

Earnings Management and its Consequences for Financial Statements

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Abstract: Firm's financial information is essential to stakeholders' decision making. Although not always financial statements show the firm's real image. This study examines listed firms from Portugal and UK. Firms have different purposes to manipulate earnings: some strive for influencing investors' perception about a particular company, some try to provide better position for gaining finance from credit institutions or paying less tax to tax authorities. Usually, this behaviour is induced when firms have financial problems. Consequently, the study also aims to see the impact of financial crisis on earnings management. We try to answer question how does extent of firms' involvement in earnings management change when the world undergoes financial crisis. Furthermore, we also compare two countries with different legal forces in terms of quality of accounting to see the main differences. We used a panel data methodology to analyse financial data from 2004 till 2014 of listed firms from Portugal and UK. Beneish (1999) model was applied to categorize manipulator and non-manipulator firms. Analysing accounting information according to Beneish's ratios, findings suggest that financial crisis had certain impact on firms' tendency to manipulate financial results in UK although it is not statistically significant. Moreover, besides the differences between Portugal and UK, results contradict the common view of legal systems' quality, as UK firms tend to apply more accounting techniques for manipulation than the Portuguese ones. Our main results also confirm that some UK firms manipulate ratios of receivables' days, asset quality index, depreciation index, leverage, sales and general administrative expenses whereas Portuguese firms manipulate only receivables' days. Finally, we also find that the main reason to manipulate results is not to influence the cost of obtained funds neither to minimize tax burden since net profit does not explain the ratios used in the Beneish model. Results suggest that the main.

Keywords: decision making

I. INTRODUCTION

General definition of earnings management is the use of accounting techniques to produce financial statements that may report an overly positive picture of a company's business activities and financial position. Earnings management involves manipulation of accounting rules (Generally Accepted Accounting Principles, GAAP) to favorably represent companies' financial health in order to mislead investors and other stakeholders.

Beneish (1999) used certain financial statement information to construct variables that would spot the effects of manipulation in companies that might engage in such activity. Managerial manipulation usually includes overstating earnings, recording unrealized gains and uncertain revenues, increasing inventory value or increasing capitalized expenditures. Furthermore, earnings can be smoothed which is a specific use of accounting techniques where managers defer revenue during a good year if the next year is anticipated to be a challenging one, or delay the recognition of expenses in a difficult year because profitability is expected to improve in the near future. Moreover, Barua et al. (2010) also revealed that managers use discontinued operations for misinterpreting costs which belong to continued operations to exhibit higher profits. What is more, Roychowdhury (2006) indicates that managerial manipulation can influence financial statements not only via use of accounting rules, but also by operational decisions. For instance, it can be achieved through acceleration of sales, alterations in shipment schedules, and delaying of research and development (R&D) and maintenance expenditures as earnings management methods available to managers. Moreover, mainly in manufacturing industry firms' management may make overproduction of goods in order to decrease reported COGS (cost of goods sold) to receive higher gross profit (Roychowdhury,

2006). Furthermore, managers also use for manipulation a business technique called channel stuffing. It involves sending extremely high quantity of products to retailers through distribution channels from which substantial part of them won't be sold to the public (Roychowdhury, 2006). Consequently, a lot of products will be sent back, but perhaps in the following reporting period while recognizing them as sold in a current year as revenue. Thus, it can be concluded that there are two types of manipulation: accrual based (using accounting techniques) and real activity based earnings management (through operational decisions).

Consequently, all of this is subject of concern and alarm for investors, auditors and other regulators, who can use this information for spotting manipulation in financial statements in order to protect themselves from misleading information. The purpose of this work is to test earnings management of listed companies from Portugal and the UK based on their financial statement data from 2003 till 2014. The reason of choosing these two countries is that they are representatives of different culture and law systems: code and common law. La Porta et al. (1998) determined that in terms of legal protection of investors, countries' various legal systems provide peculiar level of security for investors and other stakeholders. The dissimilarity in legal protections of investors' influences and forces firms to be financed and owned differently in different countries. Thus, a question emerges - does difference in law systems have impact on level of earnings management in a particular country? Moreover, the sample will be divided further in two parts: from years 2004 till 2007 (the year of 2003 was used only to calculate ratios), and from 2008 till 2014 in order to explore the impact of financial crisis on firms' embeddedness in manipulation of financial results

