THE IMPACT OF THE FINANCIAL CRISIS ON EARNINGS MANAGEMENT: EMPIRICAL EVIDENCE FROM ITALIAN AND SPANISH LISTED COMPANIES

Francesco De Luca [*], Francesco Paolone [**]

* *Corresponding author*, Department of Business Administration, University "G. d'Annunzio", Pescara, Italy
Contact details: Department of Business Administration, University "G. d'Annunzio", Viale Pindaro, 42 –65127 Pescara, Italy
** Department of Management, LUISS "Guido Carli" University, Rome, Italy

OPEN ACCESS

How to cite this paper: De Luca, F., & Paolone, F. (2019). The impact of the financial crisis on earnings management: Empirical evidence from Italian and Spanish listed companies. *Corporate Ownership & Control, 16(2),* 121-130. http://doi.org/10.22495/cocv16i2art12

ISSN Online: 1810-3057
ISSN Print: 1727-9232

Received: 29.12.2018
Accepted: 13.03.2019

JEL Classification: G14, G30, M40, M41
DOI: 10.22495/cocv16i2art12

Abstract

Our study adopts a reliable and widely acknowledged model to detect accounts manipulation in order to assess the impact of the financial crisis on Italian and Spanish listed companies' propensity to manage their earnings.
The analysis is conducted on 565 publicly traded companies on the Italian and Spanish financial markets during the time period 2005-2013.
We find a lower propensity to manipulate earnings in both countries during the pre-crisis period (2005-2008) as suggested by a decrease in the number of high-risk manipulators until 2008 included. With the spread of the financial crisis, companies become more manipulators. We believe that the reason for this is to avoid giving bad news to markets, investors, and lenders after that the crisis may have impacted too negatively on firms' performance indicators and financial equilibrium. Our empirical results provide various implications for further studies related to managements' incentives concurrently with security offerings.

Keywords: Financial Crisis, Earnings Management, Earnings Manipulation, Transparency, Italian Listed Companies, Spanish Listed Companies

1. INTRODUCTION

Company executives are often inclined to accounts manipulation, including earnings management, in order to meet stakeholders' expectations. This leads to financial reporting that may not fairly present the firms' operations. Moreover, some scholars (Stolowy & Breton, 2004) contend that account manipulation can lead to inefficient capital markets. Extant accounting literature (Burgstahler & Dichev, 1997, Barth et al., 2008; Healy & Wahlen, 1999) states that company managers acknowledge the importance of meeting earnings to achieve targets (i.e. loss avoidance or analysts' forecasts) as well as recognize that earnings attainment represents a relevant motivation for accounting manipulation (DeFond & Jiambalvo, 1994; Gunny, 2010; Jiambalvo, 1996; Prior et al., 2008; Trombetta & Imperatore, 2014). Stolowy and Breton (2004) provide the following definition of account manipulation, "the management's discretionary decision to make accounting choices that may affect the transfer of wealth between companies, the company and capital providers, the company and managers or managers". (pp. 6-7)

Earnings management (EM) is a particular kind of account manipulation and it has been associated with accrual accounting. In fact, among many accounting scholars who have defined earnings manipulation and proposed the above association, earnings management (EM) has been defined by Schipper (1989, p. 92) as "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain".

Many scholars have debated the role of EM as resulting in misleading stakeholders about a firm's performance (Healy & Wahlen, 1999). In this context, EM is an active manipulation of earnings toward a predetermined target (Diamastuti et al., 2016; Mulford & Comiskey, 2002). However, rather than arguing the merits of accrual accounting, we study EM as a means of achieving a target during non-financial crisis vs. financial crisis times.

Therefore, the objective of this paper is to assess whether managers do manipulate accounts more often during the time of the financial crisis than otherwise. We conduct this analysis by

comparing Italian and Spanish listed companies behaviours because Italy and Spain are both European countries with similar economies, corporate models and number of listed companies. Moreover, as EU countries, both Italy and Spain adopted IFRS for their listed companies' financial reports.

By observing accounting data performed by listed companies from both Italy and Spain, we compute eight ratios as defined by Beneish (1999). Beneish (1997) finds that his eight ratios capture financial statement distortions and provide timely assessments of the likelihood of distortions[20] especially when considered in conjunction with management incentives.

Beneish finds that companies are incentivized to manipulate profits if they have high sales growth, deteriorating gross margins, rising operating expenses, and rising leverage. They are likely to manipulate profits by speeding up sales recognition, increasing cost deferrals, raising accruals and reducing depreciation.

Therefore, we use the Beneish (1999) model of eight performance ratios to predict the probability of fraud cases of Italian and Spanish listed companies. So, for each firm-year from 2005 to 2013, we compute the Beneish ratios and consider management's incentive. Then we observe the trend across the years and consider that the recent financial crisis has impacted the economic environment in Italy as well as in Spain starting in late 2008 and 2009. That is, we compare the final scores along with a trend line which distinguishes two equal periods of four years: a pre-crisis time period (2005-2008), and crisis-period (2009-2013). This let us assess whether Italian listed companies have a high or low probability of EM compared to the Spanish ones.

Findings show that the global financial crisis has not had a linear impact on earnings manipulation from Italian and Spanish listed companies. In fact, dependence does not appear between crisis and earnings manipulation among Italian and Spanish listed companies in the way that both countries show an irregular tendency in the number of high-risk and low-risk manipulators.

We believe that Italian and Spanish firms could have a greater propensity to manipulate accounts during crisis periods to avoid or reduce losses in order to keep satisfying, only apparently, stakeholder expectations.

Our analysis is conducted by adopting a reliable and widely acknowledged model of the likelihood of manipulation of accounts in order to assess the impact of the financial crisis on Italian and Spanish listed companies' accounts. Moreover, this study is useful in assessing the reliability of the financial statements of Italian listed companies compared to the Spanish ones. This analysis could also be helpful to banks and other lending and investing entities as it represents an additional useful tool to detect account manipulation and accounting fraud and to reduce information asymmetry during the period of financial crisis.

