



FINANCIAL DISTRESS AND EARNINGS MANIPULATION: EVIDENCE FROM ITALIAN SMEs

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Abstract- This study examines the relationship between financial distress and earnings management practices in a family-owned economic context, such as Italy, focusing on non-publicly listed small and medium sized entities (SMEs). Analysing five years prior to bankruptcy, we document that private SMEs experiencing financial distress, as measured by subsequent bankruptcy filings, manipulate their financial statements to portray better financial performance. Earnings management most commonly occurs via inflated revenue and helps the firm maintain bank financing. Our results indicate that an important reason for earnings management at unlisted firms is securing outside financing, which for Italian firms most commonly represents bank loans.

Keywords- Financial distress, Earnings management, Bankruptcy procedures, SMEs, Jones model

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Introduction

The purpose of the present study is to shed some light on an issue that, particularly in the last years of acute financial crisis, has proven to be of dramatic importance and great momentum: earnings manipulation on the part of the management when a company is facing financial distress.

Starting from the premise of the vital importance of transparent information [1] and efficient capital markets, which should help a company reduce its cost of capital [2-4], most of the previous literature has focused on discretionary accounting choices and accruals [5,6] as well as SEC enforcement actions [7,8], mainly paying attention to firms caught and prosecuted for fraud by the market watchdog (i.e.: SEC). With few remarkable exceptions [9-14], literature has paid less attention on the relationship between financial distress and earnings management practices. Nevertheless, stakeholders of failed firms suffer more severe losses than those of firms just having poor performances: consequently, the detection of earnings manipulation in the years preceding bankruptcy becomes critical.

Taking into account that previous studies on the topic have mainly examined listed firms, our study contributes to the literature in several ways. Firstly, it focuses on non-publicly listed SMEs that went bankrupt, in order to assess whether before filing for the procedure they tried to hide their real situation by "cooking the books" and conveying false information, with the main aim being to continue obtaining credit from banks, which are generally their most influential stakeholder. Secondly, our paper investigates an owner-dominant economic context, in contrast with manager dominant environments

such as the US and the UK. Finally, since the analysis covers five years preceding bankruptcy, our study also aims to assess the effect of time factor, in order to understand if distressed firms accentuate earnings manipulation in the years closer to bankruptcy.

We analyzed financial statements and other available data from Italian SMEs that went bankrupt in 2011, collecting the information concerning failed firms from official databases of the main Italian courts (Milan, Rome and Naples). We also accessed the Italian AIDA¹ database, which includes financial statements of all Italian corporations, assembled from the local Chamber of Commerce depository, investigating a control sample of non-failed firms within the same industries and geographical areas (Milan, Rome and Naples). We used an adjusted version of the modified Jones model with the aim of measuring the quality of earnings and assessing whether failing companies engage in earnings management practices more than their financially sounder counterparts.

Our results are consistent with our main research hypothesis, allowing us to assert that firms in a state of financial distress, especially if banks represent their main source of capital, are more willing to engage in accounting manipulation, mainly by inflating their sales.

The paper is structured as follows. After a brief summary of the Italian bankruptcy law, the next section reviews previous literature about earnings management and earnings manipulation, analyzing the reasons that can lead a firm (especially an SME) in troubled conditions to convey fake financial statements, in order to support our research hypothesis. The third section clarifies the research design and methodology, also highlighting the differences with other pieces of research. The fourth section describes the outcomes of

our investigation and the last section summarizes our conclusions.

Background and Research Hypotheses

Earnings Management in Distressed Firms: Firm Failure in the Italian Context

The Italian bankruptcy act, the Decree no. 267/1942, as amended by several decrees (no. 35/2005, no. 5/2006, no. 169/2007 and no. 78/2010), governs the legal failure routes of Italian firms, pursuing the following main objectives: *i*) to avoid the inopportune liquidation of firms, trying to safeguard their value; *ii*) to reduce time of liquidation, accelerating the procedures of selling assets of insolvent firms; *iii*) to reduce overall costs, in order to increase the average ratio of claims reimbursed to the creditors.

However, the law considers bankruptcy as a physiological stage in the life cycle of entrepreneurship; therefore, if there is a concrete possibility of re-starting the activity, legislation tries to help firms manage this phase, encouraging the access to reorganization procedures.

Accordingly, the main Italian procedures concerning financial distress are liquidation (i.e. bankruptcy) and reorganization, which can be assimilated, respectively, to the US Chapter 7 and Chapter 11. The triggering criterion of the liquidation procedure is the insolvency, defined as the inability to pay debts.

Previous studies concerning the Italian environment [15,16] have pointed out that distressed firms admitted to a reorganization procedure, in a large percentage of cases, are insolvent, therefore their bankruptcy is frequently declared in the near future. Moreover, reorganization procedures are quite rare in the Italian environment, with the filing for bankruptcy being the most adopted procedure.

Bearing in mind the aim of this paper, it is worth noticing that, according to the above-mentioned studies, some failed firms do not regularly submit their financial statements in some of the years prior to bankruptcy, in order to hide their troubled conditions. Additionally, in the years preceding bankruptcy, small failed firms on the one hand are characterized by an augmentation in revenues; on the other hand, they experienced a drop in their operating margins [17]. These findings have been interpreted as a hint of possible earnings management behavior performed by SMEs in pre-distressed periods, in order to continue obtaining credit from banks, which are one of their main stakeholders. Taking into account that stakeholders of failed firms suffer more serious losses than those of firms just showing low performance, the detection of earnings manipulation in the years preceding bankruptcy becomes critical [13], especially in the case of SMEs, which are generally not subjected to controls or audit procedures by external parties.