Global Financial Crisis 2008 is considered by many economists to have been the worst financial crisis since the Great Depression of the 1930s (Wikipedia). The collapse of Lehman Brothers, a global investment bank, in September 2008 almost brought down the world's financial system. It threatened the failure of large financial institutions which as a result of financial "bubble" had problems with the quality of assets in their balance sheets. Likewise, this research tries to answer a question - what is tendency of firms to do earnings management before and after financial crisis? How global financial crisis impacted firms' extent of conducting earnings management

II. LITERATURE REVIEW

2.1 PURPOSE OF EARNINGS MANAGEMENT :-

Earnings management has been subject of research in numerous studies conducted by a lot of authors since 1970-1980s. Examples of the studies are Healy (1985), "The effect of bonus schemes on accounting decisions", and Lambert (1984) "Income smoothing as rational equilibrium behavior". Earnings management is a strategy used by a management of a company to deliberately manipulate company's earnings in order to reach a particular target for various purposes (Investopedia). Likewise, it involves the alteration of financial reports to mislead stakeholders and other users about the firm's true underlying performance. Consequently, earnings management has a negative effect on earnings quality which may weaken the reliability of financial reporting. The credibility of financial statements is vital for investors as long as it influences their investment decisions significantly (Investopedia). Thus, this area of study has been researched actively in recent years and becomes more and more actual theme and subject of current interest.

According to Dye (1988), there is internal and external demand for earnings management. The internal demand derives from the principal and agent relationship, between the company's owners and the management, while the external demand induced by the capital market's need to gain finance for the firm. Likewise, main three goals of earnings management are stimulated from external forces: 1) influence investors' financial decisions about a particular company, 2) persuade banks or other credit institutions for gaining loan finance and 3) paying less taxes. As long as earnings provide important information to investors about the firm's value, they adjust their investment decisions, which, respectively, influence the market price. Regarding earnings management targeted for banks or other loan providers, creditors use earnings to decide the firm's ability to pay back loans, and their decisions determine the interest expenses of a firm in its income statement and the capital that can be raised to finance investments. Moreover, firms manipulate financial reports not only for gaining approval of loans, but also for maintaining cost of debt of a company. Cost of debt is the effective rate that a company pays on its current financial liabilities such as loans. This can be measured in either before or after-tax returns; however, because

interest expense is tax deductible, the after-tax cost is used most often. This is one part of the company's capital structure, which also includes the cost of equity. In relation to capital structure, this topic was emerged in 1958 suggested by Modigliani and Miller. Furthermore, capital structure of a firm depends not only on legal forces of a country, but also whether it is a family or non-family firm. According to Lisboa (2015, p. 308) "family firms' capital structure is different from that of non-family ones and this relation is influenced by market cycles". As to using of debt, family firms have apparent reasons to avoid taking out loans due to high risk, especially in the market cycle of recession. Likewise, greater involvement of family in a firm leads to decreased obtaining of debt, especially in recession cycles (Lisboa, 2015). Furthermore, in concordance with Moreira (2007), firms incurring negative returns have higher incentive to manipulate financial statements in order to avoid increasing of cost of debt from credit markets. Moreover, firms with negative public announcement and unmanipulated earnings which are slightly below zero and with positive earnings in a previous year will more likely have problems with credit markets as long as bad news of a firm followed by a negative change in earnings will alarm credit institutions (Moreira, 2007). Thus, managers have strong stimulus to manipulate results in order to avoid risk of increasing interest cost and incentives are higher for firms with larger needs of credit. Contrary to this situation, a company appearing in good news but with the same earnings situation will unlikely be subject of concern for creditors and consequently manipulation is less expected.

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2.2 EXISTING EVIDENCE OF EARNINGS MANAGEMENT TOOL :-

As it was referred earlier, one of the apparent reasons of earnings management is to influence stock price of a company with intent to have impact on investors' perceptions and decisions in a stock market. In times of large fluctuations in income and expenses which may be a normal part of a company's operations, changeable financial indicators may alarm investors who prefer to see stability and growth, tempting managers to take advantage of accounting techniques (Investopedia). According to Biedleman (1973) in Habib (2011) et al. earnings smoothing is a special case of earnings management where managers level out net income or cost fluctuations from one period to another to deliver a stable earnings stream. Fudenberg and Tirole (1995) in Habib et al. (2011, p. 256) determined income smoothing as "the process of manipulating the time profile of earnings to make the reported income stream less variable, while not increasing reported earnings over the long run".