In explaining our analyses, the remainder of this paper proceeds as follow. Next, we present a literature review of EM studies during the financial crisis followed by an identification of the performance indicators used to determine EM probability as developed by Beneish. Then we present our empirical analyses results of the Italian and Spanish companies and tests of these probabilities pre-crisis and during the financial crisis. We conclude with comments on our main findings and provide suggestions for further research.

2. ECONOMIC BACKGROUND AND PRIOR STUDIES

2.1. Economy outlook in Italy and Spain over the global crisis period[21]

Before analyzing the EM among the Italian and Spanish listed companies over the past years, it is useful to have a glance at the Economic outlook of both countries in order to see how they reacted to the financial crisis.

Italy

Italy is considered the eight-largest national economy in the world and the fourth-largest in Europe by GDP. Italy is also the tenth largest exporter in the world with $474 billion in 2013. The economic structure relies mainly on services (three-quarters of the total GDP and employs around 65% of the Italian total employees) and manufacturing industries (specialized in high-quality goods and run by SMEs, most of them are family-owned businesses). One of the most important pillars of the economy is the production of high-quality products (machinery, textiles, industrial designs, alimentary and furniture) which contribute substantially to the country's exports. Italian economic data are summarized in Table 1.

The country can be divided into two different geographic parts: a developed and highly-industrialized northern part, where approximately 75% of the nation's wealth is generated; and a less-developed, more agriculture-oriented southern part. As a result, unemployment in the north is lower and per capita income is higher compared to the south. Italy is also a poor country in national resources, its energy and manufacturing sectors are highly dependent on imports. Italy is presently suffering from political instability, economic stagnation and lack of structural reforms. The global crisis had a deteriorating effect on the already fragile Italian economy. In 2009, the economy suffered a hefty 5.5% contraction – the strongest GDP (1,573 billion of € in 2009) drop in decades. Since then, Italy has shown no clear trend of recovery. In fact, in 2012 and 2013 the economy recorded contractions of -2.3% and -1.9% respectively.

Going forward, the Italian economy faces a number of important challenges, one of which is unemployment. The weaknesses of the Italian labor market are demonstrated by the unemployment rate has increased constantly in the last years: in 2013, it reached 12.2%, which is the highest level on record. Another challenge is represented by the difficult status of the country's public finances. As said before, Italy is the fourth-largest economy in the euro-zone, but its exceptionally high public debt that has increased steadily since 2007, reaching 128.5% of GDP in 2013.

[20] We intend distortions as financial statement distortions which capture unusual accumulations in receivables (DSRI, indicative of revenue inflation), unusual growth of sales (SGI), unusual growth of selling, general and administrative expenses (SGAI), unusual capitalization and declines in depreciation (AQI and DEPI, both indicative of expense deflation), unusual propensity to borrow money (LVGI), deterioration of gross margin (GMI) and the extent to which reported accounting profits are supported by cash profits (TATA).

[21] Data has been taken from FocusEconomics.com

Table 1. Key figures of the Italian economy (2009-2013)

	2009	2010	2011	2012	2013
Population (million)	59.0	59.2	59.4	59.4	59.7
GDP per capita (EUR)	26,657	27,106	27,615	27,189	26,960
GDP (EUR bn)	1,573	1,604	1,639	1,615	1,609
Economic growth (GDP, annual variation in %)	-5.5	1.7	0.7	-2.8	-1.7
Domestic demand (annual variation in %)	-3.0	0.7	-0.7	-4.5	-2.8
Consumption (annual variation in %)	-1.5	1.3	0.0	-4.0	-2.8
Investment (annual variation in %)	-10.0	-0.6	-1.7	-9.4	-5.8
Exports (G&S, annual variation in %)	-17.9	11.8	5.2	2.3	0.5
Imports (G&S, annual variation in %)	-12.7	12.4	0.5	-8.1	-2.3
Industrial production (annual variation in %)	-18.7	6.7	1.2	-6.4	-3.1
Unemployment rate	7.8	8.4	8.4	10.6	12.2
Fiscal balance (% of GDP)	-5.3	-4.2	-3.5	-3.0	-2.8
Public debt (% of GDP)	112.5	115.3	116.4	123.1	128.5

Spain

Spain experienced a prolonged recession in the wake of the global financial crisis. Much of the investment that came into Spain went into real estate. Housing investment in Spain sat at 9.5% of GDP in 2007, twice that of the European average. The main reason for the Spanish crisis was its enormous housing bubble and the accompanying artificial and unsustainably high GDP growth rate. GDP contracted by 2.7% from 2009 to 2013. Economic growth resumed in late 2013 as credit contraction in the private sector, fiscal austerity, and high unemployment continued to weigh on domestic consumption and investment. Exports, however, have been resilient throughout the economic downturn, partially offsetting declines in domestic consumption and helped to bring Spain's current account into surplus in 2013 for the first time since 1986. The unemployment rate rose from 17.9% in 2009 to more than 26% in 2013, straining Spanish public finances as spending on social benefits increased while tax revenues fell. Public debt has increased substantially – from 54% of GDP in 2009 to 93.9% in 2013. Rising labor productivity, moderating labor costs, and lower inflation have helped to improve foreign investor interest in the economy and to reduce government borrowing costs. The government's ongoing efforts to implement reforms, labor, pension, health, tax, and education, are aimed at supporting investor sentiment. The government also has shored up struggling banks exposed to Spain's depressed domestic construction and real estate sectors by successfully completing an EU-funded restructuring and recapitalization program in December 2013. Spanish economic data are summarized in Table 2.

Table 2. Key figures of the Spanish economy (2009 – 2013)

	2009	2010	2011	2012	2013
Population (million)	46.4	46.6	46.7	46.8	46.6
GDP per capita (EUR)	23,271	23,214	23,005	22,563	22,510
GDP (EUR bn)	1,079	1,081	1,075	1,055	1,049
Economic growth (GDP, annual variation in %)	-3.6	0.0	-0.6	-2.1	-1.2
Domestic demand (annual variation in %)	-6.0	-0.5	-2.7	-4.2	-2.7
Consumption (annual variation in %)	-3.7	0.2	-2.0	-3.0	-2.3
Investment (annual variation in %)	-16.9	-4.9	-6.3	-8.1	-3.8
Exports (G&S, annual variation in %)	-11.0	9.4	7.4	1.2	4.3
Imports (G&S, annual variation in %)	-18.3	6.9	-0.8	-6.3	-0.5
Industrial production (annual variation in %)	-15.2	0.8	-1.5	-6.6	-1.5
Unemployment rate	17.9	19.9	21.4	24.8	26.1
Fiscal balance (% of GDP)	-11.1	-9.6	-9.6	-10.6	-7.1
Public debt (% of GDP)	54.0	61.7	70.5	86.0	93.9

According to the above-mentioned economic data about Italy and Spain, we may argue that both countries have been strongly suffering the global economic crisis and they have witnessed a very complicated situation since all the economic data show a not favorable scenario.

