities may have even greater incentives than unlisted firms to conceal financial troubles through earnings manipulation practices.

Using a large sample of active French non-financial entities composed of 6407 different firms and 49,341 firm-year observations and data from 2009 to 2016, this paper investigates and compares earnings management behaviours and strategies of active listed and unlisted firms during situations involving financial difficulties.

The investigation into companies operating in France is relevant for the following reasons. Firstly, France is a country where entities use debt rather than equity as their main source of financing ([Plantin et al., 2013](#)). However, the access to external funds for firms in financial trouble is significantly limited because the French legal system affords very low levels of protection to creditors ([Plantin et al., 2013](#)). Thus, unlike other settings, such as the UK or Germany, which instead offer high levels of investor protection ([Leuz et al., 2003](#)), in France, lenders become more unwilling to finance entities that report evidence of financial deterioration ([Plantin et al., 2013](#)). This situation would potentially create stronger incentives for firms, in general, to engage in earnings manipulation strategies and for listed companies, in particular, to act in accordance with the “opportunistic behaviour” hypothesis. Secondly, firms that attract the attention of French authorities because of doubts about their financial viability may have severe consequences. [Baumgartner and Dupius \(2017\)](#) find that entering, in one way or another, into any type of insolvency proceeding in France means the end of life for 67.9% of companies. Thus, disclosing problematic financial situations can be very dangerous for entities operating in this country. Thirdly, [Saboly \(2001\)](#) acknowledges that too little research has been carried out on firms in financial difficulties in France, even though this country generates the third biggest GDP in the EU, according to statistics provided by the EU. She makes a first exploration of managers’ choices among companies in financial distress using a sample from the 1990s and three case studies. Accordingly, a study that uses a large sample, more recent data and a comparison between listed and unlisted firms is relevant for increasing the evidence in relation to this field of research.

The results of this study show that the level of firms’ financial difficulties is related to higher income-increasing earnings management carried out through real activity manipulation, rather than accrual manipulation among both listed and unlisted entities. Furthermore, they reveal a more extensive use of income-increasing earnings management behaviours among listed firms with deteriorated financial positions, compared to unlisted entities, especially in the presence of high levels of indebtedness.

The findings make several contributions. Firstly, they show that the severity of firms’ financial difficulties creates incentives for earnings manipulation in the case of both listed and unlisted firms. Secondly, they indicate that, in the presence of financial deterioration and high levels of indebtedness, listed companies manipulate earnings significantly more than unlisted entities. Thus, the results suggest that, in institutional settings which limit the access to credit to entities in financial difficulties, the “opportunistic behaviour” hypothesis dominates the “demand” hypothesis in relation to the differences in earnings manipulation practices between listed and unlisted firms. Accordingly, they are contrary to the findings suggesting that the earnings quality of listed firms is higher than that of unlisted entities ([Ball and Shivakumar, 2005](#)) and in line with those that indicate that earnings management behaviours are more pervasive among listed companies in comparison with unlisted firms in the presence of incentives for earnings manipulation ([Haga et al., 2018](#)). Thirdly, the evidence contributes to the debate about the trade-off between the use of accrual-based and real transaction manipulation, while consistently indicating that, during situations involving financial difficulties, the fear of being caught out pursuing earnings manipulation is more relevant than the cost of earnings management tools. In fact, at least in contexts where debt is the main source of funds, and where creditors are not protected by the law, entities manipulate earnings using real activity manipulation strategies, which are less detectable even if they may be costlier for firms ([Zang, 2012](#)).

The rest of the paper is organized as follows. Section 2 frames this study with regard to the extant literature and develops the hypotheses. Section 3 details the sample selection procedure, how the data are obtained and how the models are used to test the hypotheses. Section 4 presents and discusses the empirical results, as well as some additional tests. Finally, Section 5 concludes the paper, highlighting its main conclusions, contributions and limitations.

2. Background and hypotheses

2.1. Financial difficulties as an incentive for earnings manipulation

Situations involving financial difficulties are red flags for creditors and investors, as they may bear significant financial losses ([Habib et al., 2013](#)); for managers who may incur a decrease in performance-related salaries, a loss of reputation or even a loss of their job may occur ([Liberty and Zimmerman, 1986](#); [Gilson, 1989](#)). Accordingly, the financial accounting literature generally assumes that firms exhibiting weak financial performance have incentives to engage in income-increasing earnings management (e.g., [Dechow et al., 2010](#)). There are studies, for example, that indicate that firms use cash flow from operations and changes in working capital to

avoid reporting earnings declines and negative net income (e.g., Burgstahler and Dichev, 1997; Burgstahler and Eames, 2006). Other studies, however, investigate companies' behaviours looking at their performance in comparison with the benchmarks set by debt contracts and find evidence of income-increasing earnings manipulation among firms close to the violation of debt covenants (e.g., Dichev and Skinner, 2002; Franz et al., 2014), even in cases where this violation is not a signal of a firm's impending bankruptcy (e.g., Defond and Jiambalvo, 1994). Finally, other research investigates the extreme scenario of firms in technical default, i.e., in the case of subsequent bankruptcy. In this case, the literature is quite unambiguous about the earnings management behaviour of such companies. Rosner (2003) states that companies that file for bankruptcy try to conceal the signs of financial distress through income-increasing earnings management in the year before technical default. Beneish et al. (2012) find that, regardless of debt contracts, firms with signs of financial distress show a willingness to avoid litigation, which results in income-increasing strategies that start at least two years before a technical default. In line with this evidence, García Lara et al. (2009) find evidence that UK firms use income-increasing earnings manipulation strategies in the four years preceding bankruptcy. The latter finding is also supported by Campa and Camacho-Miñano (2014) in relation to a sample of Spanish unlisted firms involved in a bankruptcy procedure.

2.2. Financial distress and earnings manipulation strategies

The accounting literature recognizes two main methods of earnings management: accruals and real activities (e.g., Schipper, 1989). The former refers to the 'abuse' of practices allowed by generally accepted accounting principles (GAAPs) (Dechow and Skinner, 2000; Gunny, 2010) and concerns those items included in the annual report that are not directly correlated to immediate cash-flow movements, thus including a certain degree of estimation and judgement. This is the case, for example, with the estimation of provisions for bad debts or for other potential future costs arising from current events, estimations of depreciation and amortization and, in general, all those items that must be recorded in the annual report in accordance with the matching principle of expense recognition and the accounting concept of prudence.

Real activity manipulation, instead, refers to the implementation of business transactions involving the primary objective of influencing the company's reported performance. This means that these transactions may not necessarily reflect optimal economic decisions. Examples include the following: selling goods under unusually favourable conditions with the aim of inflating sales (regardless of whether part of the cash flow related to those sales may not flow to the entity in the future), overproduction with the aim of decreasing the cost of goods sold or cutting or delaying expenses, such as marketing, R&D and maintenance, in order to exhibit short-term income increases (Roychowdhury, 2006).

Both earnings management methods have pros and cons. Accrual manipulation is relatively simple to carry out; at the same time, it is easy to detect via monitoring bodies, such as auditors, who are in charge of assessing the reasonableness of companies' accounting choices (Zang, 2012). On the contrary, real activity manipulation is difficult to discover since it does not necessarily involve a departure from the accounting standards, while monitoring bodies are not in a position to judge the economic decisions of companies (Zang, 2012). However, real activity manipulation can be potentially costly for companies because carrying out transactions that are not optimal from an economic point of view have negative effects on future firm performance, liquidity and profitability (Bhojraj et al., 2009; Chen et al., 2009).

Preferring one method over the other, among firms experiencing financial problems, is not straightforward. Zang (2012) states that real activity manipulation is naturally costly for firms; indeed, it becomes even more costly during tough financial conditions since the marginal cost of deviating from optimal operating decisions, in this context, is higher. Accordingly, she suggests that firms with poor financial health should reduce the use of real activity manipulation and substitute it with higher levels of accrual-based earnings management. Haga et al. (2018) provide support for this claim among UK entities and also find that the tendency of firms in difficult financial positions to substitute real activity manipulation with accrual earnings management is stronger for listed entities than unlisted firms. This evidence is, however, not always supported by other studies which indicate, in general, that companies with severe financial problems increase earnings opportunistically through both accrual and real activity manipulation (e.g., García Lara et al., 2009; Campa and Camacho-Miñano, 2014). Furthermore, Campa and Camacho-Miñano (2015) find that Spanish unlisted firms with higher levels of financial distress manipulate earnings upwards using real activity manipulation, but not through discretionary accruals. They claim that, in the presence of complex financial situations, managers conceal firms' financial difficulties using the less detectable earnings management strategy, rather than focusing on the cost of earnings management tools.