Earnings Management in Distressed Firms: Prior Evidence

Previous studies offer different definitions of earnings management and earnings manipulation. The former concept is generally restricted to reporting practices considered to be within the bounds of the Generally Accepted Accounting Principles (GAAP), with the main purpose being to make reported income as close as possible to the desired level of earnings [18-20]. On the other hand, earnings manipulation is mainly outside the bounds of GAAP: even though a clear distinction among them is not an easy task [21], the difference seems to lie in the magnitude of the misstatement as well as in the intention of deceiving external readers of the financial statements through material modifications, which is more accentuated in earnings manipulation than in earnings management [22]. In a broader

perspective, the aim of meeting certain earnings thresholds can be pursued not only through accounting manipulations but also through real earnings manipulations, such as relaxing credit terms to increase revenues, overproducing to report lower cost of goods sold or abandoning R&D projects [13,23].

Besides, from a practical and technical perspective, both earnings management and earnings manipulations are undertaken especially by using accruals to shift earnings among different fiscal periods [24-26], by perpetrating early debt retirement [27] and/or by inflating both net sales and assets sales [18,28]. Along the same lines, the GAO report [29] detects the most common tools used for manipulation by fraudulent managers, which can be synthesized as: (1) side agreements; (2) improper cutoff of sales at the end of the reporting period; (3) illegitimate record of consignment sales as accomplished transactions; (4) bill and hold sales.

Most papers about earnings manipulation aim at developing techniques and tools capable of detecting this kind of practice, mainly through the identification and prediction of firms' discretionary accruals [30-33], also testing which of these models is most effective in revealing earnings manipulation [7]. Starting from the capacity to discover the deceptive behavior put in place by the firms, other studies have tried to empirically demonstrate which factors can affect these actions the most, connecting them to other variables, such as audit quality [34] and governance structure [35]. Different works have investigated the link between earnings manipulations and fraud, after the latter is discovered by the control authorities [7,36].

In a broader sense, there are many purposes and causes behind the choice of "cooking the books" on the part of a company, which vary upon its size, management organization, ownership structure, nature, sector and finance sources. Previous studies have focused on various contracting theories of earnings manipulation, of which the 'bonus hypothesis' and the 'debt hypothesis' have received the largest support [37]. Christie [38] provides further confirmation to the first theory, arguing that variables relating to managerial compensation are the most influent and statistically significant in explaining accounting procedural choices.

The abovementioned 'debt hypothesis' represents a key factor in understanding managers' utility and their will to engage in fixing financial statements: previous studies have pointed out that financial distress conditions provide a motivation to convey misleading information on the part of the management [39,40]. In fact, when a firm is financially distressed and its going-concern condition is in danger, some deterrents against earnings manipulation (i.e. institutional penalties such as employment concerns, implicit contracts and equity contingent wealth) do not hold and are less effective than in a physiological situation [41].

This consideration led us to reckon that financially distressed companies actually represent a very opportune sample in order to investigate earnings management and manipulation, because of the critical importance in detecting aggressive accounting practices in the years preceding bankruptcy [13].

At the best of our knowledge, only few papers focused the attention on this topic.

Smith, et al [9] try to understand whether firms experiencing financial distress are more inclined to use income increasing policy choices than non-distressed ones. They found that firms classified as distressed which go bankrupt, do not use income-increasing

techniques more frequently than their financially sounder counterparts. On the other hand, firms classified as distressed which do not fail, tend to remarkably increase reported income through changes in accounting policy. The main limit of this seminal study is that the results are not easy to interpret and generalize because the analysis cover only one year (1998) while it could be of interest to investigate the behavior of distressed firms within a longer period of time.

Rosner [10] examines a sample of 293 failed US firms; she discovers that firms indulge in manipulating earnings during the five years preceding bankruptcy, even though (as observed by Garcia Lara, et al, [13]) she implicitly assumes that this manipulation is the same during the years investigated. The Author also focuses on the role of auditors, more specifically on their ability to detect the overstatements in firms that they perceive to be failing; through parametric and non parametric tests, she attributes to the overstatement reversals pressed for auditors (when they find out a going concern problem) the income-decreasing behaviour (in the year preceding bankruptcy) of firms obtaining a going-concern opinion.

Close to the research of Rosner [10] are those of Charitou, et al [11,12]. In the first study [11], the Authors investigate earnings management practices of a sample of 859 U.S. bankruptcy-filing firms over the period 1986-2004, focusing on both institutional ownership and role of auditors. In the second research [12], they examine the earnings management behaviour of 455 distressed US firms that filed for bankruptcy during the period 1986-2001, focusing on whether qualified audit opinions cause conservative earnings management behaviour, also pointing out the relationship between earnings manipulation in the year before bankruptcy and the likelihood that firms survive thereafter.

The study of Garcia Lara, et al [13] analyses earning management actions of a large sample of UK firms, finding that failed firms indulge in earnings manipulation in the four years preceding bankruptcy, with the purpose of hiding their poor performance. Authors point out that managers use both accounting manipulation and real activity manipulation, even though they are more inclined to utilize the (more aggressive) last practice when the probability of bankruptcy is high.

The work of Habib, et al [14] investigates earnings management practices of financially distressed firms, aiming to understand whether these practices are affected by the global financial crisis. Focusing on the New Zealander context, the Authors highlight that financial distress, expressed through three different measures², provides incentives to managers for earnings manipulation: even though the direction of the earnings management could be both income-increasing or income-decreasing, according to the findings of the study, the latter reports a higher³ frequency. As highlighted by the Authors, however, income-decreasing earnings management practices are just as dangerous as the income-increasing ones: in the same way, in fact, they can obfuscate the real underlying economic performance of the firms and convey a misleading picture to corporate stakeholders.