2.2. Prior studies on earnings manipulation and financial crisis

According to the prior literature, "accruals" are used as a means for EM adjustments that may result in adverse consequences. Accruals may be explained as the difference between cash flows and operating income and are computed as follows (Healy, 1985; De Angelo, 1986):

Accruals = Reported earnings – Cash flows from operations

Healy (1985) and De Angelo (1986) have used the above model to find evidence of income manipulation in a different setting, adopting non-discretionary accruals. Many accounting scholars have analyzed the relationship between EM and accruals estimates driven by the advent of readily calculable EM metrics (Jones, 1991; Dechow et al., 1995) and policy concerns raised by influential accounting standard setters (see Prather-Kinsey & Shelton, 2005). The relevant contribution provided by Jones (1991) is based on a linear regression approach that uses non-discretionary accrual variables including sales revenue and property, plant and equipment.

Many studies have improved upon EM measurement models. Dechow et al. (1995) updated the Jones model by providing the Modified Jones model which has become one of the most widely used models in earnings management research. The Modified Jones model includes an adjustment to sales based on the change in receivables. Peek et al. (2013) have recently contributed by comparing

abnormal accruals across different countries. By using the two accruals estimation models, the Modified Jones model and the Dechow and Dichev (2002), they found that the accruals models exhibit considerable cross-country variation in predictive accuracy and power to detect earnings management.

Other authors stated that EM can be achieved by using accounting methods and estimates (i.e., an accrual-based manipulation) (Bartov, 1993) or by undertaking transactions that make reported income closer to some target numbers, rather than maximizing the firm's discounted expected cash flows (Roychowdhury, 2006). In addition, some studies have explored real earnings manipulation in the context of early debt retirements (Hand, 1989) and in politically influenced firms (Sadiq & Othman, 2017). Some (Ronen & Sadan, 1981; Dye, 1988; Trueman & Titman, 1988) have contributed to this literature by showing that EM can be undertaken through asset sales. In this context, Beneish (1999) provides a contribution by concentrating on eight financial indicators (performance ratios) and demonstrating their ability to categorize companies in two different groups: potential and non-potential earnings manipulators.

By the way, over the past decade, there has been a huge increase in studies of financial crisis and earnings manipulation (Filip & Raffournier, 2014; Dimitras et al., 2015; Francis et al., 2013; Habib et al., 2013; Persakis & Iatridis, 2016; Saleh & Ahmed, 2005; Shivakumar et al., 2011).

One issue of the financial crises, in general, is the increase of uncertainty among lenders and investors about fundamental values of assets, which leads to greater volatility in the market prices of assets (Trombetta & Imperatore, 2014). According to Trombetta and Imperatore (2014), a financial crisis can be defined as a sudden or gradual interruption in the ongoing functioning of financial markets. This situation of uncertainty increases the asymmetry of information and lenders progressively lose confidence in the accuracy of the information they have about borrowers (Mishkin, 1991; Gorton, 2008).

Under the conditions of financial crises, financial and capital market participants are more skeptical, and the investors are willing to sell off their securities, sending a negative signal to the markets as well as to new potential investors who may be reluctant to invest (Trombetta & Imperatore, 2014). These investors could also require a higher return as a consequence of the higher levels of capital market risks. Both investors and creditors might have less propensity to invest or lend money because of the higher probability of the counterparty's default.

Many scholars have discussed the impact of the financial crises on EM. Kasznik and McNichols (2002) and Matsumoto (2002) have provided a significant contribution by analyzing how executives carry out earnings manipulation policies in order to attain firms' targets and avoid, at the same time, the communication of bad earnings news to markets.

Bartov et al. (2002) described how managers manage earnings in order to alter the market's evaluation of the firm's likelihood to survive and, hence, reduce the average cost of capital. Willekens and Bauwhede (2003) and Huijgen and Lubberink (2005) state that managers are less likely to manipulate earnings in a situation of stronger litigation risk in order to reduce the external exposure of the litigation. These results imply that during times of financial crisis, regulatory bodies may be more likely to closely regulate firms than in times of non-financial crisis. Therefore, firms may be more likely to not manage earnings in financial crisis periods. In considering extant accounting literature, several possibilities are equally likely, and we could expect either more or less EM during a financial crisis. Consequently, we consider it relevant for this debate to conduct an analysis of this relationship by comparing Italian and Spanish markets. We apply the reclassified Beneish Model, also known as Manipulation Score (Beneish, 1997, 1999, 2001; Beneish et al., 2013), in order to verify whether the impact of the financial crisis on EM is positive or negative during the time-period from 2005 to 2013. A hypothesis for our empirical analysis is stated as follows:

H1: On average, more firms both from Italy and Spain will have a high probability of EM manipulation after the financial crisis (2009-2013) than otherwise (2005-2008). On the other hand, fewer firms will have a high probability of manipulation immediately before the financial crisis (2005-2008) than otherwise (2009-2013).

3. METHODS AND VARIABLES

The manipulation score (Beneish, 1997, 1999, 2001; Beneish et al., 2013) is a mathematical model based on eight financial ratios used to identify whether a company has a significant likelihood of managing and manipulating its earnings. The variables are obtained from the firms' financial statements and linked together within a score that describes the rate of earnings manipulation and, consequently, the profile of a company as a "potential earnings manipulator". Beneish suggests using the value of -1.78 as a threshold to distinguish which firms have manipulated their earnings. The variables of the model follow (see the respectively extended formulas in Appendix A):

1. *DSRI* (*Days Sales in Receivables Index*). It is the indicator of revenue inflation that measures the days' sales in receivables compared to the prior year. A significant increase in days' sales in receivables means a disproportionate increase in receivables relative to sales that suggest revenue inflation. The higher increase in the *DSRI* the greater likelihood that revenues and earnings are overstated.