2.3. Earnings manipulation among listed and unlisted firms

Earnings manipulation practices among listed and unlisted entities are not necessarily homogeneous. In one of the first papers comparing the financial reporting quality of listed and unlisted firms, Ball and Shivakumar (2005) state that unlisted entities exhibit higher earnings manipulation practices than listed firms. They claim that, since unlisted companies do not have access to capital markets and their financial statements are not widely distributed to the public, it is likely that their financial reporting is affected by dividend, retention and tax policies. Listed entities, instead, have to provide information to several stakeholders and, therefore, must produce high-quality financial information. The explanation described above is what Givoly et al. (2010) define as the "demand" hypothesis. Based on this perspective, listed firms are subject to natural information asymmetry because of their higher ownership dispersion and greater separation between ownership and control in comparison with unlisted entities (Hope et al., 2012). Thus, external stakeholders expect more reliable information. On the contrary, unlisted entities allow capital providers to access internal information and to have an active management role (Chen et al., 2011), such that they prepare their annual report mainly to comply with regulations (Ball and Shivakumar, 2005).

Looking at listed and unlisted firms from another perspective, however, the “opportunistic behaviour” hypothesis states that listed entities exhibit higher earnings manipulation practices than unlisted firms (Givoly et al., 2010). This hypothesis assumes that managers of listed firms may engage in earnings manipulation in order to conceal true performance from external parties in the presence of market pressure or missed financial targets (Graham et al., 2005), or to avoid declines in stock price (Hope et al., 2013). This type of pressure is absent among private firms; thus, the latter would have fewer incentives than listed entities to manipulate financial reports.

Investigating which of these two hypotheses prevails, Givoly et al. (2010) and Beatty et al. (2002) find that, in the US, the “opportunistic behaviour” hypothesis dominates the “demand” hypothesis, while, using the same setting, Hope et al. (2013) find support for the “demand” hypothesis. In the EU, the evidence indicates that unlisted firms have higher accrual manipulation and report losses on a less timely basis than listed companies (Ball and Shivakumar, 2005; Burgstahler et al., 2006). Haga et al. (2018) find that UK unlisted firms exhibit a lower earnings quality than listed entities but only in relation to accrual earnings management. In fact, they find that public firms engage with higher real activities manipulation than unlisted entities, especially in the presence of clear incentives to manage earnings, such as meeting earnings benchmarks.

2.4. Hypothesis development

The literature presented above shows that, in the presence of deteriorating financial positions, managers of both unlisted and listed firms have incentives to engage in income-increasing earnings manipulation in order to conceal true firm performance and postpone the negative consequences that these scenarios cause to firms. This may be especially relevant in countries such as France, where national law limits the access to external funds of firms with financial difficulties (Plantin et al., 2013). Furthermore, based on the above, the “opportunistic behaviour” hypothesis is expected to prevail over the “demand” hypothesis among listed firms in such circumstances. Accordingly, the first hypothesis is stated as follows:

HP1. Listed and unlisted firms with severe financial problems engage in income-increasing earnings manipulation, at least to the same extent.

Earnings can be manipulated using either accrual manipulation or real activity manipulation, or a combination of the two. Franz et al. (2014) and Campa and Camacho-Miñano (2015) observe a decrease in the use of income-increasing accruals and higher income-increasing earnings management through real activities during financial troubles. They claim that firms in weak financial conditions receive closer attention from stakeholders, including external auditors, thus making accrual manipulation a risky choice that may easily be detected. Hence, managers manipulate earnings using the less detectable strategy (i.e., real activity manipulation). Zang (2012) states, instead, that the choice between accrual and real activity manipulation depends on the cost to companies. She claims that entities in poor financial conditions would find real activity manipulation to be too expensive since the marginal cost of deviating from optimal business strategies would be too severe under these circumstances. Accordingly, she suggests that companies experiencing severe financial problems substitute real activity manipulation with accrual manipulation. Haga et al. (2018) compare the use of earnings manipulation practices between listed and unlisted firms in the UK and find support for Zang (2012)’s explanation. They find that, in the presence of higher levels of financial distress, companies limit the use of real activity earnings management while continuing to use accrual manipulation, and that this trend is stronger among listed firms.

Based on the latter evidence, which is derived from a comparison between listed and unlisted entities, the second set of hypotheses is stated as follows:

HP2a. Listed firms with severe financial problems engage in higher income-increasing accrual manipulation than unlisted firms.

HP2b. Listed firms with severe financial problems engage in lower income-increasing real activity manipulation than unlisted firms.

3. Methodology

3.1. Sample selection

The hypotheses presented in the previous section are tested on a sample of active non-financial companies, listed and unlisted, operating in France, which have been selected using the ORBIS database. The time series covers the period from 2009 to 2016, representing the oldest and most recent years available on ORBIS at the time of data collection.¹ To obtain a manageable number of observations and to make sure that there were not too many missing data, firms not filing annual reports and very small firms (i.e., companies with a turnover of less than 10 million euros) were excluded. After eliminating companies without the necessary data for the calculation of the variables used in the empirical analyses, the final sample consisted of 6407 different firms and a total of 49,341 firm-year observations, of which 217 firms and 1681 firm-year observations referred to listed entities while 6190 firms and 47,660 observations referred to unlisted companies.²

¹ The ORBIS database was last checked for updates in January 2018. At that time, it potentially had data from 2008 to 2017. However, data from 2017 were effectively absent for all the companies. The time series starts from 2009 because of the use of lagged values for the estimation of some of the variables used in the empirical analyses.

² The total number of firm-year observations is slightly lower than 51,256 (6,407 different firms over eight years, i.e., 2009–2016) since there were cases where a complete time series was not available.

3.2. Measuring the severity of firms' financial situation

This paper employs the traditional Altman Z-score and, in particular, given the structure of the sample, the version developed for unlisted companies, as the main proxy for firms' financial problems. The reasons for this choice are multiple. Firstly, this index does not require market data, so it is suitable for unlisted firms. Secondly, the Altman Z-score is not only used to predict bankruptcy but also deals with other types of financial difficulties (Altman et al., 2017); therefore, it investigates companies' financial health in a much broader way. Thirdly, the Z-score is accurate and generalizable. Altman et al. (2017) tested the performance of the Z-score using unlisted non-financial companies across all industrial sectors (i.e., a sample with similar characteristics to the sample employed in this paper) at an international level and provided evidence that it works especially well in the majority of the countries investigated, with a prediction accuracy of about 75%.

In accordance with Altman (2000), the Z-score is expressed by the following equation (1). It is estimated for every firm-year observation included in the sample:

$$Z = 0.717 * X1 + 0.847 * X2 + 3.107 * X3 + 0.420 * X4 + 0.998 * X5 \quad (1)$$

In the above equation: X1 is 'current assets less current liabilities divided by the total assets'; X2 is 'retained earnings divided by the total assets'; X3 is 'earnings before interest and taxes divided by total assets'; X4 is 'book value of equity divided by total liabilities'; and X5 is 'sales divided by total assets'.

The observations are divided into three groups in accordance with the discrimination zones set by Altman (2000): a Z-score lower than 1.23, which signals a situation of financial distress; a Z-score higher than 1.23 but lower than 2.9, which highlights a 'grey' area; and a Z-score greater than 2.9, which suggests a financially healthy situation. A distress index, *DISTRESS*, is generated which, starting from 0, increases in value as a firm becomes financially riskier. In particular, the variable *DISTRESS* takes a value of 0 for observations with a Z-score greater than 2.9, a value of 1 for observations exhibiting a Z-score between 1.23 and 2.9, and a value of 2 for Z-scores lower than 1.23.

3.3. Earnings management tools

3.3.1. Accrual manipulation

Accrual manipulation is proxied by the modified Jones model discretionary accruals adjusted for lagged performance (Ashbaugh et al., 2003; Kothari et al., 2005). This methodology is commonly used in accounting research because it deals with the presumed tendency of the original Jones (1991) model to include measurement errors from the discretion of revenue recognition (Bartov et al., 2001), while controlling for the firm's performance (Ashbaugh et al., 2003; Kothari et al., 2005).