Earnings Management in Distressed SMEs: Research Hypotheses

The studies previously mentioned refer to Anglo-Saxon countries, where companies are characterized by a widespread ownership structure and an extensive recourse to the listing procedure in order to obtain financial resources⁴. Our investigation, instead, regards an owner-dominant economic context (in contrast with manager domi-

nant environments such as the US and the UK), where the majority of firms, especially small and medium ones, show a typically family-based ownership structure and an operating administration in many cases still controlled by the founding family: within Europe, this occurrence is emblematic for the so called "Latin" nations, such as Spain [43] and Italy [44], which is the target of our research.

Since firms' shares are not generally widely held [45, 44] on the basis of the ownership structure, very few shareholders generally exercise control over a non-publicly listed SMEs.

Accordingly, as stated by Niskanen, et al [46], SMEs have different agency problems compared with their larger listed counterparts: informality of management practices characterizing SMEs may affect the level of perceived agency costs by non-shareholder managers as well as outside stakeholders, especially banks and other creditors. As stated above, Italian SMEs are prevalently financed by banks [47], which means that, especially in pre-distressed periods, it is vital for their survival that they continue to obtain credit.

From this angle, the more a pre-distressed firm shows a negative trend in revenues, the more likely it is that a bank will not continue to finance it in the future; consequently, in pre-bankruptcy periods, firms try to show a positive trend in revenues and, more generally, to overestimate earnings, hoping that their troubled condition will improve in the future: once it has been discovered that the company cannot recover from its situation, management can even shift from earnings management to actual material manipulation [48, 13, 10]. Consequently, our first research hypothesis can be summarized as follows:

H1: *Firms going bankrupt are more likely to engage in earnings management and manipulation than their non-bankrupt counterparts, mainly by means of discretionary accruals.*

This hypothesis can be further investigated by taking into account also the effect of the time-factor on accounting and reporting behaviors. In fact, managers of distressed firms optimistically expect their firms' difficulties to be temporary; as a consequence, they are stimulated to hide the deteriorating financial conditions until they improve by adopting income-increasing earnings management. Moreover, when managers are aware that the troubled situation is not temporary and, consequently, accounting manipulation cannot sufficiently conceal the distressed condition of the firm, they may materially overstate earnings: this means that managers try to impede distress through earnings manipulation, which represent a symptom of failure rather than a cause. Accordingly, our second research hypothesis can be summarized as follows:

H2: *In financially distressed SMEs, the influence of their troubled status on earnings manipulation is greater in years closer to bankruptcy.*

The above-mentioned agency issues regarding non-publicly listed SMEs suggest investigating also the potential effect of firms' size on earnings management behaviors. In fact, size has often been considered as a good inverse proxy for information asymmetry towards external stakeholders, given that small firms have less severe disclosure duties and their managers can retain their private information more than their counterparts in large companies [47]. Since in many cases big corporations are publicly listed and more easily inspected by shareholders or regulators, information on large firms is usually more widely and simply available and could be obtained with lower costs compared to data regarding small firms [48], whose management is consequently more likely to engage in opportunistic

and fraudulent accounting behaviors. In other words, in accordance with Burghstahler, et al [49], earnings management and manipulation are more pervasive in private firms than in publicly traded ones, contrary to the idea that capital markets intensify incentives to manipulate earnings. Given that they are not publicly listed, in fact, the former companies are not subject to the control of autonomous regulators (such as the SEC in the US, the FSA in the UK and the CONSOB in Italy) and, consequently, it is more difficult to discover their financial statements manipulation. As stated above, in non-listed, family owned companies, these actions are not aimed at meeting analysts' expectations or stimulating investors at buying new shares, but mostly at maintaining existing credit or obtaining new credit from banks, which are main providers of financial resources for SMEs [50]. Furthermore, the Italian context is characterized by a high alignment between financial statements and tax accounting, which, in accordance with Burgstahler, et al [49], is associated with earnings management, and this effect is accentuated for non-listed firms⁵. The kind of companies that form the sample, consequently, narrows the possible reasons to disclose deceptive financial statements, leading us to formulate our third research hypothesis as follows:

H3: *Within small and medium enterprises, firm size is negatively correlated to earnings manipulation practices.*

Research Design and Methodology

Sample Description

In order to test the hypotheses developed so far, we analyzed the financial statements and other available data pertaining to two non-paired samples of Italian SMEs. Companies that filed for bankruptcy in 2011 make up the first sample. We collected the information from the official databases of the main Italian courts (Milan, Rome and Naples, situated, respectively, in the North, Centre and South of Italy). As stated above, within Italian bankruptcy law, firms can file for procedures similar to the American equivalents (Chapter 7 and Chapter 11). For the aim of our research, we considered only procedures that led to the liquidation of firms, corresponding to the US Chapter 7, without examining other procedures because of their low frequency of use in the Italian context [15]. We excluded from the initial sample sole proprietorships and partnerships because, according to the Italian law, they are not obliged to submit financial statements⁶.

Consistent with previous studies [51], we did not include in our sample companies belonging to finance and banking industries, since their financial statements are subject to different rules and their accounting ratios are not comparable with those recorded by firms in other sectors. For the same reason, we left out other industries, such as insurance, real estate development and agriculture. Despite these exclusions, we analyzed firms belonging to different sectors: even though the analysis of a specific sector of activity leads to better results [52,53], in our case we were forced to include in the sample companies belonging to different sectors because, had we selected only firms of a single industry, we would have reduced the analysis to very few units, with the consequence of obtaining non statistically significant results.

Moreover, as stated above, some Italian failed firms do not regularly submit their financial statements in some of the years prior to bankruptcy. Therefore, because we analyzed financial statements going back five years, also firms showing missing data have been excluded, as suggested by some Authors [54,40]. After these adjustments,

our test sample is made up of 40 units and 200 firm-years observations.