2. *GMI* (*Gross Margin Index*). The decrease in gross margin value can be a negative signal about a company's health and future incomes. A value higher than 1 suggests a deterioration of gross margin and can force managers to manipulate earnings. To sum up, the gross margin is related to the change in inventories and other production costs that can increase the likelihood of manipulation. Thus, Beneish assumes this variable specifically related to production costs and changes in inventory, which can cause earnings manipulation practices.

3. *AQI* (*Asset Quality Index*). The asset quality indicator is the ratio of non-current assets other than property, plant, and equipment (PPE) to total asset and measures the proportion of total assets for which future benefits are less certain. Beneish expects a positive relationship between *AQI* and earnings manipulation practices. The higher value of *AQI* the greater the propensity in deferring and capitalizing costs in order to increase earnings.

4. *SGI* (*Sales Growth Index*). "If growth companies face large stock price losses at the first indication of a slowdown, they may have greater

incentives than non-growth companies to manipulate earnings" (Beneish, 1999, p. 27). There would be a strong positive relationship between the growth of sales and the likelihood of EM because managers may be more incentivized to manipulate earnings.

5. *DEPI* (*Depreciation Index*). The *DEPI* measures the ratio of the depreciation rate in year t-1 to the corresponding rate in year t. If the index is greater than 1, it indicates that the tangible assets are being depreciated at a slower rate. This suggests that the firm might be revising useful asset life assumptions upwards in a way to increase income. There would be a positive correlation between *DEPI* and earnings manipulation.

6. *SGAI* (*Sales, General and Administrative Expenses Index*). This ratio shows the *SGA* expenses in year t relative to the previous year. If there is a disproportioned increase in selling, general and administrative expenses compared to sales revenues, there would be a negative signal about a company´s prospects. Beneish expects a strong positive association between the index and the likelihood of manipulation.

7. *LVGI* (*Leverage Index*). This ratio shows the total debt (current and long-term) in year t relative to the previous year. Beneish stated that *LVGI* was included to capture incentives in debt covenants for earnings manipulation.

8. *TATA* (*Total Accruals to Total Assets*). The value of total accruals, normalized by total assets, is a proxy used to assess the discretionary accounting choices undertaken by managers in order to practice manipulations. There would be thus a positive correlation between accruals and EM.

In summary, these ratios have a predictive function and focus on financial statement distortions which capture unusual accumulations in receivables (*DSRI*, indicative of revenue inflation), unusual growth of sales (*SGI*), unusual growth of selling, general and administrative expenses (*SGAI*), unusual capitalization and declines in depreciation (*AQI* and *DEPI*, both indicative of expense deflation), unusual propensity to borrow money (*LVGI*), deterioration of gross margin (*GMI*) and the extent to which reported accounting profits are supported by cash profits (*TATA*).

4. DATA COLLECTION AND MODEL RECLASSIFICATION

In light of the above methodology based on the Beneish variables, the analysis is conducted using the 565 companies listed on the Italian and Spanish markets during the time period 2005-2013.

The following Table 3 illustrates the sample selection process. We gather accounting data from the Amadeus Bureau Van Dijk database of firm-year observations from 2005 to 2013. 159 companies of the above 565 are removed from the sample because belonging to banking and other financial sectors. Some of the companies belonging to the remaining 406 companies are removed from the sample too because they present missing values in the database which do not allow to calculate the manipulation score for a specific year. The number of removed companies depends on the year of observation and this is the reason why the number of removed companies is not constant over the considered period. The same Table 3 shows the details of the sampling process jointly for Italy and Spain and then separately between the two countries.

The coverage percentage is obtained by dividing the number of companies included in the study by the number of selected companies. As shown in Table 3, the coverage rate is never lower than 50% across all years of observation for both countries and for the aggregate as well. It follows that we can consider the sample reliable for our analysis purposes.

The eight indicators are computed by gathering financial accounting data. We use some proxies because the financial reports database (Amadeus Bureau Van Dijk) does not report all detailed data as exactly requested for Beneish Model adoption. Therefore, gathered data and proxies are listed in Table 4 as follows (see also Appendix B for details). With reference to Table 4 we adopt the same approach of Beneish (1999) where, if several financial accounting data are not available, the author assumes to keep the variable constant over the year (except for *TATA* index). This is why we assume *SGAI* always with value 1.

Table 3. Sample selection and coverage rate

	Total Italy and Spain								
	2013	***2012***	***2011***	***2010***	***2009***	***2008***	***2007***	***2006***	***2005***
All listed companies	565	565	565	565	565	565	565	565	565
Banking and other financial sectors	159	159	159	159	159	159	159	159	159
Selected companies	406	406	406	406	406	406	406	406	406
Companies with missing values	77	65	69	75	98	127	140	156	170
Companies included in the analysis	329	341	337	331	308	279	266	250	236
Coverage rate	*81.0%*	*84.0%*	*83.0%*	*81.5%*	*75.9%*	*68.7%*	*65.5%*	*61.6%*	*58.1%*
	Italy								
	2013	***2012***	***2011***	***2010***	***2009***	***2008***	***2007***	***2006***	***2005***
All listed companies	254	254	254	254	254	254	254	254	254
Banking and other financial sectors	9	9	9	9	9	9	9	9	9
Selected companies	245	245	245	245	245	245	245	245	245
Companies with missing values	41	37	39	47	65	75	89	103	109
Companies included in the analysis	204	208	206	198	180	170	156	142	136
Coverage rate	*83.3%*	*84.9%*	*84.1%*	*80.8%*	*73.5%*	*69.4%*	*63.7%*	*58.0%*	*55.5%*
	Spain								
	2013	***2012***	***2011***	***2010***	***2009***	***2008***	***2007***	***2006***	***2005***
All listed companies	311	311	311	311	311	311	311	311	311
Banking and other financial sectors	150	150	150	150	150	150	150	150	150
Selected companies	161	161	161	161	161	161	161	161	161
Companies with missing values	36	28	30	28	33	52	51	53	61
Companies included in the analysis	125	133	131	133	128	109	110	108	100
Coverage rate	*77.6%*	*82.6%*	*81.4%*	*82.6%*	*79.5%*	*67.7%*	*68.3%*	*67.1%*	*62.1%*