The estimation of the discretionary accruals starts with the calculation of total accruals based on the following Formula (2):

$$TA_{it} = \frac{\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta STD_{it}}{A_{it-1}} \quad (2)$$

Variables are described in Appendix 1.

Total accruals are used as dependent variables in Model (3) below and estimated each year using all firm-year observations with the same two-digit SIC code:

$$TA_{it} = \beta_1 \left(\frac{1}{A_{it-1}} \right) + \beta_2 \frac{\Delta REV_{it}}{A_{it-1}} + \beta_3 \frac{PPE_{it}}{A_{it-1}} + \beta_4 ROA_{it-1} \quad (3)$$

Variables are described in Appendix 1.

Finally, the coefficient estimates from Model (3) are used to measure the expected non-discretionary accruals (NDA) controlling for performance and changes in account receivables:

$$NDA_{it} = \hat{\beta}_1 \left(\frac{1}{A_{it-1}} \right) + \hat{\beta}_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}} + \hat{\beta}_3 \frac{PPE_{it}}{A_{it-1}} + \hat{\beta}_4 ROA_{it-1}$$

Variables are described in Appendix 1.

Finally, discretionary accruals (DA) are the difference between total accruals (TA) and non-discretionary accruals (NDA).

3.3.2. Real activity manipulation

Real activity manipulation is investigated using sales manipulation. Indeed, previous studies find that revenue is usually the largest item subject to manipulation (e.g., Stubben, 2010), the most common accounting line restated (e.g., Palmrose and Scholz, 2004), the object of the main disputes between auditors and clients (Nelson et al., 2003) as well as the greatest manipulated item in recent accounting scandals, such as that of Parmalat (see Melis, 2005) or Gowex (see Gotham City Research, 2014). Other proxies for real activity manipulation used in the literature are production cost and discretionary expense manipulation. These have not been employed in this study exclusively because of a lack of data.³ Furthermore, the use of real activity strategies different from sales

³ The use of production cost manipulation and discretionary expense manipulation, as in Roychowdhury (2006), would also have significantly reduced the sample size. Indeed, the cost of goods sold would have been available for only 1,994 observations (4.81% of the total sample) and almost totally related to listed entities. Discretionary expenses are not provided by the ORBIS database.

manipulation may require additional resources which entities under tough financial conditions do not have, such as in the case of production cost manipulation (Campa and Camacho-Miñano, 2015).⁴

Sales manipulation consists of accelerating the timing of sales through unusual sales conditions or more convenient credit terms. These strategies have the effect of increasing the level of revenues, which, under positive margins, should boost current earnings. At the same time, they delay and/or reduce the corresponding operating cash flows. Accordingly, in line with Roychowdhury (2006), sales manipulation is investigated using the following cross-sectional regression (4), which is estimated each year using all firm-year observations with the same two-digit SIC code.

$$CFO_{it} = \alpha + \beta_1 \left(\frac{1}{A_{it-1}} \right) + \beta_2 \frac{REV_{it}}{A_{it-1}} + \beta_3 \frac{\Delta REV_{it}}{A_{it-1}} + \varepsilon_{it} \quad (4)$$

Variables are described in Appendix 1

Firm-level abnormal cash flow is obtained in the form of the residuals from Eq. (4). Lower levels of abnormal cash flow are evidence of higher income-increasing sales manipulation.⁵ Accordingly, to make the interpretation easier and consistent with the other proxy, the residuals of Eq. (4) are multiplied by -1 in order to obtain a continuous variable (*ABNCFO*) which increases with an increasing level of upward earnings manipulation.

The proxies for discretionary accruals (*DA*) and sales manipulation (*ABNCFO*) are also combined in a unique variable which measures the total level of earnings management, *TEM* (Franz et al., 2014; Haga et al., 2018).

3.4. Empirical model

The following regression (5) tests the relationship between earnings management tools and firms' level of financial severity, taking into account the listed/unlisted status of entities.

$$EM_{it} = \alpha + \beta_1 DISTRESS_{it} + \beta_2 LISTED_{it} + \beta_3 DISTRESS * LISTED_{it} + \beta_4 LEV_{it} + \beta_5 EISSUE_{it} + \beta_6 DISSUE_{it} + \beta_7 ROA_{it} + \beta_8 GROWTH_{it} + \beta_9 SIZE_{it} + \beta_{10} BIG4_{it} + \varepsilon_{it} \quad (5)$$

Variables are described in Appendix 1.

The coefficient β_1 explains the relation between the level of financial difficulties and earnings manipulation among unlisted firms (i.e., when the dummy variable *LISTED* is equal to 0). The coefficient β_3 represents the difference between the level of income-increasing earnings management among listed and unlisted firms in relation to the severity of their financial problems. The sum of β_1 and β_3 indicates the relation between firms' financial difficulties and income-increasing manipulation among listed entities. If HP1 was supported, β_1 and the sum of β_1 plus β_3 could be expected to be positive and significant, while β_3 would be expected to be insignificant if the dependent variable was the proxy for total earnings management. Indeed, this would be consistent with higher levels of income-increasing earnings manipulation, in the presence of increased signs of financial problems, among both listed and unlisted firms without any difference between these groups of firms.

In relation to HP2, if H2a was verified, β_3 would be expected to be positive and significant when Model (5) investigates accrual manipulation. In fact, this would suggest that, in the presence of more severe financial problems, listed companies use relatively more income-increasing accruals manipulation than unlisted entities. On the contrary, in accordance with H2b, β_3 can be expected to be negative and significant when the dependent variable of Model (5) uses the real activity manipulation proxy. Indeed, this would indicate that, when the severity of financial problems increases, listed companies use relatively less income-increasing real activity manipulation than unlisted entities.

In line with previous studies on earnings management, Model (5) above includes classic control variables such as size (Johnson et al., 2002), growth (Carey and Simnett, 2006), level of company debt (Dechow et al., 1995), issuance of debt and equity (Shan et al., 2013), profitability (Kothari et al., 2005) and the presence of a Big 4 audit firm (Francis and Wang, 2008).

The model includes industry and year dummy variables. The p-values are calculated using statistics estimated from robust standard errors clustered by firm. Finally, all continuous variables are winsorized at the first and 99th percentiles to avoid the results being biased due to the presence of outliers.⁶

⁴ According to Roychowdhury (2006), if companies increase the level of production, the fixed overheads are divided according to a larger number of units with a consequent reduction in fixed costs per unit. This will then reduce the reported cost of goods sold, thus increasing the operating profit. However, overproduction also means additional costs in terms of investments in raw materials, storage and safeguarding expenses, etc.

⁵ Lower levels of *ABNCFO* suggest higher levels of real activity manipulation. Indeed, a lower *ABNCFO*, given reported sales, indicates that fewer sales are converted into cash, which can be due to several means of increasing sales and thus profit: the concession of abnormal discounts to customers, premature sales recognition, more lenient credit terms etc. (Roychowdhury, 2006).

⁶ The variable *BIG4* may be limited in capturing audit quality differences in the sample since the great majority of firms investigated is composed of Big 4 clients. In an ideal scenario, it would have been better to use more accurate proxies for audit quality such as the presence of restatements, the issue of going concern opinions, the amount of audit fees or the amount of unexpected audit fees. However, given the massive presence of unlisted companies in the sample, the data for the estimation of the proxies mentioned above were not available.

Table 1
Descriptive statistics.

Panel A – Full sample						
	N.	Mean	Median	St. Dev	1 st Quartile	3 rd Quartile
TEM	49,341	−0.010	−0.003	0.207	−0.116	0.095
DA	49,341	−0.011	−0.010	0.126	−0.064	0.043
ABNCF0	49,341	0.000	0.009	0.136	−0.071	0.075
DISTRESS	49,341	0.794	1.000	0.666	0.000	0.000
LISTED	49,341	0.034	0.000	0.181	0.000	0.000
LEV	49,341	0.644	0.655	0.229	0.481	0.813
EISSUE	49,341	0.078	0.000	0.268	0.000	0.000
DISSUE	49,341	0.310	0.000	0.463	1.000	1.000
ROA	49,341	0.033	0.033	0.077	0.006	0.068
GROWTH	49,341	−0.001	0.015	0.170	−0.055	0.080
SIZE	49,341	10.771	10.456	1.193	9.879	11.357
BIG 4	49,341	0.818	1.000	0.386	1.000	1.000

Panel B – Unlisted versus listed firms						
	Unlisted firms			Listed firms		
	N.	Mean	Median	N.	Mean	Median
TEM	47,660	−0.009	−0.001	1681	−0.049***	−0.043***
DA	47,660	−0.010	−0.009	1681	−0.033***	−0.033***
ABNCF0	47,660	0.001	0.009	1681	−0.016***	−0.010***
DISTRESS	47,660	0.783	1.000	1681	1.108***	1.000***
LEV	47,660	0.646	0.658	1681	0.579***	0.589***
EISSUE	47,660	0.068	0.000	1681	0.366***	0.000***
DISSUE	47,660	0.304	0.000	1681	0.469***	0.000***
ROA	47,660	0.034	0.033	1681	0.023***	0.029***
GROWTH	47,660	−0.002	0.015	1681	0.018***	0.030***
SIZE	47,660	10.704	10.418	1681	12.680***	12.610***
BIG 4	47,660	0.814	1.000	1681	0.946***	1.000***

A description of the variables is given in Appendix 1.

