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Research paper

Does Financial Crisis impact Earnings Management: Evidence from Portuguese and UK

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INÊS LISBOA[1],
ALEKSANDRE KACHARAVA[2]

Abstract

Purpose: The main aim of this work is to analyse if 2008 financial crisis had impact on earnings management. We compare two countries with different legal forces in terms of quality of accounting to see the differences in firm's involvement in earnings management. Finally we analyse which determinants impact management of results.

Design/methodology/approach: This study focus on Portuguese and UK listed firms from a large period, 2004 till 2014. We first use the Kothari, Leone & Wasley model (2005) to calculate the discretionary accruals, a proxy of earnings management. Then we analyse the impact of six determinants on earnings management.

Findings: Findings suggest that financial crisis had impact on firms' tendency to manage financial results. Country effect is not statistically significant, even if the Portuguese and UK firms' propensity to manage earnings is singular. Finally, firm's size and indebt are two relevant characteristics to explain earnings management.

Originality/values: This research as three major contributions. First, we not only analyse if the firms in the sample manipulate results, but we also study the impact of some characteristics on earnings management, contributing to the enrichment of the literature. Moreover, we focus on two main effects: crisis and country effect. Studies analysing both effects in simultaneous are scarce. Finally, we also believe that results are relevant to both financial investors and regulators as they may understand which factors impact manipulation of results, and can take actions that may reduce the possibility of practicing earnings management.

Keywords: earnings management, financial crisis, accruals, Portugal, UK

1. Introduction

Earnings management is the manipulation of accounting rules or operational decisions to produce financial statements that may report an overly positive picture of a company's

[1] School of Technology and Management, Management for Sustainability Research Centre, Polytechnic Institute of Leiria. E-mail: ines.lisboa@ipleiria.pt.
[2] School of Technology and Management, Polytechnic Institute of Leiria. E-mail: aleko.kacharava@gmail.com.

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business activities and financial position to mislead investors and other stakeholders. There are two types of manipulation: accrual based (using accounting techniques) and real activity based earnings management (through operational decisions). 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 analyze earnings management of listed companies from Portugal and the UK based on their financial statement data from 2004 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, Lopez-de-Silanes, Shleifer & Vishny (1998) argued 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 protection of investors' influences and forces firms to be financed and owned differently in different countries. Moreover, the quality of accounting also differs depending on the country, which may alarm investors. Thus, a question emerges – does difference in law systems have impact on the level of earnings management in a particular country?

The sample includes a large period of eleven years, including years with and without recession. Global Financial Crisis 2008 was considered by many economists to have been the worst financial crisis since the Great Depression of the 1930s (Reuters, 2009). It was associated with financial scandals related with the inappropriate use of accounting practices, which have reduced investors' confidence, especially about listed firms (Bartram & Bodnar, 2009). Therefore, the sample will be divided in two parts: before crisis (years 2004 till 2007), and with financial crisis (years 2008 till 2014), to try to answer a question - how global financial crisis impacted firms' extent of conducting earnings management?

Earnings management was analyzed in the perspective of accruals. First, the Kothari *et al*. model (2005) was used to estimate discretionary accruals, a proxy of earnings management. This model is an improvement of the Jones model (1991) that is the most relevant model in this thematic. Then, we develop an empirical model to analyze the relationship between discretionary accruals, financial crisis, country effect, and other control variables.

Results suggest that earnings management increase in crisis period. The mean value of discretionary accruals increased to both countries in years with crisis (although the difference between the two periods was not statistically significant). This suggests that firms need to exhibit a "good picture" in order to sustain their relationships with stakeholders in periods of turbulences. Moreover, in the empirical model the crisis effect was also significant validating our expectations. Comparing Portugal and UK, UK firms apply upward techniques for manipulation, while Portuguese ones use a downward tendency before crisis and an upward tendency in periods of crisis. Although, country effect is not statistically significant, suggesting that the differences are explained by the singularity of the firm's characteristics. Finally, the firm's size and indebt are two relevant characteristics to explain discretionary accruals. More indebt firms present higher quality of information, and thus less earnings manipulation as creditors can control managers' decisions. Regarding size, to Portugal, large firms engage more in earnings management, since have more accounting techniques and knowledge to do it, while to UK we found the contrary, large-size firms are more concerned with reputation and thus present higher quality of information.