Table 4. Beneish Model variables and selected proxies

Financial data requested for Beneish Model adoption	*Selected proxies*
Sales	Sales or operating revenues
Receivables	Other current assets
Costs of goods sold	Operating costs
Current assets	Current assets
PPE (as expressed in AKI indicator)	PPE
Total assets	Total assets
Depreciation	Depreciation
PPE (as expressed in DEPI indicator)	Tangible assets & intangible assets
SGA expenses	*Not available: we assume value 1*
Long-term debts	Long-term debts
Current liabilities	Current liabilities
Cash & cash equivalents	Cash & cash equivalents
Income taxes	Taxation
Current portion of LTD	Loans
Depreciation and amortization	Depreciation and amortization

The manipulation score for each company is obtained from the formula and it is computed for every year of the 2005-2013 time period.

We use the "full version" of the reclassified Beneish Model (8M-Score) in order to monitor the impact of the financial crisis on EM before and after the financial crisis periods. Therefore, we expect a positive correlation between the financial crisis and the number of stock companies for Italian and Spanish firms, along with a high probability of being manipulated.

The eight diagnostic tools have been reclassified according to financial reports under IFRS (see Appendix B) into the M-Score formula in order to achieve the final score that will be later compared to the threshold of -1.78 (Beneish et al., 2013). By applying the reclassified model, it is possible to categorize companies into two different groups for every year of observation: firms with a low probability of EM, and firms with a high probability of EM.

$$Manipulation\ Score = -4.840 + 0.920*DSRI + 0.528*GMI + 0.404*AQI + 0,892*SGI + 0.115*DEPI - 0.172*SGAI - 0.327*LVGI + 4.679*TATA \quad (1)$$

The *GMI* is constructed by computing all the costs directly attributed to Sales. However, Beneish states that the accounts most affected by earnings manipulation where managers have wide margins of correction actions are the changes in inventories and the production costs. Thus, we assume this variable specifically related to production costs and changes in inventory, which can cause earnings manipulation practices. Within *TATA* index, the value of current maturity of long-term debt (LTD) is assuming equal to 0 for two reasons: first of all, because Italian GAAP does not show the account of statement of financial position and, secondly because it constitutes a not significant value.

5. FINDINGS AND DISCUSSION

By considering the above threshold of -1.78 (Beneish et al., 2013), the 53% of the aggregate of sampled Italian and Spanish companies appear to have a high probability of manipulating earnings in 2005. Since 2006 to 2008 included, the percentage decreases to 46.4%, 39.8% and 37.6%, respectively in 2006, 2007 and 2008. In 2009, as the crisis starts to impact on economies of the two compared countries, the percentages change a slight increase percentage of companies with a high probability of EM (from 37.6% to 40.6%) and, then, again coming to 42.6% in 2010. Afterward, we observe a discontinuous trend (42.6%, 37.1%, 41.6% and 35.3%, respectively in 2010, 2011, 2012 and 2013). In the average, during the crisis period (2009-2012) the percentage of companies with a high risk of EM (40.5%) is lower than the previous period (2005-2008) (44.2%). But if we consider that before crisis appearance (2008) percentage of companies with a high probability of EM is 37.6%, it follows that the recent financial crisis has had, ceteris paribus, a positive impact on EM. The separate observations of the two countries evidence show that in Italy this impact has been soft and more constant across the years, while in Spain it has firstly been stronger and then more fluctuating in the 2011-2013 period. However, we can consider hypothesis *H1* as confirmed.

Table 5 illustrates the probability of EM during the pre-crisis and crisis periods both as an aggregate (Italy and Spain) and as separate countries. Moreover, Figure 1 shows the percentage of Italian and Spanish listed companies with a high likelihood of EM.

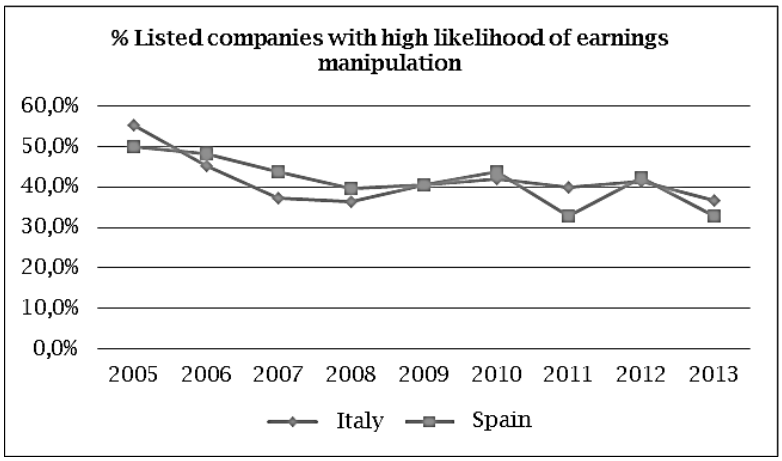
Table 5. Numbers and percentage of the companies with a high probability of EM in Italy and Spain (Part 1)

	Total Italy and Spain								
	2013	***2012***	***2011***	***2010***	***2009***	***2008***	***2007***	***2006***	***2005***
Companies included in the analysis	329	341	337	331	308	279	266	250	236
Companies with a high EM (>-1.78)	116	142	125	141	125	105	106	116	125
Companies with a low EM (<=-1.78)	213	199	212	190	183	174	160	134	111
% Companies with a high prob. of EM	*35.3%*	*41.6%*	*37.1%*	*42.6%*	*40.6%*	*37.6%*	*39.8%*	*46.4%*	*53.0%*
% Companies with a low prob. of EM	*64.7%*	*58.4%*	*62.9%*	*57.4%*	*59.4%*	*62.4%*	*60.2%*	*53.6%*	*47.0%*
	Italy								
	2013	***2012***	***2011***	***2010***	***2009***	***2008***	***2007***	***2006***	***2005***
Companies included in the analysis	204	208	206	198	180	170	156	142	136
Companies with a high EM (>-1.78)	75	86	82	83	73	62	58	64	75
Companies with a low EM (<=-1.78)	129	122	124	115	107	108	98	78	61
% Companies with a high prob. of EM	*36.8%*	*41.3%*	*39.8%*	*41.9%*	*40.6%*	*36.5%*	*37.2%*	*45.1%*	*55.1%*
% Companies with a low prob. of EM	*63.2%*	*58.7%*	*60.2%*	*58.1%*	*59.4%*	*63.5%*	*62.8%*	*54.9%*	*44.9%*