Italian SMEs, which did not fail, compose the second sample. In order to properly compare the results from this sample with those of the previous one (failed firms), we extracted a random sample from the selected sectors within the whole population of firms based in Milan, Rome and Naples (i.e. the same sectors and the same areas from which we selected the failed companies).

The analysis of both samples was based on variables included in their financial statements; we used the AIDA Italian database, which includes financial statements of all Italian limited liability and stock corporation companies, assembled from the Italian local Chamber of Commerce depository. In the light of other studies, we believe that the size of the samples, although not very large, can be considered adequate, allowing our analysis to provide robust and reliable results: Bartov, et al [55], for example, rely on two samples made of 152 and 21 firms for a comparison between accruals in companies audited by Big Six and non-Big Six Auditors; different Authors [42], on the other hand, use 108 non-financial Spanish firms listed on the electronic market over the 1996 to 2006 period, for a total of 913 company-year observations. All in all, in order to reduce the potential bias due to the sample size, we performed a time series analysis: the data gathered cover five years prior to bankruptcy (from 2006 to 2010), providing us with 1,704 firm-year observations.

Methodology

Prior literature has used different methodologies in order to discover earnings manipulation and to measure their impact on the reliability of financial statements. The methodological approach is based on the modified Jones' [33] regression model, which uses the discretionary component of total accruals as a measure of the reliability of financial statements. Total accruals at the time t (TA_t) are expressed as the difference between accounting earnings and operating cash flows; since cash flow statements are not mandatory in Italy and they are not systematically included in the AIDA database, we adopted an indirect formula, based on balance sheet and income statement items.

$$TA_t = (\Delta Current Assets_t - \Delta Cash_t) - (\Delta Current Liabilities_t) - Depreciation and Amortization Expenses_t \quad (1)$$

We decided to use the modified Jones' model because it relaxes the original assumptions about the value of sales: following previous studies [7], in fact, we assumed that revenues can be considered as discretionary accruals as well. Even though the Authors prove that this method is very effective in detecting earnings management, we have further adjusted it in the wake of Kasznik [56], encompassing in the modified Jones' equation the yearly changes in cash flow from operations, which have been proven to be correlated with total accruals [24]. According to Siregar and Utama [57], this approach best detects earnings management actions, as demonstrated by its high R^2 .

Total accruals (TA) can be expressed into a discretionary (DA) and a non-discretionary (NDA) component; obviously, the same distinction can be assumed taking into account total accruals changes:

$$\Delta TA_t = (TA_t - TA_{t-1}) = (DA_t - DA_{t-1}) + (NDA_t - NDA_{t-1}) \quad (2)$$

After considering the changes in operating cash flow, within the model used in the present paper, total accruals can be expressed in the following terms:

$$\frac{TA_t}{A_{t-1}} = \alpha + \frac{\beta_1}{A_{t-1}} + \frac{\beta_2(\Delta REV_t)}{A_{t-1}} + \frac{\beta_3}{A_{t-1}} + \frac{\beta_4}{A_{t-1}} + \frac{\beta_5}{A_{t-1}} + \varepsilon_t \quad (3)$$

Where: TA_t is total accruals in year t ; ΔREV_t is revenues in year t less revenues in year $t-1$; ΔREC_t is receivables in year t less receivables in year $t-1$; PPE_t is property, plant and equipment + long-term deferred expenses in year t ; ΔPPE_t is property, plant and equipment + long-term deferred expenses in year t less property, plant and equipment + long-term deferred expenses in year $t-1$; ΔCF_t is Operating Cash flow in year t less operating cash flow in year $t-1$; A_{t-1} is total assets in year $t-1$; ε_t is the Error term in year t .

Total accruals include changes in working capital components, such as receivables, inventory and payables, which are influenced by changes in revenues (ΔREV_t). The model also includes long-term deferred expenses, according to the Italian balance sheet structure. Property, plant and equipment, long-term deferred expenses, as well as changes in revenues, are included in the model with the purpose of controlling changes in non-discretionary accruals caused by altered external conditions. Revenues are also included in the model because, especially in the realm of pre-distressed SMEs, this variable can be subject to managers' manipulations in order to "cook the books" and show a sounder financial condition, as we can infer from descriptive statistics regarding failed firms displayed in [Table-1]. Gross property, plant and equipment, as well as long-term deferred expenses (PPE_t), are included with the aim of checking for the portion of total accruals related to non-discretionary depreciation expenses; the original model includes gross value rather than changes in these accounts because total depreciation expenses (versus changes in depreciation expenses) are encompassed in the total accruals measure. The AIDA database does not provide the gross value of these accounts; as a consequence, we used their net values. Even though they seem to be significantly explicative variable of the regression equation [58], we included in our model also the changes in these accounts, in order to reduce potential biases. Finally, according to Kasznik [56] we enclosed the yearly changes in cash flow from operations.

Furthermore, in order to reduce heteroskedasticity, all variables comprised in the model are scaled by the lagged value of their assets [59].

The general approach adopted in estimating discretionary accruals via a regression model consists in considering them as the unexplained (i.e. the residual) components of total accruals [60]. In other words, the error term ε in [eq-3] represents the estimated discretionary accruals $[E(DA_t)]$:

$$E(DA_t) = \frac{TA_t}{A_{t-1}} - \left[\alpha + \frac{\beta_1}{A_{t-1}} + \frac{\beta_2(\Delta REV_t)}{A_{t-1}} + \frac{\beta_3}{A_{t-1}} + \frac{\beta_4}{A_{t-1}} + \frac{\beta_5}{A_{t-1}} \right] \quad (4)$$

Consistent with previous studies concerning earnings quality [61-63], to emphasize their magnitude, we took into account the absolute value of discretionary accruals (estimated in [eq-4]), which have been considered as a proxy for the level of earnings management. In order to discover which factors affect this kind of policy the most and to test our research hypotheses, we used a regression model, in which the most important test variable is the dummy concerning the failed/non-failed status. Evaluating the influence of firms' size (test variable for hypothesis 3) and including some control variables complete our analysis:

$$|E(DA_{it})| = \alpha + \beta_1 FAIL_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 (EBITDA - CF)_{it} + \beta_5 ATA_{it} + \varepsilon_{it} \quad (5)$$

Where $|E(DA_{it})|$ is the absolute value of estimated discretionary accruals.