4. Results and discussion

4.1. Descriptive statistics and univariate analyses

Table 1 presents the descriptive statistics for the variables used in the study.

Panel A of Table 1 shows that the majority of the sample (around 96.6%) is composed of unlisted entities. Companies are quite stable in terms of growth, probably because the sample includes financial crisis and non-financial crisis years and several sectors of the economy. The entities included in the sample finance their business mainly through external financing: around 8% issued new equity and 31% issued new debt. Companies have an average ROA of 3.3% and around 82% are Big 4 clients.

Panel B of Table 1 includes a comparison between listed and unlisted firms. The two groups of firms are generally different for all aspects investigated. Listed firms have a smaller income-increasing earnings management, but, on average, a more deteriorated financial situation than unlisted companies. Listed firms have a lower degree of leverage; in fact, they issue equity five times more frequently than unlisted companies. Listed firms also issue more debt and exhibit lower profitability and higher growth than unlisted entities. Finally, listed companies are, on average, bigger and use a Big 4 firm more often than unlisted firms.

A Pearson correlation matrix is reported in Table 2.

The table highlights a positive correlation between income-increasing total earnings management and sales manipulation and the level of financial problems ($\rho = 0.107$ and 0.264 , respectively; p -value = 0.000 in both cases) and a negative correlation between income-increasing discretionary accruals and the level of financial severity ($\rho = -0.110$; p -value = 0.000). This indicates that companies experiencing financial difficulties exhibit higher levels of income-increasing overall and real activity earnings manipulation, but lower levels of positive discretionary accruals. All of the proxies for earnings management are negatively correlated with the listed status of firms, thus indicating that listed companies show more limited income-increasing earnings management. The level of financial distress is positively related to company size, the listed status of firms and leverage, which suggests that bigger firms, listed entities and companies with higher levels of debt are more likely to experience financial problems. The level of financial difficulty is also directly related to the issuance of new debt and equity, indicating that firms with financial problems need to find additional resources by asking for funds either from shareholders or external lenders. Listed firms are more likely to show a deterioration in financial positions. Finally, the level of financial problems is negatively related to firm growth and profitability. The latter is somewhat intuitive since companies that struggle to generate enough wealth or entities that do not grow are more prone to experiencing financial issues.

Table 2
Pearson correlation table.

	TEM	DA	ABNCFO	DISTRESS	LISTED	LEV	EISSUE	DISSUE	ROA	GROWTH	SIZE
TEM											
DA	0.772***										
ABNCFO	0.810***	0.254***									
DISTRESS	0.107***	-0.110***	0.264***								
LISTED	-0.035***	-0.034***	-0.022***	0.089***							
LEV	0.118***	-0.068***	0.242***	0.426***	-0.053***						
EISSUE	0.031***	0.033***	0.018***	0.080***	0.202***	0.020***					
DISSUE	-0.008*	0.074***	-0.080***	0.060***	0.065***	0.034***	0.036***				
ROA	-0.267***	0.136***	-0.533***	-0.410***	-0.026***	-0.392***	-0.089***	-0.033			
GROWTH	-0.070***	0.020***	-0.126***	-0.082***	0.021***	0.011**	0.059***	0.027***	0.159***		
SIZE	-0.065***	-0.087***	-0.018***	0.254***	0.300***	0.028***	0.144***	0.058***	-0.029***	0.038***	
BIG 4	0.002	-0.000	0.004	0.006	0.062***	-0.001	0.016***	0.005	-0.002	-0.003	0.018***

Notes.

*, **, *** indicate that a coefficient is statistically significant at the 10%, 5%, and 1% level or better.

A description of the variables is given in Appendix 1.

Table 2 presents the several significant correlations between variables that are included in the regression models; therefore, only a multivariate analysis can provide statistically reliable evidence to test the hypotheses.⁷

4.2. Regression analysis

Table 3 presents the estimation of Model (5).

Column A presents the results for total earnings management. The coefficient β_1 is positive and significant at the 1% level ($\beta = 0.007$; p-value = 0.002), as is the sum of β_1 and β_3 ($\beta = 0.029$; p-value = 0.000). This indicates that companies with worse financial distress exhibit higher income-increasing earnings manipulation, regardless of whether they are listed or unlisted. The coefficient β_3 is positive and significant at the 5% level ($\beta = 0.022$; p-value = 0.025), which suggests that the extent of earnings manipulation behaviours, in the presence of severe financial difficulties, is higher among listed entities. This finding supports and goes beyond HP1, thus indicating that, on average, income-increasing earnings manipulation practices are more pervasive among firms experiencing financial problems, and, during such situations, the extent of income-increasing earnings management behaviours of listed firms is higher than that of unlisted entities. Accordingly, it provides evidence to fully support the “opportunistic behaviour” hypothesis, which states that, in the presence of incentives for earnings manipulation, listed entities have stronger motivations to engage with earnings management practices than unlisted firms.

The coefficient β_2 is negative and significant, which suggests that listed firms exhibit, under normal circumstances, less income-increasing earnings manipulation than unlisted entities.

Column B focuses on accrual manipulation. The coefficient β_1 is negative and significant at the 1% level ($\beta = -0.009$; p-value = 0.000), providing evidence that unlisted companies with higher levels of financial problems exhibit lower income-increasing discretionary accruals than safer entities. This is consistent with the findings reported by Pryshchepa et al. (2013), who suggest that firms identified as distressed exhibit more conservative accounting policies (i.e., less income-increasing accrual earnings manipulation) because income-increasing accrual manipulation would likely be detected, given the higher levels of monitoring experienced by such entities. The coefficient β_3 is positive and significant at the 10% level ($\beta = 0.007$; p-value = 0.083), suggesting that the trend highlighted above for β_1 is attenuated among listed firms and that, during deteriorating financial situations, listed firms used relatively more income-increasing accruals than unlisted firms. This result supports HP2a and the findings reported by Haga et al. (2018) indicating that listed firms, in the presence of higher levels of financial difficulties, manipulate accruals more than unlisted entities. It also supports the “opportunistic behaviour” hypothesis, which assumes higher earnings management behaviours among listed firms in the presence of situations that may push companies to engage in such practices. The sum of β_1 and β_3 is, however, not significant (p-value = 0.667), suggesting that, among listed firms, the level of discretionary accruals is not affected by the health of their financial position.

The coefficient β_2 is again negative and significant, thus indicating that listed entities show lower levels of income-increasing earnings manipulation than unlisted companies in the absence of financial problems.

Finally, Column C looks at real activity manipulation. Results are in line with those reported in Column A. The coefficient β_1 is positive and significant at the 1% level ($\beta = 0.016$; p-value = 0.000) as well as the sum of β_1 and β_3 ($\beta = 0.031$; p-value = 0.000). This supports HP1 and indicates that companies with higher levels of financial distress, both listed and unlisted, exhibit higher income-increasing earnings management. The coefficient β_3 is positive and significant at the 5% level ($\beta = 0.015$; p-value = 0.042), suggesting that the extent of real activity manipulation, in the presence of financial problems, is higher among listed entities. This result does not support HP2b and the findings indicating that, in the presence of deteriorated financial situations, firms, especially

⁷ A diagnostic test for multicollinearity through the estimation of the variance inflation factor (VIF) coefficients for all regressions was carried out. The VIF coefficients are always below the threshold of 10 (Kennedy, 2008), suggesting that multicollinearity does not affect the analyses.