Table 5. Numbers and percentage of the companies with a high probability of EM in Italy and Spain (Part 2)

	Spain								
	2013	***2012***	***2011***	***2010***	***2009***	***2008***	***2007***	***2006***	***2005***
Companies included in the analysis	125	133	131	133	128	109	110	108	100
Companies with a high EM (>-1.78)	41	56	43	58	52	43	48	52	50
Companies with a low EM (<=-1.78)	84	77	88	75	76	66	62	56	50
% Companies with a high prob. of EM	*32.8%*	*42.1%*	*32.8%*	*43.6%*	*40.6%*	*39.4%*	*43.6%*	*48.1%*	*50.0%*
% Companies with a low prob. of EM	*67.2%*	*57.9%*	*67.2%*	*56.4%*	*59.4%*	*60.6%*	*56.4%*	*51.9%*	*50.0%*

Figure 1. Percentage trends of companies with a high probability of EM



6. CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In conclusion, findings show that the global financial crisis has a certain impact on earnings manipulation for Italian and Spanish listed companies. In fact, the empirical analysis shows that starting from 2009 the crisis inverts the previous trend of decreasing percentages of companies performing higher probabilities of EM, both for Italy and Spain. The first years of the crisis period, in fact, present an increase in the percentage of earnings manipulators among Italian and Spanish listed companies. In the following years of the crisis period, Spanish sample shows a more irregular trend in the number of high-risk and low-risk manipulators.

We argue that, during the pre-crisis period (2005-2008), there is a lower propensity for manipulating earnings in Italy and in Spain as well; both countries indicate a decrease in the number of high-risk manipulators until 2008 included. Afterward, with the spread of the financial crisis, companies react by becoming more manipulators. In fact, these companies' behavior is quite expectable. The spread of the crisis usually reduces performance indicators and also affects financial equilibrium. Therefore, companies react by increasing their propensity to manage earnings by using accruals and accounts evaluation discretion. This behavior is fueled by the necessity to possibly avoid disclosure about decreasing performances mainly to investors, lenders, and other various stakeholders.

These findings appear to be consistent with previous studies (in particular Trombetta & Imperatore, 2014) which state that, under the condition of financial crisis, markets participants perceive an increase in investment risk. Therefore, if on the one hand, investors pay more attention to selecting investments in companies' equity, on the other hand, lenders are less propense to loan money to companies. In this sense, investors should expect a higher rate of return in response to higher risks and lenders tend to increase the borrowing costs for companies. This study confirms that, in this context, companies try to hinder this perception of higher risk by investors and lenders and tend to manipulate information to keep their performances at the pre-crisis level.

Our study might be also used by banks and financial institutions, both in Italy and Spain, as it represents a remarkable tool to detect earnings manipulation and opportunistic behaviors, reduce information asymmetry and enhance the quality of accountability between preparers and users of financial information during the period of financial crisis. Furthermore, there might be practical implications for scholars that investigate management's incentives concurrently with security offerings.

Although the conducted analysis could be considered reliable, we have to disclose some limitations. Two important limitations should be kept in mind in case of implementation of the research findings. Most importantly, the earnings manipulation measurement model used to assess the risk of EM depends on a threshold of -1.78, fixed by Beneish in a recent study (2013). Since the results depend on one single value, this could make research findings less reliable. Secondly, the global financial crisis period is debatable. The global crisis period taken into account could not be the same for Italy and Spain. The period is based on the trend in GDP worldwide: as the GDP trend shows there is a huge drop in 2008, we assume it overlaps with the beginning of the crisis.

In terms of data analysis, a promising research path could be to cluster different countries (EU and non-EU) as well as different industries. It would be also interesting to assess the likelihood of EM occurring in manufacturing industries and the financial/banking sectors. It would be useful to focus on multiple country-setting in order to analyze

the impact of the crisis on EM in different contexts and compare findings afterward.

Furthermore, it would also be useful to consider other parameters in addition to listed companies: for example, we could rank companies by sales revenues, operating revenue, net profit, cash & cash equivalents etc. as well as explore all of the single values of Manipulation Score in order to provide an insight into specific policies which companies are carrying out. Moreover, the sample could be analyzed based on differences in legal origin, whether IFRS or some other accounting standard is used, culture, market infrastructure or whether tax and financial reporting regulations are similar.

There is considerable scope for further empirical research along the lines of the Beneish Model. However, we think it would be helpful if we could somehow find a way to consider additional performance indicators which indicate Earnings Manipulation. In the intellectually more advanced natural sciences, there is a greater sense of structuring of the national or even international, research agenda in which key issues are approached in a systematic way even through meta-analysis approaches.

In addition, to continue empirical research based on accounting data, we also need better integration between different types of research. In other words, we need to encourage high-quality surveys, more wide-ranging interview studies, and more thorough development of the theoretical foundations of accounting choices.

We also think there is scope for more laboratory-based research. The UK's Financial Reporting Council has created a Financial Reporting Lab to enable discussions between investors and preparers as well as facilitate better research links among academics, analysts, standard setters, professional bodies, company accountants, company auditors, and institutional investors.