In order to maximize their own wealth based on incentives provided in compensation scheme (Lambert, 1984), Fudenberg and Tirole (1995) in Habib et al. (2011) suggested that managers minimize the probability of being fired by smoothing of income flows. According to Goel and Thakor (2003) if managers don't smooth earnings, consequences lead to increased potential loss suffered by uninformed stockholders when they trade for liquidity reasons. When informed investors benefit on uninformed ones, this deters uninformed investors from actively taking part in stock trading, with the result of increased illiquidity and reduced stock price. That is why; managers react to such situation by smoothing of earnings in order to influence market of earnings fluctuation and thus firms' stock price.

Revenue smoothing impacts income statement of a firm. In essence, financial statements of a company include balance sheet, income statement and statement of cash flows. Each of them has its own structure and its specific possibilities for misinterpreting its items. For instance, firms' income statement is divided by two sections: continued and discontinued operations. Barua et al. (2010) investigated whether managers use classification change to manage earnings when reporting discontinued operations. GAAP generally requires that material non-operating items to be reported separately in the financial statements. The reason is that investors are more interested in income from continued operations and it is difficult for them to reveal such type of earnings management as long as discontinued operations are not usually disclosed in details in the financial statements. This gave managers opportunity to mislead investors by allocating income and expenses to another stream of classification. It is worth to highlight that such kind of manipulation differs from others because it does not change net income and may be less costly for management (Barua et al, 2010). Consequently, firms can misclassify operating expenditure as a non-operating one giving to investors misleading perception.

Another way of manipulating is overproduction of goods which leads to decreased cost of goods as long as fixed overheads are absorbed by larger number of products. As a result, fixed cost per unit is reduced and hence, managers report better gross profit ratio and operating margins (Roy Chowdhury 2006). On the other hand, excessive production leads to increased production costs and costs of maintaining inventory (Roy Chowdhury 2006).

As it was referred earlier, financial statements are consisted of statement of financial position (balance sheet), income statement and statement of cash flows. A number of studies tried to investigate each of their weak points and vulnerability for manipulation to detect EARNINGS MANAGEMENT as well as finding more stable and reliabilities the financial reports. Sloan (1996) analyzed accrual and cash components of current earnings in

terms of stock price. As long as all three financial statements are interconnected, an auditor is able to check earnings quality by analyzing and comparing one statement with another.

2.3 EARNINGS MANAGEMENT DURING FINANCIAL CRISES :-

According to Grove and Basilico (2011) in Koschtial and Franceschetti (2013) the fall of Lehman Brothers is considered as initial point of the financial crisis and one of the major financial reporting frauds of the 21st century. Why did Lehman Brothers-global financial services firm, fourth-largest investment bank in the US, collapse? Lehman's high degree of leverage -the ratio of total assets to shareholders equity -was 31:1 in 2007, and its huge portfolio of mortgage securities made it increasingly vulnerable to deteriorating market conditions. The firm borrowed significant amounts to fund its investing in the years leading to its bankruptcy in 2008 and as a result this risk-taking led to high leverage ratio (Valukas, 2010). From sensitivity analysis point of view, this vulnerable position meant that just a 3–4% decline in the value of its assets would entirely jeopardize its book value of equity. Investment banks such as Lehman were not subject to the same regulations applied to depository banks to restrict their risk-taking (Wikipedia). At that time, there was a boom of mortgage business in the US. Consequently, too many credit institutions gave mortgage loans to the public. As a result of high demand market was too active in the beginning. Unfortunately, later there was a sharp decline in demand as long as market has been already satisfied and no one wanted to buy estate. Thus, prices of collaterals (estate) significantly fell, losing opportunity for creditors in case of default to sell them in order to reach at least breakeven point leading to substantial losses (Valukas, 2010).