As stated above, the "treatment variable" we used in our statistical model is not the detection of a fraud by the market watchdog. In fact, according to our first research hypothesis, the main test variable is the dummy that represents the bankruptcy / non bankruptcy status ($FAIL_{it}$, coded 1 if the company went bankrupt and 0 otherwise⁷): since we assumed that failed firms engage in earnings manipulation more than healthy companies, we expect the failing status to be positively correlated with the dependent variable (exp. sign: +). Together with the FAIL dummy, the regression [eq-5] introduces the following variables, used in different studies to explain and clarify the relationship between the discretionary portion of total accruals and the parameters taken into account in our model:

- SIZE, calculated as the natural logarithm of the value of total assets. According to Burgstahler, et al [46] and consistent with our third hypothesis, we expect the sign of this test variable to be negative, underlining that earnings management practices are more pervasive in small firms (expected sign: -);
- LEV expresses the leverage ratio of firms included in the sample (represented by the ratio Total debt / Total assets). Previous studies have proven that accounting manipulation seems to be more frequent in firms with high leverage [64]. Moreover, it is worth noticing that the period analyzed (from 2006 to 2010) has been characterized by an increasing economic and financial crisis, one of the main effects of which being the difficulty in obtaining credit, whose consequences could be more serious in the case of distressed firms: therefore, since the majority of Italian SMEs relies on banks' credit to finance their operations, we hypothesize that distressed firms are more likely to perpetrate manipulations with the aim of obtaining more credit. Consequently, expecting that the higher the leverage ratio, the more frequent earnings management practices will be, we assume that the coefficient of this variable will be positive (expected sign: +);
- EBITDA - CF (which represents the difference between EBITDA and operating cash flow) has been proven to be a good detector of earnings manipulation, at least for listed companies: Lee, et al [36] assert that this variable is positively correlated with fraudulent behaviors and constitutes a good discriminator between fraud and non-fraud firms. The consistency and strength of their results allow us to retain it possible to widen this relationship, stating that this difference is a good predictor for earnings manipulation not only within the fraud / non-fraud distinction, but also regarding the failed / non-failed comparison. Consequently, following the above mentioned Authors [36], we assume the coefficient of this variable to be positive (expected sign: +);
- ATA is the natural logarithm of absolute value of total accruals; in line with Francis, et al [65], we expect a positive coefficient for this variable because firms with high discretionary accruals should have high absolute value of total accruals (expected sign: +);
- ε_{it} is the error term in year t .

From a methodological point of view, we adopted a panel analysis because, according to the econometric literature [66], estimators from a panel dataset seem to work best with longer time series.

Since we assumed that differences across entities influence our dependent variable, between the two main alternatives (fixed effects vs random effects) we chose the second one [67]. In order to have further support about this choice, we performed the Hausman's [68] test, the outcomes of which allow us to accept the null hypothesis that the random effects model is consistent [69]. Following Verbeek [66], we preferred this technique to the fixed effects one also on the base of the size of the sample.

Results

Our investigation started analyzing descriptive statistics, which helped us understand the dynamics of some variables within the period of reference (2006-2010), especially those regarding the trend of revenues and indebtedness, summarized in the following [Table-1].

Against a weakening in companies' capital structure and financial soundness (higher leverage and interest expenses, lower interest coverage), the statistics show an increase in average sales between 2006 and 2010. Even at first sight, these data can already offer some support to our thesis: in a previous study [17], the Authors examined how financially distressed companies, notwithstanding the abovementioned augmentation in revenues, experience a drop in their operating margins and face some very incisive costs connected to their troubled situation. The Authors interpret this result as a hint of possible earnings management policy put in place by the company, which in this paper will be verified through a more robust statistical method. Taking into account the dependent and explanatory variables included in our model [eq-4],[eq-5] [Table-2] illustrates the descriptive statistics for the regression variables concerning both failed and non-failed firms.

Table 1- Descriptive statistics of the main accounting ratios

Variables	Δ 2007/2006		Δ 2008/2007		Δ 2009/2008		Δ 2010/2009		Δ 2010/2006	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Failed firms										
Δ Revenues	16.18%	32.92%	7.76%	12.67%	-9.97%	-9.76%	29.13%	21.56%	45.57%	64.28%
Δ EBITDA/Sales (%)	16.75%	32.87%	-10.44%	-24.12%	-34.71%	-23.91%	-201.10%	-34.84%	-169.00%	-50.01%
Δ Interest expenses	51.99%	92.09%	41.30%	-0.03%	-26.53%	34.88%	-19.87%	-29.15%	26.43%	83.50%
Δ Interest expenses/Sales	57.77%	-20.91%	-0.36%	3.02%	-14.96%	-19.28%	13.12%	88.30%	51.22%	23.85%
Δ Interest coverage	173.40%	17.57%	85.13%	41.92%	-26.37%	-51.04%	-105.80%	-68.65%	-121.70%	-74.39%
Δ Debt/Total Assets	0.11%	-1.37%	0.88%	3.72%	4.37%	0.27%	29.84%	-0.81%	36.85%	1.73%
Non-failed firms										
Δ Revenues	13.91%	6.92%	2.45%	13.80%	13.80%	-9.66%	-9.23%	1.57%	5.86%	12.18%
Δ EBITDA/Sales (%)	216.96%	-0.18%	33.56%	-9.20%	-9.20%	193.85%	-6.19%	1.00%	252.74%	-14.13%
Δ Interest expenses	29.90%	28.38%	3.46%	27.80%	27.80%	-35.10%	-0.72%	-14.44%	-25.44%	39.37%
Δ Interest expenses/Sales	37.83%	9.77%	58.35%	10.47%	10.47%	-37.99%	-3.85%	-22.19%	6.96%	-9.28%
Δ Interest coverage	407.54%	-24.93%	1888.18%	-15.15%	-15.15%	-67.55%	14.67%	26.44%	2015.39%	-7.66%
Δ Debt/Total Assets	0.67%	0.69%	-2.95%	-2.02%	-2.02%	-1.52%	-1.89%	-0.09%	-3.87%	-3.30%

Bankruptcy year = 2011.