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This paper contributes to increase financial literature as it analyzes two effects: crisis and country effect in simultaneous. Moreover, we not only look for the impact of these two effects on discretionary accruals but we also include some firm' characteristic that can explain the propensity of managing results. Results are also relevant to practical, not only to financial investors that may understand that not always the firms exhibit their real value, but also to regulators since it call the attention to variables that can explain discretionary accruals. Shareholders and managers may also benefit from the results of this study as they can understand when the firm manages results and the benefits and cons of doing it.

The rest of the paper is organized as follows. Sections 2 provide the theoretical background and hypotheses of this study. Section 3 describes the data used, and the methodology employed. Section 4 discusses the empirical results. The conclusion of the paper is in section 5.

2. Literature Review and Hypotheses

Earnings management has been subject of research in numerous studies conducted by diverse researchers since 1970-1980s. Examples of the studies are Healy in 1985, and Lambert in 1984. Although, only after 2005, the interest in earnings management topic has gain prominence (Walker, 2013). Earnings management is a strategy used by a firm's manager to deliberately manipulate company's earnings in order to reach a particular target for various purposes. 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 (Healy & Whalen, 1999). The credibility of financial statements is vital for investors as long as it influences their investment decisions significantly (Goel, 2016). Thus, this area of study has been researched actively in recent years and becomes more and more actual and subject of current interest.

According to Dye (1988), there is an internal and an external demand for earnings management. The internal demand derives from the principal and agent relationship, between the company's owners and managers, while the external demand induced by the capital market's need to gain finance for the firm. Likewise, the main three goals of earnings management are stimulated from external forces (Healy & Whalen, 1999): 1) influence stock price and investors' financial decisions about a particular company; 2) influence contracting incentives either debt contracts or managers bonus; and 3) reduce income taxes when there is a connection between financial statements and tax measurement.

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 (Healy & Whalen, 1999). 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 define the interest expenses of a firm in its income statement and the capital that can be raised to finance investments.

Moreover, firms manage financial reports not only for gaining approval of loans, but also for maintaining cost of debt of a company (Healy, 1985). Cost of debt is the effective rate that a company pays on its current financial liabilities such as loans. Furthermore, in

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concordance with Moreira & Pope (2007), firms incurring in 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 a company's bad news is followed by a negative change in earnings that will alarm credit institutions (Moreira & Pope, 2007). Thus, managers have strong stimulus to manage results in order to avoid the risk of increasing interest cost, and these 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. Managers may also manage earning in order to maximize their own wealth based on incentives provided in compensation scheme (Lambert, 1984).

Finally, tax system and its rates play crucial role in firms' financial results (Healy & Whalen, 1999). Thus, firms strive for minimizing tax burden, which, in turn, can be achieved through earnings management. Generally financial profit is reported usually for shareholders of a company or banks or other financial institutions. Although tax authorities require certain rules for calculating tax profit – which usually is different from financial profit. Hence, companies strive for maximizing financial profit and minimizing taxable profit. In Portugal, companies tend to follow the tax-imposed criteria, which encourages firms to engage in income manipulation (Pereira and Alves, 2017).

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. 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 (Biedleman, 1973 *in* Habib, Hossain & Jiang, 2011). It is expected that high environmental uncertainty leads to careful assessment of future cash flows and earnings by investors. As a result encourages managers to reduce fluctuation in reported financial statements in order to provide more predictable financial flow.

There are a number of other explanations of income smoothing. Some believe that managers minimize the probability of being fired by smoothing income flows (Fudenberg & Tirole, 1995 in Habib *et al.*, 2011). According to Goel & Thakor (2003) if managers do not smooth earnings, they will increase the potential loss suffered by uninformed stockholders that trade for liquidity reasons. Uninformed investors, who have less information than informed ones, will not take an active part in stock trading, which can lead to an increase in illiquidity and a reduce of the stock price. For this reason managers react to such situation by smoothing of earnings in order to influence the market of earnings fluctuation and thus the company's stock price.