Lehman Brothers began using one of the earnings management techniques from 2001 which was called Repo 105. According to the report of the investigator Anton Valka's (2010), the firm used Repo 105 to effectively eliminate \$50 billion of assets off its balance sheet in the second quarter of 2008 which substantially decreased its leverage ratio. So, what was the trick? Repurchase agreement -or repo involves the transfer of assets to another party in exchange for cash, while agreeing to repay money and take back the assets at a later date. In concordance with the report (Valka's, 2010, p.746) "overarching goal of Repo 105 transactions was to meet net balance sheet targets – i.e., reduce the net asset component (the numerator) of the net leverage ratio calculation – in connection with the filing of Lehman's financial statements. While the examiner found a large number of contemporaneous documents that talk about the use of Repo 105 transactions to manage the balance sheet and meet leverage targets, few, if any, contemporaneous documents describe any other purpose for those transactions. Repo 105 transactions were not used for a business purpose, but instead for an accounting purpose: to reduce Lehman's publicly reported net leverage and net balance sheet". According to International Accounting Standards, IAS 1 Presentation of Financial Statements, firms should adopt and follow accounting principles and one of them is called substance over form. Substance over form is an accounting concept which means that the economic substance of transactions and events must be recorded in the financial statements rather than just their legal form in order to present a true and fair view of the affairs of the entity. Its concept requires analysis of the financial statements in order to exhibit business sense from the transactions and events and to report them in a way that best explains their true essence.

Applying the principle to Lehman's case, the repurchase agreements essentially a type of secured loan and not an ordinary sale as the company reported in its financial statements. As a result, by classifying the deal as a sale, Lehman significantly reduced its leverage, when in reality the transaction should have led to increasing both assets and liabilities. Consequently, even though it was still obliged to repurchase the assets at a later date, assets disappeared from the balance sheet, and it could use the cash it received to temporarily pay down other liabilities. According to the report, cost of the transaction was 5% as an interest of cash received -hence the name "Repo 105" (Valka's, 2010). Once the new reporting period had started, and the Repo 105 transaction had matured, Lehman borrowed money to repurchase the assets, increasing its leverage ratio back up again and by the end of 2008 the firm was unable to continue this activity and the "bubble" busted (Valka's, 2010). Thus, cash generated from Repo 105 was misleading for investors and other users of financial statements. According to Dechow (2004) cash component of earnings can be divided into three categories,

- **Cash that is returned by the firm;**
- **Cash applied to the amount of debt financing;**

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• **Cash applied to the amount of equity financing.**

He suggests that stock prices tend to reflect real market values when investors are aware of firms' source of cash and its destination which was not the case in Lehman Brothers. Furthermore, "investors overestimate the persistence of earnings that are held within the firm and correctly estimate the persistence of earnings that are distributed to capital providers" (Dechow, 2004, p.2). Likewise, while cash is one of the most objectively estimated balance sheet items, it is still subject to misstatement and that is why investors may be misled in company's valuation which has high level of cash on its balance sheet. According to Lehman's report, Big 4 audit firm Ernst & Young could also potentially face legal claims for negligence of breach of duty for not revealing Lehman's non-disclosure of the off-balance sheet transactions (Valka's, 2010). Since investors cannot directly observe the underlying true earnings of the firm, they have to rely on reported accounting numbers. To insure the reliability of these reported figures, external auditors must certify that they conform to GAAP. An auditor's "quality" can then be defined as the characteristic leading to greater awareness of reported earnings (Teoh and Wong, 1992).

A lot of studies have used various audit quality measures such as audit firm size, audit fees and audit hours to research the effect of audit quality on earnings management. According to DeAngelo (1981), large audit firms with international brand names such as Big Four auditors are likely to provide higher quality audits than non-Big four auditors. Likewise, it is expected lower level of earnings management in firms audited by Big four auditors. Contrary to the point, Lehman's case was a big exception.

III. HYPOTHESES DEVELOPMENT

Findings suggest that, in general, the earnings quality decreases during the financial crisis (Persakis and Iatridis, 2015). Hence, it indicates that earnings management during this period is increased which is induced by such factors as skeptical investors, banks and other creditors. When firms encounter difficult times, they strive for avoiding negative losses in order to avoid negative perception of their various stakeholders about their going concern. In this way, financial crisis is the most difficult period for all companies which gives rise to suspicion about the credibility of their financial reports.

Beneish (1999) model suggests several indexes which can signal for manipulation of financial statements while comparing them with previous year's results of the same variables. According to Beneish (1999, p. 34) "the evidence suggests that accounting data not only meet the test of providing useful information, but they also enable an assessment of the reliability of the reporting". In this way, the model distinguishes manipulated from non-manipulated reporting which includes following variables.