Table 2- Descriptive statistics of the regression model's variables

Variables	Failed firms					Non failed firms				
	Mean	Dev std.	Median	Min	Max	Mean	Dev std.	Median	Min	Max
E(DA _t)	0.016	0.409	0.036	-2,710	1,700	0.047	0.233	0.033	-2.003	2.876
E(DA _t)	0.225	0.341	0.131	0,001	2,710	0.145	0.189	0.094	0	2.876
SIZE	14.559	1.342	14.294	11,986	18,108	14.669	1.36	14.42	11.116	18.872
LEV	0.911	0.553	0.904	0,126	5,866	0.78	0.219	0.836	0.011	1.752
EBITDA - CF	2,62,759	7,40,988	48,753	-180,454	7,620,815	2,22,807	10,74,801	58,898	-1,49,90,995	1,48,25,213
ATA	9,63,594	24,19,703	2,09,796	2,232	17,080,599	6,68,568	20,35,911	1,43,457	115	3,51,09,924

E(DA_t) is the estimated discretionary accruals; |E(DA_t)| is the absolute value of estimated discretionary accruals; SIZE is natural logarithm of total assets; LEV is the ratio total debt / total assets; EBITDA - CF is the difference between EBITDA and operating cash flow; ATA is the natural logarithm of absolute value of total accruals.

The median of E(DA_t), even being near zero, registers a positive value, indicating that more than half of the firms tend to overestimate their discretionary accruals, probably with the aim of not showing negative results. Moreover, the mean and the median for the absolute value of this variable (|E(DA_t)|) are about 0.225 and 0.341 in the case of failed firms and 0.145 and 0.189 regarding non-failed firms. Comparing the two samples, the leverage ratio is quite higher within failed firms than for non-failed ones, as we expected.

[Table-3] illustrates moderate correlations between the variables included in our model (SIZE, LEV, EBITDA-CF and ATA). According to the literature, values of correlation coefficients exceeding 0.8

are interpreted as indicating significant multicollinearity problems [70], but in our case the coefficients are well below this threshold; as a consequence, in our model multicollinearity does not represent a serious problem.

Table 3- Correlation matrix for control variables

	Size	Lev	EBITDA - CF	ATA
Size	1			
Lev	-.096***	1		
EBITDA - CF	.350***	-0.007	1	
ATA	.502***	-0.003	.270***	1

*** Statistical significance at the 0.01 level.

[Table-4] shows the estimation results for the regression model [eq -5].

Table 4- Association between discretionary accruals and failed/non-failed status of firms (first regression model)

Variables	Expected sign	Estimate	Std. error	t value	p-value
(Intercept)		0.587145	0.064731	9.0705	<0.00001***
FAIL _{it}	+	0.0716095	0.016826	4.2559	0.00002***
SIZE _{it}	-	-0.0340412	0.0042678	-7.9763	<0.00001***
LEV _{it}	+	0.0488268	0.0180602	2.7036	0.00693***
EBITDA - CF _{it}	+	-1.23E-08	4.94E-09	-2.4961	0.01265**
ATA _{it}	+	2.84E-08	2.70E-09	10.5141	<0.00001***
Sum squared resid		66.88737			

$$|E(DA_{it})| = \alpha + \beta_1 FAIL_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 (EBITDA - CF)_{it} + \beta_5 ATA_{it} + \varepsilon \tag{5}$$

|E(DA_{it})| = absolute value of discretionary accruals; FAIL_t = a dummy variable, coded one (1) if the company went bankrupt, zero (0) otherwise; SIZE = natural logarithm of total assets; LEV = ratio total debt / total assets; EBITDA - CF = difference between EBITDA and operating cash flow; ATA = natural logarithm of absolute value of total accruals.

***, **, *, Statistical significance at 1%, 5% and 10% levels of significance.

The value of the residual sum of squares demonstrates the good fit of the model, the R² of which is higher than 0.3, that can be considered a satisfactory rate also compared to some previous studies [57]. The dummy variable is significant at a level of 1%, showing a positive coefficient, which means that firms going bankrupt do tend to manipulate earnings in order to “window dress” their financial statements. As a consequence, we can accept our first and key hypothesis, according to which failing companies are more likely to indulge in earnings management and even manipulation practices than their financially sounder counterparts. Therefore, we can assert that before filing for bankruptcy, failing companies try to hide losses and make up for their excessive indebtedness, in order to avoid the direct and indirect costs generated by the procedure [71-72].

The variable SIZE is also significant at a level of 1%, showing a negative coefficient, as we expected. Consequently, we can confirm our third hypothesis, according to which small firms are more likely than big ones to perpetrate manipulation practices, with firm’s size being negatively correlated to earnings manipulation. This means that, facing very little information disclosure obligation and presenting a higher degree of asymmetric information [48], small firms indulge in earnings manipulation more easily and frequently than big companies in order to improve their financial statements.