Ghosh & Olsen (2008) in their research argued that environmental uncertainty induces managers to smooth income to reduce information skewness. When there is no information asymmetry between stock traders, it is recognized as an important technique in decreasing the cost of capital and enhancing market efficiency. However, according to Jensen (1976) there is considerable information asymmetry between managers and outside shareholders as long as there is separation between ownership and control. In concordance with Saar (2002) the impact of trading on asset prices indicates that the price is defined by information

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asymmetry among investors about the future cash flow of the assets, and investor's uncertainty about other investors' preferences in the market. High environmental uncertainty makes prediction of future earnings more difficult to implement because of the additional income fluctuations and volatility. Ghosh & Olsen (2008) suggest that if managers do not respond timely to smooth out additional fluctuations, then the information asymmetry between managers and outsiders becomes more pervasive. Moreover, uninformed traders encounter risk of increased loss. As a result they refrain from trading which leads to illiquidity in the market, and consequently stock price of the firm is impacted. Furthermore, as long as firms operating in an environmental uncertainty are perceived to be more risky, their managers while smoothing income must obtain reasonable private knowledge regarding the firm's future performance (Wang & Williams, 1994). Logically, according to Wang & Williams (1994), a manager who can better foresee future performance should be able to better plan for the future and better deal with those future events. Thus, it is expected that positive association between stock returns and income smoothing is higher for firms operating in an environment of high uncertainty.

Managerial intervention can be not only through accounting gimmicks but also via operational management which is called real activity based manipulation (Roychowdhury, 2006). Bruns & Merchant (1990), and Graham, Harvey & Rajgopal (2005) interviewed financial executives who indicated that they are embedded more in real activity earnings management than based on accruals. Furthermore, there are two possible explanations for this. First, accrual manipulation is more vulnerable and easily detected by auditors or other regulators than operational management intervention. Second, in concordance with Degeorge (1999), outside stakeholders use certain thresholds as a benchmark for judging and rewarding executives, and it is suggested that the "realized year-end shortfall between unmanipulated earnings and the desired threshold can exceed the amount by which it is possible to manipulate accruals. If that happens and reported income falls below the threshold; consequently, "real activities cannot be manipulated at year-end" (Roychowdhury, 2006: 338). Roychowdhury (2006) suggests three main possibilities of earnings management based on real activity manipulation: manipulation of sales by effecting timing of sales or changing credit terms (prolong time of sales condition) and offering increased price discounts to foster revenue growth, reduction of discretionary expenditures, and substantially increasing production to report lower cost of goods sold.

According to GAAP, accrual method principle provides the rule that firms have to recognize expenses in the period in which they are incurred, and not when they are paid on a cash basis. Thus, managers can increase earnings not only through increasing sales and revenues, but via decreasing some of the expenditures, specifically discretionary expenditures. "Adjusting bad debt expenses estimate up or down will directly increase or decrease reported net income" (Wang, Butterfield, & Campbell, 2016: 37).

A number of studies tried to investigate financial statements' weak points and vulnerability for manipulation to detect earnings management as well as finding more stable and reliable items in the financial reports. According to Sloan (1996), cash flow components of earnings performance are more persistent and reliable than earnings related to accrual components of earnings. He indicates that stock prices do not reflect the whole picture and consequently, "firms with relatively high (low) levels of accruals experience negative (positive) future abnormal stock returns that are concentrated around future earnings announcements" (Sloan,

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1996: 290). Likewise, the fact that accrual and cash components are required to be carefully analyzed in order to predict future in a better way means that based only on stock prices investors cannot be confident with traditional efficient market's view that stock prices fully reflect all publicly available information.

Hypotheses

Crisis periods may impact the intention to engage in earnings management. Although there are reasons to explain both higher and smaller earnings management in financial turbulences (Filip & Raffournier, 2014). For one side, during these periods stakeholders' confidence decreases (Gorgan, Gorgan, Dumitru & Pitulice, 2012), and so, to influence skeptical investors, banks and other creditors, managers may engage in earnings management. 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 (Ahmad-Zaluki, Campbell & Goodacre, 2011). Moreover, managers may also want to avoid a decline of the firm's stock price as it may negatively impact its compensation (Charitou, Lambertides, & Trigeorgis, 2007). Finally, manipulating results may be a way to managers evade the violation of debt covenants (Filip & Raffournier, 2014). 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.