Days' sales in receivables index. The DSRI is a measure of the average number of days that a company takes to collect revenue after a sale of goods or service has been made. It is calculated dividing receivables by total credit sales and multiplying by number of days (if the ratio is calculated for year-365 days, if for a month the relevant number of days of that month is used). For example, assume that during the month of April, a firm made a total of \$400,000 in credit sales and at the end of the month had \$300,000 in accounts receivable.

The ratio measures liquidity of receivables, in other words indicates average period that company needs to convert receivables into cash. What qualifies as a high or low ratio may often vary depending on business type and structure of the firm. For instance, those entities dealing with ultimate customers (individuals who do not in turn re-sell the things bought but either passes them to the consumer or actually is the consumer) are paid immediately right after the sale and hence do not have high receivables in their balance sheets compared to other types of business sector. Furthermore, it should be highlighted that due to the high importance of cash in running a business, it is in a company's best interest to collect outstanding receivables as quickly as possible.

Asset quality index (AQI). Asset quality is measured as the ratio of non-current assets other than plant, property and equipment to total assets, versus prior year. According to Beneish (1999), this measures the proportion of total assets for which future benefits are less certain (that is why property plant and equipment are eliminated, because they are one of the certain sources of generating income) and if it considerably increases it may be a possible sign of improper capitalization of expenses and cost deferral. When cost is deferred, by incorrect capitalization, it means that assets are illegally increased, and cost is delayed which is going to be recognized as depreciation by that incorrect capitalization part during several years instead of being recognized immediately in the

year incurred. In this way, if the AQI ratio of current year divided by the previous year one is greater than 1, the company potentially increased its commitment in cost deferral (Beneish, 1999). The decision to capitalize or expense some items depends on the senior management of the firm. Consequently, this choice will have an impact on a company's balance sheet, income statement and cash flow report.

In terms of profitability, in a short term perspective, a company that manipulates costs for capitalization will have a higher profitability than it would have had if it expensed them. As a result, net income is manipulated and increased.

In terms of cash flow statement, improper capitalization effects reported cash flow from operations and cash flow from investing. If a company exhibits its Cost as expense sit will be reported in cash flow from operations while capitalization will be included in cash flow from investing (lower investment cash flow and higher cash flow from operations). On the other hand, there are items that usually are expensed in Income statement, but in a specific situation should be capitalized. For example, interest cost which is usually cost of the period in which it is incurred and accrued, must be capitalized if the loan on which interest is paid, is intended to be used for construction of the asset. This issue is regulated by IAS 23, Borrowing costs, which requires that borrowing costs directly attributable to the acquisition, construction or production of a 'qualifying asset' (one that necessarily takes a substantial period of time to be constructed for its intended use or sale) are included in the cost of the asset. The rest of the borrowing costs are recognized as an expense. A qualifying asset is an asset that takes a substantial period of time to get ready for its intended use or sale. For instance, it could be property, plant, and equipment and investment property during the construction period.

IV. SAMPLE, VARIABLEs AND EMPIRICAL MODEL

4.1 SAMPLE

The sample consists of Portuguese and UK listed firms' financial data from 2003 till 2014. As it was referred earlier, these countries were chosen with a purpose to compare extent of earnings management in different cultures and regions with different legal forces and law. According to La Porta et al. (1998, p.2) "common law countries generally have the strongest, and French civil law countries the weakest, legal protections of investors, with German and Scandinavian civil law countries located in the middle". As a consequence, quality of accounting in UK might be higher than in Portugal. The samples differ mainly in size as long as in the UK sample there are 358 firms with 3939 observations and 56 firms and 618 observations in the Portuguese sample. Moreover, the dimension of the firms (measured by natural logarithm of total assets) confirms statistical difference as it is shown in table 1 below.

Table 1: Dimension of samples

	Portugal	UK
Size	12.04746181	9.550445505
T-test	0*	

Size is measured as the natural logarithmic of total assets. T-test is the Student's t-test.

*significance level of <1%, ** <5% and *** <10%

The analyzed period is 10 years from 2004 till 2014 and year 2003 was used for calculating some ratios for the year 2004, as long as they need previous year data to be calculated. We also split the sample period in two: before 2008 was analyzed separately for each of the samples in order to compare it with the results of the rest of the years (after 2008) with a goal to detect whether financial crisis impacts firms to engage in activity of earnings management. Generally, the results indicate that earnings management increases by a particular rate for both countries as the world undergoes financial crisis (Persakis and Iatridis, 2015). Moreover, it should be admitted that financial crisis began in early 2006 followed with collapse of Lehman Brothers Bank in the USA in 2008 when the subprime mortgage market in the U.S. began to display an increasing rate of mortgage defaults.