Table 3
Earnings manipulation and financial distress among unlisted and listed firms.

Dependent variable	TEM (A)	DA (B)	ABNCF(C)
Intercept	−0.192 (0.373)	−0.167 (0.278)	0.075*** (0.000)
DISTRESS	0.007*** (0.002)	−0.009*** (0.000)	0.016*** (0.000)
LISTED	−0.050*** (0.000)	−0.020*** (0.000)	−0.030*** (0.001)
DISTRESS*LISTED	0.022** (0.025)	0.007* (0.083)	0.015** (0.042)
LEV	0.010* (0.086)	−0.006 (0.101)	0.015*** (0.000)
EISSUE	0.019*** (0.000)	0.028*** (0.000)	−0.010*** (0.000)
DISSUE	−0.004** (0.049)	0.024*** (0.000)	−0.029*** (0.000)
ROA	−0.690*** (0.000)	0.195*** (0.000)	−0.0888*** (0.000)
GROWTH	−0.042*** (0.000)	−0.006 (0.249)	−0.028*** (0.000)
SIZE	−0.012*** (0.000)	−0.008*** (0.000)	−0.004*** (0.000)
BIG4	0.002 (0.357)	0.001 (0.719)	0.002 (0.190)
DISTRESS + DISTRESS*LISTED	0.029*** (0.000)	−0.002 (0.667)	0.031*** (0.000)
Observations	49,341	49,341	49,341
R-Squared	0.086	0.043	0.309
F-stat	56.20***	23.75***	293.86***
Year and Industry dummies	Yes	Yes	Yes

Notes.

For clarity, year-specific and industry-specific intercepts are omitted. *, **, *** indicate that a coefficient is statistically significant at the 10%, 5%, and 1% level or better. P-values calculated from standard errors clustered by firm.

A description of the variables is given in Appendix 1.

listed entities, decrease the use of real activity manipulation (Zang, 2012; Haga et al., 2018); but, once again, this fully supports the “opportunistic behaviour” hypothesis, which predicts more extensive earnings management behaviours among listed entities, compared to unlisted firms during situations that create incentives for manipulating earnings.

Overall, it is important to highlight three main observations from this analysis. Firstly, situations involving financial difficulties concern managers to such an extent that they make income-increasing earnings manipulation decisions, regardless of whether firms are listed or unlisted. Secondly, the findings fully and consistently support the “opportunist behaviour” hypothesis concerning the earnings management behaviours of listed firms. In fact, the results indicate that the coefficient associated with the variable *LISTED* is always negative and significant, thus indicating that, in the absence of incentives for earnings manipulation, listed firms have lower earnings management (i.e., better earnings quality). However, the interaction *DISTRESS*LISTED* is positive and significant in every column of Table 3, which indicates that, in the presence of signal of financial problems, listed firms engage in higher income-increasing accrual and real activity manipulation behaviours compared to unlisted entities. Finally, the results do not support the conclusions of Haga et al. (2018) and Zang (2012), who state that companies trade off accrual and real activity manipulation strategies based on the cost of such tools and that firms with deteriorated financial situations, especially the listed ones, reduce real earnings management in favour of accrual manipulation because the former becomes too costly. On the contrary, the results from this study indicate that entities seem to be aware that the disclosure of financial problems puts them under the spotlight of several stakeholders; therefore, they manipulate earnings using the strategy that it is easier to implement and less likely to detect, i.e., real activity manipulation, while they do not engage in any income-increasing accrual manipulation (Franz et al., 2014; Campa and Camacho-Miñano, 2015). Accordingly, the evidence suggests that, at least in contexts where firms are highly dependent on debt and the law penalizes the access to credit to firms in financial trouble, earnings manipulation strategies are chosen, based on the probability of being detected rather than on their cost.

4.3. Additional tests

4.3.1. The impact of the level of firms' indebtedness

The level of companies' debt may affect the behaviours of entities in situations involving financial difficulties. Indeed, borrowing from whatever external source, in the absence of any change in equity, increases the risk for investors (Hamada, 1972). Accordingly, when the exposure of firms to debt is already significant, lenders may reflect the increased company risk into interest rates, while other lenders may even refuse providing additional credit (Baxter, 1967). To investigate whether the level of indebtedness affects

earnings manipulation behaviours of firms, the sample has been partitioned in high-leveraged and low-leveraged firms based on the median level of industry-specific indebtedness; further, Model (5) has been estimated on these two sub-samples. Results are reported in Table 4.

Panels A and B in Table 4 focus on firms with levels of debt below and above the industry median, respectively. Column A analyses total earnings manipulation. In Panel A, the coefficient β_1 is positive and significant at the 1% level ($\beta = 0.017$; p-value = 0.000), while it is not significant in the same column of Panel B (p-value = 0.349). A test of the coefficients also shows that they are significantly different at the 1% level (p-value = 0.001). This indicates that unlisted firms offer evidence and a higher extent of income-increasing earnings manipulation only when they have lower levels of leverage. This may be due to the fact that, in those cases, there is room to attract new funds that can be used to overcome such difficult times or because, when the level of debt is too high, the monitoring activity of creditors becomes so important that unlisted firms do not engage in earnings manipulation practices. As far as listed firms are concerned, in Column A, the sum of β_1 and β_3 is not significant in Panel A (p-value = 0.113), while it is positive and significant at the 1% level in Panel B ($\beta = 0.041$; p-value = 0.004) of Table 4. Furthermore, the latter coefficient is significantly higher than the former (p-value = 0.091). Contrary to the evidence from unlisted entities, the results indicate that listed companies engage in significant income-increasing earnings manipulation practices when their level of indebtedness is higher than the normal level of the industry in which they operate. This is in line with the “opportunistic behaviour” hypothesis which highlights a higher level of earnings manipulation among listed firms in the presence of factors that create incentives to carry out such practices, such as financial problems and a significant exposure to debt in this case.

Column B of Table 4 focuses on accrual manipulation. In both Panels A and B, the coefficient β_1 is negative and significant ($\beta = -0.008$; p-value = 0.000 and $\beta = -0.009$; p-value = 0.000, respectively); nor is there a significant difference between the two panels (p-value = 0.567). In accordance with the main analyses, this evidence indicates that, during episodes of financial difficulties, unlisted companies use more conservative accounting policies (Pryshchepa et al., 2013), regardless of their level of debt. The sum of β_1 and β_3 is not significant, either in Panel A (p-value = 0.103) or B (p-value = 0.324) of Table 4. This indicates that listed companies do not engage in income-increasing accrual manipulation in the presence of severe financial conditions, regardless of their level of indebtedness. However, the sum of β_1 and β_3 becomes significantly bigger for companies with higher levels of debt (p-value = 0.066), thus showing a significantly relative growth of income-increasing accruals among firms with high levels of debt.

Column C in Table 4 investigates real activity manipulation. The coefficient β_1 is positive and significant at the 1% level in both panels ($\beta = 0.025$; p-value = 0.000 and $\beta = 0.012$; p-value = 0.000, respectively), which indicates income-increasing real activity manipulation in the presence of severe financial difficulties, regardless of the level of debt. However, the coefficient reported in Panel A is significantly bigger than the same coefficient in Panel B at the 1% level (p-value = 0.000), which provides evidence that income-increasing earnings manipulation practices of unlisted firms are amplified when firms have lower levels of debt, in accordance with the findings from Column A. As far as listed firms are concerned, the sum of β_1 and β_3 is positive and significant at the 1% level, in both Panels A ($\beta = 0.030$; p-value = 0.001) and B ($\beta = 0.034$; p-value = 0.001) of Table 4, while the difference between these coefficients is not significant (p-value = 0.728). This evidence indicates similar levels of income-increasing real activity manipulation behaviours of listed companies, regardless of their level of indebtedness.

Finally, the coefficient β_3 is never significant in Panel A, while it is always positive and significant in Panel B of Table 4. This indicates that listed firms with a significant degree of financial leverage exhibit higher levels of income-increasing earnings management, in any form, in comparison with unlisted companies.