Persakis & Iatridis (2015) found that earnings quality decreases during the financial crisis. Similar impact was found by Xu & Yi (2016) and Lisboa (2016), who analyze the Chinese and the Portuguese market, respectively. This impact is more relevant in country where the legal protection of investors is weak (Iatridis & Dimitras, 2013).

Although, for another side, as investors expect greater earnings management, incentives to engage on it may reduce (Cimini, 2015). Moreover, the monitoring from creditors, auditors, and other stakeholders increases with financial crisis, which may impact the discretion to manage earnings (Filip & Raffournier, 2014). Finally, with financial crisis, diverse governments all over the world provide support to firms in financial distress. Therefore, firms may prefer to show financial distress in order to restructure debts and reduce interest rate (Ahmed, Godfrey & Saleh, 2008).

Cimini (2015) found, to France and Luxembourg that accruals, as a proxy of earnings management, are higher before crisis than in crisis periods. Filip & Raffournier (2014) found the same results using European Union as a whole, but confirm that not all the countries, analyzed individually, have the same tendency. To Austria, Belgium, France, Norway and Portugal earnings management increased with financial crisis. Kousenidis, Ladas & Negakis (2013) concluded that the reduction of earnings management with financial crisis rely on the incentive to present financial reports with high quality to attract more investors or gain benefits on external financing.

Results are mixed. As our sample includes listed firms, and with crisis firms may need to influence more all stakeholders, we expect that earnings management may increase. These arguments suggest the first hypothesis:

Hypothesis 1: Firms engage more in earnings management during financial crisis.

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Investors analyze company and stock market carefully as long as they are concerned about future dividends of a particular company. Furthermore, they pay considerable attention to the type of law in the country in which they might invest. Laws differ markedly around the world, thus in different countries investors' bundle of rights are singular. "In particular, countries whose legal rules originate in the common law tradition tend to protect investors considerably more than do the countries whose laws originate in the civil law, and especially the French civil law, tradition" (La Porta *et al*., 1998: 33). The legal protection of investors is a way to discipline managers, and reduce or at least eliminate agency conflicts between the principal and managers (La Porta *et al.*, 1998). Besides the diversity of law, the quality of accounting also differs in different law countries which alarms investors in approaching particular financial reporting and extent of its credibility.

Leuz, Nanda & Wysocki (2003) found that strong investor' protection limits managers to use accounting practices to favor their own benefits. Likewise, the quality of financial reports increases and earnings management decreases. Similar conclusions were found by Persakis & Iatridis (2015), and Persakis and Iatridis (2016). According to Rodríguez-Pérez & Hemmen (2010), in contrast to most common-law countries such as the United States, countries from code law institutional framework are associated with higher accounting manipulation. Dimitras, Kyriakou & Iatridis (2015), analyzing European countries found mixed reduces. While in Greece and Spain earnings management was reduced during recession, in Portugal, Ireland and Italy results are mixed, they tend to reduce but managers are influenced to increase earnings management practices.

This suggests that countries with stronger investor's protection exhibit lower levels of earnings management. As Portugal is a French civil law country while UK is a common low country, the quality of accounting in UK might be higher than in Portugal (La Porta *et al.*, 1998). This leads to the following hypothesis:

Hypothesis 2: Portuguese firms engage more in earnings management than UK firms.

Some firm's characteristics may also impact managers' propensity to engage in earnings management. For one side, large-size firms have lower information asymmetry, and a more efficient control system. These firms want to maintain their reputation. As a consequence, managers may have less propensity to engage in earnings management (Watts & Zimmerman, 1986).

For another size, large-size firms have better accounting services, and thus may use accounting methods to change its results (DeFond & Park, 1997). These firms also have greater agency problems type I, and thus managers may have try to maximize their own benefits, as for instance increasing their bonus (Jensen & Meckling, 1976). Moreover listed firms are usually large-size firms, and so are more pressed to meet financial investors' expectations. As a consequence, earnings quality may decrease with the firm' size, which leads to the next hypothesis: firm's size positively impacts earnings management.

Hypothesis 3: Earnings management increases with the firm' size.