Furthermore, in 2008 Banco Portuguese de Negocios (November) and Banco Private Portuguese (December) were also collapsed due to the crisis. Consequently, Portugal underwent public deficit in 2010 and in April, 2011 Portugal asked Troika's help to deal with the issue. Although, it seems that the financial crisis is over, in 2014 another Portuguese bank

-Banco Esprit Santo also collapsed. In the UK, the Bradford and Bingley Building Society was effectively nationalized in late 2008 and then partially sold to the Spanish Group Santander Bank. Also late in 2008 the UK Government partially nationalized the struggling Royal Bank of Scotland Group, initially taking a 58% stake, but eventually by late 2009 raising this to 84%. The UK Government also effectively forced the UK's largest mortgage lender, Halifax Bank of Scotland (HBOS), which was in deep trouble, into the Lloyds TSB group and, in January 2009, took a 43.4% stake in the combined business. Other UK banks, such as Barclays and HSBC, although not nationalized, were forced to raise capital by new share issues to preserve their capital ratios. In summary both countries were influenced by crisis, but as long as UK money market involves higher financial flows in terms of size, it underwent stronger impact than Portugal.

4.2 DEFINATION OF VARIABLES :-

The information was obtained from a DataStream database in the University of Coimbra. The following financial data of Portuguese and UK listed firms was extracted from the database.

- Receivable
- Receivable's days
- Total assets
- Current assets
- Depreciation
- Net profit
- Sales revenue
- Cost of sales
- Property, plant and equipment
- Total debt

Based on the information gained from the database, the following ratios were calculated:

Receivables' days index(DSRI) – is calculated as receivables days of a current year divided by the previous year's data. If the ratio is more than 1, it means that the collecting period increased, indicating suspicion about credit policy of the firm.

Asset Quality index Ratio (AQI) – the ratio is measured as the ratio of non-current assets other than plant, property and equipment to total assets, versus prior year. There are two ways of calculating the ratio

- 1) $AQI = \frac{1 - (Current\ Assets + PP\&E + Securities)}{Total\ Assets}$ compared to the previous year's indicator
- 2) $AQI = \frac{(Non - Current\ Assets - PP\&E)}{Total\ Assets}$ versus prior year

As long as there was not available information about securities, it was more optimal to use the second formula, by only calculating additionally non-current assets by deducting total assets by current ones which were both available. If the ratio is more than 1, it indicates that capitalization policy of the firm might have changed, which in turn may be manipulation of expenses.

Depreciation Index(DEPI) - is the ratio of the previous year's depreciation rate to the current one. Furthermore, depreciation rate is calculated by the ratio of current year's depreciation divided by sum of net depreciable non-current assets plus current year's depreciation.

$$Depreciation\ rate = \frac{Current\ year's\ dep'n\ charge}{Current\ year's\ dep'n\ charge + PP\&E}$$

The ratio measures whether the firm tries to defer depreciation expense either through changing its policy or altering non-current assets' useful lives which are subject of depreciation. In this case, as long as in the denominator is previous year data, when it decreases, it gives suspicion of manipulation (rate of depreciation slowed).

Leverage(LVGI) – is calculated as total debt assets which measures financial risk of the firm and indicates percentage from which total assets are financed through loans or other financial liabilities. Manipulator firms strive for maintaining lower leverage indicator in order to have impact on decisions of banks and investors.

Total Accruals / Total Assets(TATA) – is calculated by ratio of operating income which is not paid by customers and other debtors yet to total assets indicating percentage of total assets which are financed through only accrued revenue and not collected yet. Higher ratio represents less quality of assets as long as they are not supported by real currency or by other assets which are more liquid than accruals. For the purpose of calculating the ratio, receivables were used as a denominator as long as receivables represent accrued revenue at the end of the accounting period.

Gross Margin Index (GMI) – is calculated as a ratio of gross margin of previous year to current one. It measures change of gross profit level indicating effectiveness or poor management of production in a firm. Although gross profit was not provided by the database, there was cost of goods available which gave opportunity to calculate gross profit by deducting it from sales. Onwards, gross margins were calculated as ratio of gross profit to sales. When gross margin index increases, it means sales revenue increased or cost of goods decreased either because of optimization of production (less costs with the same efficiency) or manipulation of expenses.