REFERENCES

1. Bartov, E. (1993). The timing of asset sales and earnings manipulation. *The Accounting Review, 68(4),* 840-855. Retrieved from: https://www.jstor.org/stable/248507
2. Bartov, E., Givoly, D., & Hayn, C. (2002). The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics, 33(2),* 173-204. https://doi.org/10.1016/S0165-4101(02)00045-9
3. Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, 46(3),* 467-498. https://doi.org/10.1111/j.1475-679X.2008.00287.x
4. Beneish, M. D. (1997). Detecting GAAP violation: Implications for assessing earnings management among firm with extreme financial performance. *Journal of Accounting and Public Policy, 16(3),* 271-309. https://doi.org/10.1016/S0278-4254(97)00023-9
5. Beneish, M. D. (1999). The detection of earnings manipulation. *Financial Analysts Journal, 55(5),* 24-36. https://doi.org/10.2469/faj.v55.n5.2296
6. Beneish, M. D. (2001). Earnings management: A perspective. *Managerial Finance, 27(12),* 3-17. https://doi.org/10.1108/03074350110767411
7. Beneish, M. D., Lee, M. C., & Nichols, D. C. (2013). Earning manipulation and expected returns. *Financial Analysts Journal, 69(2),* 57-82. https://doi.org/10.2469/faj.v69.n2.1
8. Burgstahler, D., & Dichev, I. D. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics, 24(1),* 99-126. https://doi.org/10.1016/S0165-4101(97)00017-7
9. De Angelo, L. (1986). Accounting numbers as a market evaluation substitutes: A study of management buyouts of public stockholders. *The Accounting Review, 61(3),* 400-420. Retrieved from: https://www.jstor.org/stable/247149
10. Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review, 77(1),* 35-59. https://doi.org/10.2308/accr.2002.77.s-1.35
11. Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review, 70(2),* 193-225. Retrieved from: https://www.jstor.org/stable/248303
12. DeFond, M. L., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics, 17(1-2),* 145-176. https://doi.org/10.1016/0165-4101(94)90008-6
13. Diamastuti, E., Malik, A. D., & Rofelawaty, B. (2016). "Materialistic" accountant interpretation in earnings management practices. *Corporate Ownership & Control, 14(1-2),* 304-313. https://doi.org/10.22495/cocv14i1c2p2
14. Dimitras, A. I., Kyriakou, M. I., & Iatridis, G. (2015). Financial crisis, GDP variation and earnings management in Europe. *Research in International Business and Finance, 34,* 338-354. https://doi.org/10.1016/j.ribaf.2015.02.017
15. Dye, R. A. (1988). Earnings management in an overlapping generations model. *Journal of Accounting Research, 26(2),* 195-235. https://doi.org/10.2307/2491102
16. Filip, A., & Raffournier, B. (2014). Financial crisis and earnings management: The European evidence. *The International Journal of Accounting, 49(4),* 455-478. https://doi.org/10.1016/j.intacc.2014.10.004
17. Francis, B., Hasan, I., & Wu, Q. (2013). The benefits of conservative accounting to shareholders: Evidence from the financial crisis. *Accounting Horizons, 27(2),* 319-346. https://doi.org/10.2308/acch-50431
18. Gorton, G. B. (2008). *The panic of 2007* (NBER Working Paper No.14358). https://doi.org/10.3386/w14358
19. Gunny, K. A. (2010). The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research, 27(3),* 855-888. https://doi.org/10.1111/j.1911-3846.2010.01029.x
20. Habib, A., Uddin Bhuiyan, B., & Islam, A. (2013). Financial distress, earnings management and market pricing of accruals during the global financial crisis. *Managerial Finance, 39(2),* 155-180. https://doi.org/10.1108/03074351311294007
21. Hand, J. R. (1989). Did firms undertake debt-equity swaps for an accounting paper profit or true financial gain? *The Accounting Review, 64(4),* 587-623. Retrieved from: https://www.jstor.org/stable/247851
22. Healy, P. M. (1985). Evidence on the effect of bonus schemes on accounting procedure and accrual decisions. *Journal of Accounting and Economics, 7(1-3),* 85-107. https://doi.org/10.1016/0165-4101(85)90029-1

23. Healy, P. M., & Wahlen, J. M. (1999). Commentary: A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13(4),* 365-383. https://doi.org/10.2308/acch.1999.13.4.365
24. Huijgen, C., & Lubberink, M. (2005). Earnings conservatism, litigation and contracting: The case of cross-listed firms. *Journal of Business Finance and Accounting, 32(7-8),* 1275-1309. https://doi.org/10.1111/j.0306-686X.2005.00629.x
25. Jiambalvo, J. (1996). Discussion of "Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC". *Contemporary Accounting Research, 13(1),* 37-47. https://doi.org/10.1111/j.1911-3846.1996.tb00490.x
26. Jones, J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research, 29(2),* 193-228. https://doi.org/10.2307/2491047
27. Kasznik, R., & McNichols, M. (2002). Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices. *Journal of Accounting Research, 40(3),* 727-759. https://doi.org/10.1111/1475-679X.00069
28. Matsumoto, D. (2002). Management's incentives to avoid negative earnings surprises. *The Accounting Review, 77(3),* 483-514. https://doi.org/10.2308/accr.2002.77.3.483
29. Mishkin, F. S. (1991). *Asymmetric information and financial crises: A historical perspective* (NBER Working Paper No. 3400). Retrieved from The Nationa Bureau of Economic Research website: https://www.nber.org/books/glen91-1
30. Mulford, C. W., & Comiskey, E. E. (2002). *The financial numbers game: Detecting creative accounting practices.* New York: John Wiley & Sons. Retrieved from: https://www.wiley.com/en-us/The+Financial+Numbers+Game%3A+Detecting+Creative+Accounting+Practices-p-9780470495315
31. Peek, E., Meuwissen, R., Moers, F., & Vanstraelen, A. (2013). Comparing abnormal accruals estimates across samples: An international test. *The European Accounting Review, 22(3),* 533-572. https://doi.org/10.1080/09638180.2012.746518
32. Persakis, A., & Iatridis, G. E. (2016). Audit quality, investor protection and earnings management during the financial crisis of 2008: An international perspective. *Journal of International Financial Markets, Institutions and Money, 41*, 73-101. https://doi.org/10.1016/j.intfin.2015.12.006
33. Prather-Kinsey, J., & Shelton, S. (2005). IAS versus U.S. GAAP: Assessing the quality of financial reporting in South Africa, the United Kingdom, and the United States. *Advances in International Accounting, 18,* 153-168. https://doi.org/10.1016/S0897-3660(05)18008-8
34. Prior, D., Surroca, J., & Tribó, J. A. (2008). Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility. *Corporate Governance: An International Review, 16(3),* 160-177. https://doi.org/10.1111/j.1467-8683.2008.00678.x
35. Ronen, J., & Sadan, S. (1981). *Smoothing income numbers: Objectives, means, and implications.* Reading, MA: Addison-Wesley. Retrieved from: https://trove.nla.gov.au/version/45049836
36. Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42(3),* 335-370. https://doi.org/10.1016/j.jacceco.2006.01.002
37. Sadiq, M., & Othman, A. (2017). Earnings manipulations in politically influenced firms. *Corporate Ownership & Control, 15(1),* 65-71. https://doi.org/10.22495/cocv15i1art6
38. Saleh, N. M., & Ahmed, K. (2005). Earnings management of distressed firms during debt renegotiation. *Accounting and Business Research, 35(1),* 69-86. https://doi.org/10.1080/00014788.2005.9729663
39. Schipper, K., (1989). Commentary on earnings management. *Accounting Horizons, 3(4),* 91-102. Retrieved from: https://scholar.google.com/scholar?q=%22Schipper,%20K.%20(1989).%20Commentary%20on%20earnings%20management.%20Accounting%20Horizons%20Vol.3%20Issue%204.,%2091-102,12p.%22
40. Shivakumar, L., Urcan, O., Vasvari, F. P., & Zhang, L. (2011). The debt market relevance of management earnings forecasts: Evidence from before and during the credit crisis. *Review of Accounting Studies, 16(3),* 464-486. https://doi.org/10.1007/s11142-011-9155-6
41. Stolowy, H., & Breton, G. (2004). Accounts manipulation: A literature review and proposed conceptual framework. *Review of Accounting and Finance*, 3(1), 5-92. https://doi.org/10.1108/eb043395
42. Trombetta, M., & Imperatore, C. (2014). The dynamic of financial crises and its non-monotonic effects on earnings quality. *Journal of Accounting and Public Policy, 33(3),* 205-232. https://doi.org/10.1016/j.jaccpubpol.2014.02.002
43. Trueman, B., & Titman, S. (1988). An explanation for accounting income smoothing. *Journal of Accounting Research, 26,* 127-139. https://doi.org/10.2307/2491184
44. Willekens, M., & Bauwhede, H. (2003). *Auditor reporting conservatism as a defense mechanism against increased Post-Enron litigation risk* (Working Paper). Retrieved from: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.463.6865&rep=rep1&type=pdf