The variable LEV is significant at a level of 1% and shows a positive sign, as hypothesized. This means that earnings manipulations are affected not only by the failed/non failed status, but also by a mere situation of severe financial imbalance, which can lead a company to carry out fraudulent behaviors. The variable ATA shows a positive sign, in accordance with our expectations, and it is significant at a level of 1%, pointing out that there are earnings management behaviors in the period we analyzed. The difference between EBITDA and Cash flow, even being significant at a level of 5%, shows a negative coefficient sign, which is in contrast with our expectations: this outcome leads us to state that for small, non-listed companies, this factor cannot be considered as a good predictor of earnings manipulations actions.

The results of our model, especially those concerning both the vari-

able FAIL and the variable LEV, seem to suggest that the main reason of earnings management practices within the SMEs realm is to keep obtaining credit from banks. In order to better test this prediction, we performed a second regression model where yearly changes in leverage (ΔLEV_{it}) represent the dependent variable, as the following equation illustrates:

$$\Delta LEV_{it} = \alpha + \beta_1 FAIL_{it} + \beta_2 |E(DA_{it})| + \beta_3 SIZE_{it} + \beta_4 CF_{it} + \beta_5 (EBITDA - CF)_{it} + \beta_6 ATA_{it} + \varepsilon_{it} \tag{6}$$

Where: ΔLEV_t is leverage in year t less leverage in year $t-1$; FAIL_{it} is a dummy variable, coded one (1) if the company went bankrupt, zero (0) otherwise; |E(DA_{it})| is the absolute value of estimated discretionary accruals; SIZE_t is the natural logarithm of total assets; CF_t is the operating cash flow; EBITDA - CF_t is the difference between EBITDA and operating cash flow; ATA_t is the natural logarithm of absolute value of total accruals.

Following the same approach used for the previous regression model, we performed a correlation analysis among the independent variables, in order to check for possible multicollinearity problems. Results of this test do not show coefficient higher than the above-mentioned 0.8 threshold [70], thus excluding the presence of such an issue [Table-5].

Table 5- Correlation matrix for control variables (second regression model)

	FAIL	E(DA _{it})	SIZE	CF	EBITDA-CF	ATA
FAIL	1					
E(DA _{it})	0.112	1				
SIZE	-0.024	-0.097	1			
CF	0.351	-0.003	0.37	1		
EBITDA-CF	0.109	0.009	0.041	0.123	1	
ATA	0.041	0.147	0.502	0.325	0.066	1

[Table-6] demonstrates that the absolute value of discretionary accruals, as a measure of earnings management practices, is statistically significant at a 10% level and shows a positive coefficient, supporting our prediction. In addition, as we expected, the variable FAIL as well as the operating cash flow (CF) are significant at a 1% level.

Table 6- Association between changes in leverage and discretionary accruals (second regression model)

Variables	Expected sign	Estimate	Std error	t value	p-value
(Intercept)		-0.056	0.049	-1.131	0.258
FAIL _{it}	+	0.104	0.017	6.156	<0.001***
E(DA _{it})	+	0.035	0.018	1.929	0.054*
SIZE _{it}	+	0.003	0.003	0.957	0.339
CF _{it}	+	0	0	-4.722	<0.001***
EBITDA - CF _{it}	+	0	0	-0.538	0.591
ATA _{it}	+	0	0	-0.201	0.841
Sum squared resid		42.55			

$$\Delta LEV_{it} = \alpha + \beta_1 FAIL_{it} + \beta_2 |E(DA_{it})| + \beta_3 SIZE_{it} + \beta_4 CF_{it} + \beta_5 (EBITDA - CF)_{it} + \beta_7 ATA_{it} + \varepsilon_{it} \tag{5}$$

ΔLEV_{it} = Leverage year t - Leverage year $t-1$; FAIL_t = a dummy variable, coded one (1) if the company went bankrupt, zero (0) otherwise; |E(DA_{it})| = absolute value of discretionary accruals; SIZE = natural logarithm of total assets; CF = Operating Cash Flow; EBITDA - CF = difference between EBITDA and operating cash flow; ATA = natural logarithm of absolute value of total accruals.

***, **, *, Statistical significance at 1%, 5% and 10% levels of significance.

In order to test the second research hypothesis, concerning the influence of the time-factor on accounting and reporting behaviors, we implemented a third model introducing year dummy variables, in order to confirm the assumption that companies accentuate earnings manipulation in years closer to bankruptcy, that is when financial conditions are getting worse. Obviously, we tested this hypothesis by considering only our first sample (failed firms), thus the equation for the adjusted regression model is the following:

$$|E(DA_{it})| = \alpha + \beta_1 SIZE_{it} + \beta_2 LEV_{it} + \beta_3 (EBITDA - CF)_{it} + \beta_4 ATA_{it} + \beta_5 D1_i + \beta_6 D2_i + \beta_7 D3_i + \varepsilon_{it} \quad (7)$$

Where: $|E(DA_{it})|$ is the absolute value of estimated discretionary accruals; $SIZE_{it}$ is the natural logarithm of total assets; LEV_{it} is the leverage ratio of firms, represented by the ratio total debt / total assets; $EBITDA - CF$ is the difference between EBITDA and operating cash flow; ATA_{it} is the natural logarithm of absolute value of total accruals; $D1$ = time dummy variable, coded one (1) for year 2007 and zero (0) otherwise; $D2$ = time dummy variable, coded one (1) for year 2008 and zero (0) otherwise; $D3$ = time dummy variable, coded one (1) for year 2009 and zero (0) otherwise; ε_{it} is the error term in year t .

It is worth noticing that we only used three dummy variables out of the four available in order to avoid problems of perfect collinearity [73] (the so-called *dummy variable trap*).

[Table-7] illustrates the results of [eq-7].