Sales growth (SGI) – is calculated as a ratio of current revenue to prior year's one measuring sales' change. "Growth does not imply manipulation, but growth companies are viewed by professionals as more likely than other companies to commit financial statement fraud, because their financial positions and capital needs put pressure on managers to achieve earnings targets" (Beneish 1999, p. 27).

Sales and administrative expenses(SGAI) – is calculated as ratio of sales, general, and administrative expenses to sales in a current year relative to the corresponding measure in a prior year. If the ratio is changed dramatically it indicates probability of disproportionate change thus causing suspicion. To Portugal, due to the lack of sufficient information, this variable was not possible to use. The ratio should be compared to sales revenue and profit changes whether there are logical changes in them. If there are significant differences between them, it should be explained and analyzed for further verification.

All calculations are present in excel files (for each Portuguese and UK samples) as attachments in CD disc. All extracted data from DataStream is present in the excel files separately on different sheets with relevant names. In both samples, some values were changed to zero which were inadequate. For example, for the variable receivables days, the database extracted very high values (10,000 and even more days) which is not adequate. Receivables 'days' is calculated as receivables divided by sales and multiplied by 365 days. Hence, it is apparent that if the receivables' days are more than 365 that means that a company does not collect cash for an year, but it's almost impossible to survive for a firm without cash even one accounting period. In this way, when the ratios were calculated, in order to get maximally precise results, for some variables' zero values were replaced by an average result of the particular ratio. Furthermore, some of the ratios are not calculated for 2003 year as long as it was needed previous year's data for their calculation, thus analysis period is from 2004 year.

V. CONCLUSION

This paper analyzes influence of financial crisis on earnings management behavior of listed firms in Portugal and UK using a panel data and covering a period from 2004 till 2014. The aim of the study is to explore two different countries from different legal forces and culture and to compare extent of their engagement in activity of financial manipulation and earnings management. Furthermore, study aims to define impact of financial crisis in each country, whether the level of financial manipulation increases in the period when the world undergoes certain financial stress.

We have used three different analyses. First we used the Beneish model to define companies as manipulators and non-manipulators. We also divided results in two periods taking into consideration financial crisis 2008 as a split point. Consequently, findings suggest that despite the fact that common law countries have higher quality of accounting, according to the model, UK firms used more accounting ratios for manipulation than the Portuguese ones. Furthermore, in concordance with this model, manipulation was increased by a particular rate during financial crisis, but in terms of analysis of M-score before and after crisis was not statistically significant. The

difference of manipulators and non-manipulators between both countries is also not significant but it can be due to inferences caused by the small number of Portuguese firms.

Second, we analyzed proposed hypotheses. According to the analysis Portuguese firms manage reports through manipulating receivables' days (DSRI) whereas UK firms manipulate receivables' days (DSRI), improper capitalization of expenses (AQI), depreciation (DEPI), Leverage and sales and general administrative expenses (SGAI).

Third, we analyzed impact of absolute net profit for each ratio in order to see whether firms manipulate the ratios above to pay less income tax or minimize costs of obtained funds. To both Portugal and UK firms do not manipulate results to reach net profit near zero. Using the Bonafish model, we also found that there are few manipulators in Portugal. To UK, as this model indicates that absolute net profit is not relevant to explain each ratio, results suggest that the main reason to manipulate is to change the perception of financial investors.

In conclusion, we can say that generally financial crisis impacts firms' management's behavior leading to manipulation of earnings which can be spotted using accounting information for narrowing suspect firms for further inspection.

With this study we have accomplished the proposed aims. Although, it has some limitations as all studies do. First, only two countries were selected for analysis, so results cannot be extrapolated to other countries. Second, only listed firms were studied. Non-listed firms may have different reasons to manipulate. Third, the Portuguese sample was much smaller than the UK one with lack of some information which can cause some inferences on the conclusions found.

For future analysis, it would be useful to study other countries with different legal systems and culture, exploring not only listed companies but also other firms. Distinguishing between family and non-family firms can also be relevant to analyze since both firms have singular characteristics and types of governance. Finally it could be interesting to analyze the impact of this ratios on the firm's stock price to confirm if listed firms manipulate results to influence investors' perception.