Overall, this analysis reveals that, among unlisted firms, the extent of income-increasing manipulation is higher for entities with lower levels of debt. This result may seem counterintuitive but is in line with the main findings of this research: during financial problems, the main concern of firms is not to get caught. Indeed, financial troubles put companies under the spotlight of several stakeholders, especially in the presence of a significant amount of debt and in a setting where lenders have strong incentives to closely monitor firms to whom they have given funds, given the low protection afforded by local institutions (Pryshchepa et al., 2013). This higher level of monitoring may act as a deterrent for unlisted firms to make use of earnings manipulation extensively, even in the form of real activity earnings management, which is the least detectable earnings management strategy (Zang, 2012). On the other hand, listed firms, in the presence of a financial deterioration, show relatively higher levels of income-income earnings manipulation practices than unlisted entities, in particular, when their level of indebtedness is high. This result is again in accordance with the “opportunistic behaviour” hypothesis, which states that, in situations of pressure, listed entities have more incentives than unlisted firms to engage with earnings manipulation. Finally, this analysis confirms that, at least during financial problems and in an institutional setting which affords low levels of protection to creditors, companies trade off earnings manipulation strategies based on the probability of being detected, rather than looking at the cost of such earnings management tools. Thus, all firms with tough financial positions exhibit significant income-increasing earnings manipulation practices, but only in the form of real activity manipulation.

4.3.2. Alternative proxies for financial distress and discretionary accruals

To increase the reliability of the findings discussed in the main analyses, Model (5) is re-estimated using two alternative proxies for financial difficulties, which are also suitable for unlisted companies. Firstly, the raw values of the Z-score (*ALTMAN_Z-SCORE*) calculated from Formula (1) have been used in place of the variable *DISTRESS*. In this case, it is important to emphasize that higher values of the Z-score refer to lower levels of financial problems.

The second proxy is a dummy variable, which takes the value of 1 if the ratio between the operating profit and the interest expenses is lower than 1, in line with the methodology developed by Fich and Slezak (2008). This proxy assumes that, when an entity cannot generate an operating profit large enough to cover its interest expenses, it could soon be defaulting on its debt. The fact that

Table 4
Earnings manipulation and financial distress: the impact of indebtedness.

PANEL A – Firm-year observations below industry-median indebtedness			
Dependent variable	TEM (A)	DA (B)	ABNCFO (C)
Intercept	– 0.500*** (0.000)	– 0.288*** (0.000)	0.072*** (0.000)
DISTRESS	0.017*** (0.000)	– 0.008*** (0.000)	0.025*** (0.000)
LISTED	– 0.034** (0.025)	– 0.013* (0.054)	– 0.022** (0.037)
DISTRESS*LISTED	0.002 (0.856)	– 0.002 (0.746)	0.005 (0.593)
LEV	– 0.045*** (0.000)	– 0.023*** (0.000)	– 0.023*** (0.003)
EISSUE	0.003 (0.547)	0.025*** (0.000)	– 0.023*** (0.000)
DISSUE	– 0.003 (0.342)	0.015*** (0.000)	– 0.018*** (0.000)
ROA	– 0.810*** (0.000)	0.177*** (0.000)	– 0.990*** (0.000)
GROWTH	– 0.052*** (0.000)	– 0.000 (0.967)	– 0.042*** (0.000)
SIZE	– 0.011*** (0.000)	– 0.009*** (0.000)	– 0.002** (0.017)
BIG4	0.002 (0.513)	0.002 (0.329)	0.000 (0.845)
DISTRESS + DISTRESS*LISTED	0.019 (0.113)	– 0.010 (0.103)	0.030*** (0.001)
Observations	24,674	24,674	24,674
R-Squared	0.108	0.038	0.333
F-stat	37.37***	12.30***	156.28***
Year and Industry dummies	Yes	Yes	Yes
PANEL B – Firm-year observations above industry-median indebtedness			
Dependent variable	TEM (A)	DA(B)	ABNCFO(C)
Intercept	– 0.120 (0.638)	– 0.163 (0.396)	0.086*** (0.000)
DISTRESS	0.003 (0.349)	– 0.009*** (0.000)	0.012*** (0.000)
LISTED	– 0.063*** (0.002)	– 0.028*** (0.002)	– 0.034** (0.012)
DISTRESS*LISTED	0.038*** (0.008)	0.016** (0.015)	0.022** (0.029)
LEV	0.038** (0.011)	– 0.000 (0.978)	0.038*** (0.000)
EISSUE	0.033*** (0.000)	0.031*** (0.000)	0.001 (0.742)
DISSUE	– 0.005 (0.108)	0.033*** (0.000)	– 0.038*** (0.000)
ROA	– 0.562*** (0.000)	0.215*** (0.000)	– 0.779*** (0.000)
GROWTH	– 0.033*** (0.004)	– 0.010 (0.206)	– 0.017*** (0.003)
SIZE	– 0.015*** (0.000)	– 0.008*** (0.000)	– 0.007*** (0.000)
BIG4	0.002 (0.485)	– 0.001 (0.737)	0.003* (0.093)
DISTRESS + DISTRESS*LISTED	0.041*** (0.004)	0.007 (0.324)	0.034*** (0.001)
Observations	24,667	24,667	24,667
R-Squared	0.065	0.049	0.255
F-stat	20.74***	15.42***	104.04***
Year and Industry dummies	Yes	Yes	Yes

Notes.

For clarity, year-specific and industry-specific intercepts are omitted. *, **, *** indicate that a coefficient is statistically significant at the 10%, 5%, and 1% level or better. P-values calculated from standard errors clustered by firm.

A description of the variables is given in Appendix 1.

Table 5
Earnings manipulation and financial distress: alternative estimations of financial distress.

PANEL A – Raw values of the Altman (2000) Z-score			
Dependent variable	TEM (A)	DA(B)	ABNCFO (C)
Intercept	–0.185 (0.394)	–0.187 (0.225)	0.104*** (0.000)
ALTMAN_ZSCORE	–0.002* (0.051)	0.005*** (0.000)	–0.008*** (0.000)
LISTED	0.013 (0.421)	–0.002 (0.751)	0.015 (0.220)
ALTMAN_ZSCORE *LISTED	–0.020** (0.017)	–0.005* (0.067)	–0.015** (0.020)
LEV	0.012** (0.047)	–0.005 (0.148)	0.016*** (0.000)
EISSUE	0.019*** (0.000)	0.028*** (0.000)	–0.010*** (0.000)
DISSUE	–0.004** (0.046)	0.024*** (0.000)	–0.029*** (0.000)
ROA	–0.694*** (0.000)	0.191*** (0.000)	–0.888*** (0.000)
GROWTH	–0.042*** (0.000)	–0.006 (0.277)	–0.029*** (0.000)
SIZE	–0.012*** (0.000)	–0.008*** (0.000)	–0.004*** (0.000)
BIG4	0.002 (0.360)	0.001 (0.721)	0.002 (0.192)
ALTMAN_ZSCORE + ALTMAN_ZSCORE *LISTED	–0.022*** (0.008)	0.000 (0.903)	–0.023*** (0.000)
Observations	49,341	49,341	49,341
R-Squared	0.086	0.044	0.309
F-stat	56.20***	23.60***	268.57***
Year and Industry dummies	Yes	Yes	Yes

PANEL B – Fich and Slezak (2008) indicator			
Dependent variable	TEM(A)	DA(B)	ABNCFO(C)
Intercept	–0.201 (0.348)	–0.158 (0.309)	0.066*** (0.000)
DISTRESS_FS	0.015*** (0.000)	–0.004* (0.064)	0.010*** (0.000)
LISTED	–0.026*** (0.000)	–0.009 (0.170)	–0.013*** (0.001)
DISTRESS_FS*LISTED	0.015 (0.325)	–0.004 (0.583)	0.010 (0.344)
LEV	0.016*** (0.006)	–0.014*** (0.000)	0.029*** (0.000)
EISSUE	0.020*** (0.000)	0.028*** (0.000)	–0.009*** (0.000)
DISSUE	–0.004* (0.061)	0.024*** (0.000)	–0.028*** (0.000)
ROA	–0.703*** (0.000)	0.217*** (0.000)	–0.923*** (0.000)
GROWTH	–0.043*** (0.000)	–0.004 (0.424)	–0.031*** (0.000)
SIZE	–0.012*** (0.000)	–0.009*** (0.000)	–0.002*** (0.001)
BIG4	0.002 (0.381)	0.000 (0.741)	0.002 (0.205)
DISTRESS_FS + DISTRESS_FS*LISTED	0.030*** (0.003)	–0.008 (0.212)	0.020** (0.049)
Observations	49,341	49,341	49,341
R-Squared	0.086	0.042	0.363
F-stat	56.19***	22.44***	264.87***
Year and Industry dummies	Yes	Yes	Yes

Notes.