Table 7- Association between discretionary accruals and year of failure of firms (third regression model)

Variables	Exp. sign	Estimate	Std error	t value	p-value
const		1.286	0.405	3.179	0.002***
$SIZE_{it}$	-	-0.088	0.027	-3.217	0.002***
LEV_{it}	+	0.118	0.06	1.972	0.051*
$EBITDA - CF_{it}$	+	0.003	0.004	0.629	0.531
ATA_{it}	+	0.004	0	3.059	0.003***
$D1_i$	-	-0.003	0.07	-0.045	0.964
$D2_i$	+	0.2	0.07	2.847	0.005***
$D3_i$	+	0.065	0.072	0.904	0.368
R-squared		0.424			
Adjusted R-squared		0.19			
F(46, 113)		1.809			0.006

$$|E(DA_{it})| = \alpha + \beta_1 SIZE_{it} + \beta_2 LEV_{it} + \beta_3 (EBITDA - CF)_{it} + \beta_4 ATA_{it} + \beta_5 D1_i + \beta_6 D2_i + \beta_7 D3_i + \varepsilon_{it} \quad (6)$$

$|E(DA_{it})|$ = absolute value of discretionary accruals; $SIZE$ = natural logarithm of total assets; LEV = ratio total debt / total assets; $EBITDA - CF$ = difference between EBITDA and operating cash flow; ATA = natural logarithm of absolute value of total accruals; $D1$ = time dummy variable, coded one (1) for year 2007 and zero (0) otherwise; $D2$ = time dummy variable, coded one (1) for year 2008 and zero (0) otherwise; $D3$ = time dummy variable, coded one (1) for year 2009 and zero (0) otherwise.

***, **, *, Statistical significance at 1%, 5% and 10% levels of significance.

After adding these new elements, the prediction power of the whole model is still satisfactory.

Even though the variables $D1$ and $D3$ are not statistically significant, the signs of their coefficients are not in contrast with our expectations, indicating that earnings manipulation behaviors are less frequent in year 2007 (when the company is less close to the bankruptcy). The variable $D2$, instead, is statistically significant and its strong coefficient indicates that 2008 is the year in which earnings manipulation was performed the most. The effect of $D3$ is still posi-

tive but weaker and not statistically significant. This last outcome might be explained in the light of the “reversal mechanism”, since, as found out by Dechow, et al [7], accruals are normally mean-reverting and cannot increase continuously.

All in all, the results of the last model prove that the timing of bankruptcy does affect management’s behaviors in performing earnings manipulation and using discretionary accruals. On the other hand, since the results concerning the time dummy variables are not statistically significant for all of them, we cannot completely accept the second hypothesis, which has to be further analyzed.

Conclusions

This paper provides evidence concerning the relationship between financial distress of small and medium sized firms and earnings management actions within a family-owned economic context, such as Italy. The statistical results of our model allow us to assert that firms going bankrupt (normally characterized by a weak and unbalanced capital structure) are more likely to report fraudulent financial statements than their financially sounder counterparts: the reason behind these practices, especially within non listed SMEs, is not so much the will to meet analysts’ or shareholders’ expectations, but the necessity to keep obtaining credit from their main financial source, which is the banking system. Along the same lines, we can interpret the influence of the size factor on earnings manipulation: due to a higher degree of asymmetric information, with the aim of achieving support from financial institutions, small companies tend to indulge in earnings manipulation policies more than big firms, which are subject to stricter rules and more incisive disclosure obligations.

Therefore, the outputs of this study highlight the strong relationship between financial distress and earnings manipulation, while literature mainly refers to fraud discovery by external regulators: firms experiencing troubled financial conditions try to overestimate earnings (mainly by increasing sales) in order to “hide” their financial difficulties and to continue obtaining credit from banks. Especially in the period of crisis we have been facing, these results suggest how important detecting the financial distress of SMEs on time could be, in order to better protect company’s creditors and safeguard the value of the firm.

We believe the findings of this study could be useful not only for creditors, current and prospect investors, but also for policy makers and regulatory authorities who are in charge of monitoring financial reporting quality. For example, in the wake of French ‘warning procedures’ [74], lawmakers could provide tools able to help firms in pre-distressed periods, for example, reinforcing the role of external auditors (that have to report any difficulty which could compromise the ongoing business of the company) or facilitating debt renegotiations and so forth.

This also suggests further research, which could concentrate on the role of some qualitative variables: especially on the basis of the very close relationship between SMEs and banks, it could be useful to encompass factors concerning corporate governance, audit quality and so forth. In addition, as the majority of studies in this field are focused on the Anglo-Saxon context (the US and the UK), it could be very interesting to perform a cross-country analysis of earnings management practices of financially distressed firms: carrying out a comparison between Italy (plus other *civil law* countries) and nations subject to a *common law* system, would allow us to highlight the main differences in management behaviors under different reg-

ulatory schemes.

End Notes

¹The acronym stands for "Analisi Informatizzata Delle Aziende Italiane" (Computerized analysis of Italian companies).

²Negative working capital in the most recent year; a net loss in the most recent year; both negative working capital and net loss in the most recent years.

³Income-increasing earnings management practices are more common in firms with concentrated ownership.

⁴Even the few studies about earnings management/manipulation within Continental Europe examine the behaviors of listed firms [42].

⁵Contrary to what one may think, in our perspective the need for financial resources and for bank credit counterweights the tax effect. Consequently, the earnings management and manipulation actions are supposed to be aimed at increasing reported revenues and income.

⁶The submission of official financial statements to the Chamber of Commerce is mandatory only for limited liability, public companies and cooperatives.

⁷It is worth highlighting that in [eq-5] the companies belonging to the two samples are considered jointly, in order to examine the influence of the abovementioned dummy variable (bankruptcy/non bankruptcy).

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