Appendix A

The eight indicators of Beneish Model

$$DSRI = \frac{(Receivables_t)/(Sales_t)}{(Receivables_{t-1})/(Sales_{t-1})}$$

$$GMI = \frac{(Sales_{t-1} - Cost\ of\ Goods_{t-1})/Sales_{t-1}}{(Sales_t - Cost\ of\ Goods_t)/Sales_t}$$

$$AQI = \frac{1-(Current\ Asset_t + PPE_t)/Total\ Assets_t}{1-(Current\ Asset_{t-1} + PPE_{t-1})/Total\ Assets_{t-1}}$$

$$SGI = \frac{Sales_t}{Sales_{t-1}}$$

$$DEPI = \frac{Depreciation_{t-1}/(Depreciation_{t-1} + PPE_{t-1})}{Depreciation_t/(Depreciation_t + PPE_t)}$$

$$SGAI = \frac{(SGA\ Expenses_t)/(Sales_t)}{(SGA\ Expenses_{t-1})/(Sales_{t-1})}$$

$$LVGI = \frac{(LTD_t + Current\ Liabilities_t)/Total\ Assets_t}{(LTD_{t-1} + Current\ Liabilities_{t-1})/Total\ Assets_{t-1}}$$

$$TATA = \frac{(Current\ Assets_t + Cash_t) - (Current\ Liabilities\ t - Current\ Matur.of\ LTD\ t - Income\ Tax\ t) - Depreciation\&Amortization\ t}{Total\ Assets_t}$$

Appendix B

Indicators legend and reclassification

Sales are the act of selling a product or service in return for money or other compensation. In Amadeus Bureau Van Dijk they named as "sales" or "operating revenues".
Receivables consist of a series of short and long-term accounting transactions dealing with the billing of a customer for goods and services they have ordered. In Amadeus Bureau Van Dijk they named as "other current assets".
Cost of goods sold is computed as "cost of beginning inventory + cost of goods purchased (net of any returns or allowances) – cost of ending inventory". In Amadeus Bureau Van Dijk they named as "operating costs".
Current assets consists of any asset reasonably expected to be sold, consumed, or exhausted through the normal operations of a business within the current fiscal year or operating cycle. In Amadeus Bureau Van Dijk they named as "current assets".
PPE (Property, Plant and Equipment) consists of "tangible assets" that are included in fixed assets. In Amadeus Bureau Van Dijk they named as "PPE".
Total assets is computed as the sum of current assets and fixed assets. In Amadeus Bureau Van Dijk they named as "total assets".
Depreciation is the decrease in value of tangible assets (Property, Plant and Equipment) while "amortization" is the decrease of intangible assets. In Amadeus Bureau Van Dijk they named as "depreciation".
SGA expenses (Selling, General and Administrative expenses) is the sum of all direct and indirect selling expenses and all general and administrative expenses of a company. In Amadeus Bureau Van Dijk they do not appear separately from other costs categories. Therefore, we assume the value of 1.
LTD (Long-Term Debts) is the sum of all long-term borrowings of a company. AIDA doesn´t show this cost category. In Amadeus Bureau Van Dijk they named as "long-term debts".
Current liabilities consists of all debts or obligations that are due within one year. In Amadeus Bureau Van Dijk they named as "current liabilities".
Cash consists of Legal tender or coins that can be used in exchange goods, debt, or services. In Amadeus Bureau Van Dijk they named as "cash and cash equivalents".
Current maturity of LTD consists of the amount of LTD that expired within one year. In Amadeus Bureau Van Dijk this item is included in "loans".
Income tax payable comprised of taxes that must be paid to the government within one year. In Amadeus Bureau Van Dijk this item is included in "taxation".
Depreciation and amortization are decreases in the value of both tangible and intangible assets. In Amadeus Bureau Van Dijk this item is included in "depreciation and amortization".