For clarity, year-specific and industry-specific intercepts are omitted. *, **, *** indicate that a coefficient is statistically significant at the 10%, 5%, and 1% level or better. P-values calculated from standard errors clustered by firm.

A description of the variables is given in Appendix 1.

this proxy is not a score, but comes from a financial ratio, also helps in addressing the concern that distress indicators derived from scores might be ambiguous and lead to spurious results (Grice and Ingram, 2001).

The estimation of Model (5) using these additional proxies for deteriorated financial positions is reported in Table 5.

In both panels, the evidence is predominantly in line with the main findings. More precisely, in Panel A, the coefficient β_1 and the sum of β_1 and β_3 are negative and significant in Columns A and C. As mentioned above, higher values of the Z-score indicate healthier financial situations; therefore, these results indicate higher levels of total earnings management and higher levels of real activity manipulation among firms with more severe financial situations (i.e., those with a lower Z-score). The coefficient β_3 is also negative and significant in both columns, indicating higher levels of earnings management behaviours among the listed firms.

In Column B, the coefficient β_1 is positive and significant, while the sum of β_1 and β_3 is not significant. In accordance with Table 3, this indicates lower levels of income-increasing accrual manipulation among unlisted firms with significant financial problems, while the level of discretionary accruals is not associated with the level of financial difficulties among listed firms. Consistent with the other columns, the coefficient β_3 is negative and significant, thus highlighting a relatively bigger use of income-increasing accrual manipulation in the presence of severe financial problems among listed firms.

In Panel B, similar conclusions are reported based on the Fich and Slezak (2008) indicator with the exception that the coefficient β_3 is not significant in any column, thus indicating the absence of any difference between listed and unlisted entities in terms of earnings management behaviours and strategies during financially problematic situations.

Model (5) has been re-estimated using alternative proxies for accrual earnings management. More specifically, discretionary accruals, based on the Jones (1991) model, the Dechow et al. (1995) model, and raw values for total accruals, have been used instead of the modified Jones (1991) model adjusted for lagged performance (Kothari et al., 2005). The results (not tabulated for reasons of space) are exactly in line with those reported in Table 3.

5. Conclusions

Persistent situations involving severe financial problems are a matter of concern for stakeholders as they may incur significant financial losses (Habib et al., 2013), as well as for managers who might suffer both financial and reputational damage (Liberty and Zimmerman, 1986; Gilson, 1989). Accordingly, entities may experience unusual income-increasing practices which seek to conceal, or at least postpone, the disclosure of companies' real performance deterioration (e.g., Franz et al., 2014).

This paper has investigated and compared the earnings management behaviours of listed and unlisted firms during situations involving financial difficulties in the context of France, in turn identifying a low level of protection for stakeholders in general, and lenders in particular. The evidence shows that the severity of firms' financial difficulties is related to higher income-increasing earnings management carried out through real activity manipulation. It also shows that, in the presence of deteriorated financial positions, listed firms engage in more extensive earnings manipulation practices than unlisted entities, especially if they have a significant exposure to debt. Moreover, the results consistently show that, under such circumstances, entities manipulate earnings using the least detectable strategies (i.e., real activity manipulation) although this may be costly to firms (Zang, 2012).

The findings from this study have several implications. They show that a deterioration in firms' financial position creates incentives for earnings manipulation for both listed and unlisted entities. They also highlight that income-increasing earnings management practices of listed firms are more pervasive than those of unlisted companies during scenarios of severe financial problems and in the presence of high levels of debt. Thus, the results fully and consistently support the dominance of the "opportunistic behavioural" hypothesis, associated with the earnings management behaviours of listed firms, compared to unlisted entities, which states that the former exhibits higher earnings manipulation than the latter in the presence of incentives for managing earnings. The evidence also contributes to the debate about the trade-off between the use of accrual-based and real transaction manipulation. Indeed, contrary to the claim by Zang (2012), who states that companies choose between real activity and accrual manipulation, depending on the cost of such strategies, the findings provided by this study consistently indicate that, when firms observe a closer monitoring from their stakeholders, as in the case of deteriorating financial positions, they choose earnings manipulation strategies based on the probability of being detected, rather than on their cost, at least in contexts where firms are highly dependent on debt and the law does not afford a high level of protection to lenders, thus penalizing access to credit to firms in financial trouble.

This research is not free of limitations. The generalizability of the results may be limited due to the investigation of a single country. Performing a multi-country comparison, including different institutional settings, may highlight whether contexts with stronger investor protection help listed entities to follow the "demand" hypothesis including in financially problematic situations. Even if the paper uses multiple and the most suitable proxies for earnings manipulation and financial distress, it must be acknowledged that other proxies for such phenomena are available, even though they have not been used because of the characteristics of the sample and the lack of available data.

Acknowledgment

I acknowledge the great support of the Editor, John Goodell, and the extremely helpful comments, insights, and encouragement of two anonymous reviewers. Any remaining errors are my own.

Appendix 1 Variable description (in alphabetical order)

- A: total assets.
- ABNCFO: residuals of model (2) multiplied by minus 1.
- ALTMAN_Z-SCORE: Z-score based on the Altman (2000) formula.
- CFO: cash flow from operations scaled by beginning total assets.
- DA: performance-adjusted discretionary accruals estimated using the Kothari et al. (2005) model.
- ΔCA: change in current assets.
- ΔCASH: change in cash and equivalents.
- ΔCL: change in current liabilities.
- ΔREC: change in accounts receivable from the prior year.
- ΔREV: change in revenues.
- ΔSTD: change in short-term debts.
- DISSUE: a dummy variable that takes 1 if the firm issued new debt (i.e. if the value of loans of a company, reported on the liability side of the balance sheet, has increased in comparison with the previous year).
- DISTRESS: an indicator variable that goes from 0 to 2 depending on the severity of companies' financial distress based on the discrimination zones related to the Altman (2000) Z-score. More precisely, the indicator variable takes the value of 0 for observations with an Altman Z-score (ALTMAN_Z-SCORE) greater than 2.9, the value of 1 for observations exhibiting a Z-score between 1.23 and 2.9, and the value of 2 for Z-scores lower than 1.23.
- DISTRESS_FS: a dummy variable that takes the value of 1 if the ratio between operating profit and interest expenses is below 1 (i.e., evidence of financial distress based on the Fich and Slezak (2008) methodology) and zero otherwise.
- EISSUE: a dummy variable that takes 1 if the firm issued new equity (i.e. if the value of common stock of a company, reported on the equity side of the balance sheet, has increased in comparison with the previous year).
- EM: TEM, DA, and ABNCFO, in turn.
- GROWTH: percentage of annual change in revenue.
- LEV: total liabilities divided by total assets.
- LISTED: a dummy variable that takes 1 if the firm is listed.
- NDA: non-discretionary accruals.
- PPE: property, plant and equipment.
- ROA: net income before extraordinary items scaled by beginning total assets.
- REV: net revenues.
- SIZE: natural logarithm of total assets.
- TA: total accruals scaled by beginning total assets.
- TEM: DA + ABNCFO.

References

- Altman, E.I., 2000. Predicting Financial Distress of Companies: Revisiting the Z-score and ZETA Models. New York University: Stern School of Business.
- Altman, E.I., Iwanicz-Drozowska, M., Laitinen, E.K., Suvas, A., 2017. Financial distress prediction in an international context: a review and empirical analysis of Altman's Z-Score model. *J. Int. Financ. Manag. Acc.* 28 (2), 131–171.
- Ashbaugh, H., LaFond, R., Mayhew, B.W., 2003. Do nonaudit services compromise auditor independence? Further evidence. *Acc. Rev.* 78 (3), 611–639.
- Ball, R., Shivakumar, L., 2005. Earnings quality in UK private firms: comparative loss recognition timeliness. *J. Acc. Econ.* 39 (1), 83–128.
- Bartov, E., Goldberg, S.R., Kim, M.S., 2001. The valuation-relevance of earnings and cash flows: an international perspective. *J. Int. Financ. Manag. Acc.* 12 (2), 103–132.
- Baumgartner, F., Dupius, A., 2017. Business-focused Legal Analysis and Insight in the Most Significant Jurisdictions Worldwide. Retrieved from: <https://thelawreviews.co.uk/edition/the-insolvency-review-edition-5/1149880/france>.
- Baxter, N.D., 1967. Leverage, risk of ruin and the cost of capital. *J. Financ.* 22 (3), 395–403.
- Beatty, A.L., Ke, B., Petroni, K.R., 2002. Earnings management to avoid earnings declines across publicly and privately held banks. *Acc. Rev.* 77 (3), 547–570.
- Beneish, M.D., Press, E., Vargus, M.E., 2012. Insider trading and earnings management in distressed firms. *Contemp. Acc. Res.* 29 (1), 191–220.
- Bhojraj, S., Hribar, P., Picconi, M., McInnis, J., 2009. Making sense of cents: an examination of firms that marginally miss or beat analyst forecasts. *J. Financ.* 64 (5), 2361–2388.
- Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. *J. Acc. Econ.* 24 (1), 99–126.
- Burgstahler, D., Eames, M., 2006. Management of earnings and analysts' forecasts to achieve zero and small positive earnings surprises. *J. Bus. Financ. Acc.* 33 (5-6), 633–652.
- Burgstahler, D.C., Hail, L., Leuz, C., 2006. The importance of reporting incentives: earnings management in European private and public firms. *Acc. Rev.* 81 (5), 983–1016.
- Campa, D., Camacho-Miñano, M.D.M., 2014. Earnings management among bankrupt non-listed firms: evidence from Spain. *Span. J. Financ. Acc./Rev. Esp. Financ. Cont.* 43 (1), 3–20.
- Campa, D., Camacho-Miñano, M.D.M., 2015. The impact of SME's pre-bankruptcy financial distress on earnings management tools. *Int. Rev. Financ. Anal.* 42, 222–234.
- Carey, P., Simnett, R., 2006. Audit partner tenure and audit quality. *Acc. Rev.* 81 (3), 653–676.
- Chen, F., Hope, O.K., Li, Q., Wang, X., 2011. Financial reporting quality and investment efficiency of private firms in emerging markets. *Acc. Rev.* 86 (4), 1255–1288.
- Chen, C.L., Yen, G., Chang, F.H., 2009. Strategic auditor switch and financial distress prediction—empirical findings from the TSE-listed firms. *Appl. Financ. Econ. Lett.* 19 (1), 59–72.
- Dechow, P.M., Ge, W., Schrand, C., 2010. Understanding earnings quality: a review of the proxies, their determinants and their consequences. *J. Acc. Econ.* 50 (2-3), 344–401.
- Dechow, P.M., Skinner, D.J., 2000. Earnings management: reconciling the views of accounting academics, practitioners, and regulators. *Acc. Horiz.* 14 (2), 235–250.
- Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. Detecting earnings management. *Acc. Rev.* 70, 193–225.

- DeFond, M.L., Jiambalvo, J., 1994. Debt covenant violation and manipulation of accruals. *J. Acc. Econ.* 17 (1-2), 145–176.
- Dichev, I.D., Skinner, D.J., 2002. Large-sample evidence on the debt covenant hypothesis. *J. Account. Audit. Res. Pract.* 40 (4), 1091–1123.
- Fich, E.M., Slezak, S.L., 2008. Can corporate governance save distressed firms from bankruptcy? An empirical analysis. *Rev. Quant. Financ. Acc.* 30 (2), 225–251.
- Francis, J.R., Wang, D., 2008. The joint effect of investor protection and Big 4 audits on earnings quality around the world. *Contemp. Acc. Res.* 25 (1), 157–191.
- Franz, D.R., HassabElnaby, H.R., Lobo, G.J., 2014. Impact of proximity to debt covenant violation on earnings management. *Rev. Acc. Studies* 19 (1), 473–505.
- García Lara, J.M., García Osmá, B., Neophytou, E., 2009. Earnings quality in ex-post failed firms. *Acc. Bus. Res.* 39 (2), 119–138.
- Gilson, S., 1989. Management turnover and financial distress. *J. financ. econ.* 25 (2), 241–262.
- Givoly, D., Hayn, C.K., Katz, S.P., 2010. Does public ownership of equity improve earnings quality? *Acc. Rev.* 85 (1), 195–225.
- Gotham City Research LLC, 2014. Let's Gowex: a Pescanovan Charade. Research Report. Retrieved from: . . <http://www.scribd.com/doc/232063069/Let-s-Gowex-La-Charada-Pescanova-a-Pescanovan-Charade>.
- Graham, J.R., Harvey, C.R., Rajgopal, S., 2005. The economic implications of corporate financial reporting. *J. Acc. Econ.* 40 (1), 3–73.
- Grice, J.S., Ingram, R.W., 2001. Tests of the generalizability of Altman's bankruptcy prediction model. *J. Bus. Res.* 54 (1), 53–61.
- Gunny, K.A., 2010. The relation between earnings management using real activities manipulation and future performance: evidence from meeting earnings benchmarks. *Contemp. Acc. Res.* 27 (3), 855–888.
- Habib, A., Bhuiyan, U.B., Islam, A., 2013. Financial distress, earnings management and market pricing of accruals during the global financial crisis. *Manag. Financ.* 39 (2), 155–180.
- Haga, J., Höglund, H., Sundvik, D., 2018. Stock market listing status and real earnings management. *J. Acc. Publ. Polic.* 37 (5), 420–435.
- Hamada, R.S., 1972. The effect of the firm's capital structure on the systematic risk of common stocks. *J. Financ.* 27 (2), 435–452.
- Hope, O.K., Langli, J.C., Thomas, W.B., 2012. Agency conflicts and auditing in private firms. *Acc. Organ. Soc.* 37 (7), 500–517.
- Hope, O.K., Thomas, W.B., Vyas, D., 2013. Financial reporting quality of US private and public firms. *Acc. Rev.* 88 (5), 1715–1742.
- Jones, J.J., 1991. Earnings management during import relief investigations. *J. Account. Audit. Res. Pract.* 29 (2), 193–228.
- Johnson, V.E., Khurana, I.K., Reynolds, J.K., 2002. Audit-firm tenure and the quality of financial reports. *Contemp. Acc. Res.* 19 (4), 637–660.
- Kennedy, P., 2008. *A Guide to Econometrics*. Wiley-Blackwell, Hoboken, NJ.
- Kothari, S.P., Leone, A.J., Wasley, C.E., 2005. Performance matched discretionary accrual measures. *J. Acc. Econ.* 39 (1), 163–197.
- Leuz, C., Nanda, D., Wysocki, P.D., 2003. Earnings management and investor protection: an international comparison. *J. financ. econ.* 69 (3), 505–527.
- Liberty, S., Zimmerman, J., 1986. Labor union contract negotiations and accounting choice. *Acc. Rev.* 61 (4), 692–712.
- Melis, A., 2005. Corporate governance failures: to what extent is Parmalat a particularly Italian case? *Corp. J. Gov. Inf.* 13 (4), 478–488.
- Nelson, M., Elliott, J., Tarpley, R., 2003. How are earnings managed: examples from auditors. *Acc. Horiz.* 17 (1), 17–35.
- Palmrose, Z., Scholz, S., 2004. The circumstances and legal consequences of non-GAAP reporting: evidence from restatements. *Contemp. Acc. Res.* 21 (1), 139–180.
- Plantin, G., Thesmar, D., Tirole, J., 2013. Reforming french bankruptcy law. *Notes du Conseil d'Analyse Economique* 7 (7), 1–12.
- Pryshchepa, O., Aretz, K., Banerjee, S., 2013. Can investors restrict managerial behavior in distressed firms? *Int. J. Corp. Financ. Account.* 23, 222–239.
- Rosner, R.L., 2003. Earnings manipulation in failing firms. *Contemp. Acc. Res.* 20 (2), 361–408.
- Roychowdhury, S., 2006. Earnings management through real activities manipulation. *J. Acc. Econ.* 42 (3), 335–370.
- Saboly, M., 2001. Information comptable et défaillance des entreprises: le cas français. *Compt. Contr. Aud.* 7 (2), 67–86.
- Schipper, K., 1989. Commentary on earnings management. *Acc. Horiz.* 3 (4), 91–102.
- Shan, Y., Taylor, S.L., Walter, T.S., 2013. Earnings management or measurement error? The Effect of External Financing on Unexpected Accruals. Working paper. Retrieved from: <https://ssrn.com/abstract=1572164>.
- Stubben, S.R., 2010. Discretionary revenues as a measure of earnings management. *Acc. Rev.* 85 (2), 695–717.
- Zang, A.Y., 2012. Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *Acc. Rev.* 87 (2), 675–703.