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Firm's growth may also influence earnings management. Usually growth is measured as the annual change in turnover, as turnover is the main income of the firm. For one side, fast growing firms may have higher accruals quality as these firms have few inventories, and the unit cost of production diminishes (Cascino, Puguliese, Mussolino & Sansone, 2010). For another side, these firms want to meet investors' expectations and other stakeholders in order to maintain the access to capital, and to avoid an increasing in the cost of capital. Moreover, growing firms may smoot earnings to impact the perceived firm risk (Jiraporn & DeDalt, 2009). This situation may increase when listed firms are analyzed. Likewise the following hypothesis is established:

Hypothesis 4: Earnings management increases with sales growth.

One reason to manipulate earnings is to have the approval of loans (to new loans), and/or to maintain the firm's cost of debt (to existent ones) (Moreira & Pope, 2007). For one side, earnings management may increase with leverage since the firm may need to meet debt covenants (Alves, 2012). The higher the leverage, the higher the risk of bankruptcy, which may lead to high costs of debt (Costa, Cerqueira & Brandão, 2016). For another side, earnings management may decrease with leverage because debtholders will control managers' decisions. Debt is an alternative mechanism to control agency costs, since the firm's free cash flow reduces, and thus the possibility of managers to maximize their own benefits (Jensen & Meckling, 1976).

In this paper listed firms are analyzed. These firms may be more concern with minimizing costs, and meet shareholders' expectations. Therefore, a positive relationship between earnings management and debt is expected. The following hypothesis is stablished:

Hypothesis 5: Earnings management increases with leverage.

One incentive to engage in earnings management is to pay less taxes when tax measurement is linked with financial statements. Therefore, firms with positive net income may try to reduce income payments (Healy & Wahlen, 1999). Although, firms with negative net income may manage earnings to surpass this situation, and to avoid the change in the relationships with stakeholders, namely access to debt loans, and capital markets (Moreira & Pope, 2007). Previous studies, as the one of Chen, Firth, Gao, & Rui (2006) found that earnings management is negatively related with net profit. Moreover, Hu, Cao, and Zheng (2015) found that firm with three consecutive years with losses have greater incentive to engage in earnings management to convert losses into gains. This relationship is better explained in crisis periods, since firms may be more concern to avoid losses than to pay less income tax. The following hypothesis naturally comes up:

Hypothesis 6: Firms with negative net income engage more in earnings management.

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3. Sample and Empirical Model

3.1. Sample

The sample consists of Portuguese and UK listed firms. We choose two countries in order to compare earnings management similarities and differences among countries. Therefore we select one small-size country, Portugal, and a large-size country, UK. Moreover, these two countries present great differences regarding weakness of legal protection. Portugal is a French civil law country, whether UK is a common low country, with a stronger protection of investors (La Porta *et al.*, 1998).

Information was collected from DataStream database. The Portuguese sample includes 56 firms, while the UK sample 358 firms, showing the difference in the firms' size. We have include firms from all industries, even knowing that the financial sector has some specificities regarding accounting standards. Although, the 2008 financial crisis had great impact in financial institutions, with the failure of some, and solvency problems in diverse ones. Likewise, we think that analyzing this industry is relevant.

The analyzed period was eleven years, from 2004 till 2014. Financial data was collected starting in 2003 to calculate some growth rates. We have 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. The year of 2008 was considered as the beginning of the financial crisis, with the collapse of Lehman Brothers Bank in the USA, when the subprime mortgage market began to display an increasing rate of mortgage defaults.

In 2008 two Portuguese banks, Banco Português de Negócios (November) and Banco Privado Português (December), have also collapsed due to the crisis. As a consequence, Portugal underwent to public deficit in 2010 and in April, 2011 the country asked Troika's help to deal with this issue. Although, it seems that the financial crisis was over, in 2014 another Portuguese bank - Banco Espírito Santo have also collapsed. In the UK, the financial crisis did not have such a great impact, but even so some changes happened. The Bradford and Bingley Building Society was effectively nationalized in late 2008, and then partially sold to the Spanish Grupo Santander Bank. Also in the same year the government partially nationalized the struggling Royal Bank of Scotland Group, and forced Halifax Bank of Scotland (HBOS), the UK's largest mortgage lender, into the Lloyds TSB group. 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.

3.2. Empirical Model

Earnings management can be calculate in the perspective of accruals and real activities. Most studies focus on accrual-based as cash-flow based earnings management is more difficult to detect (Peasnell, Pope & Young, 2000). Moreover, Goel (2016) argued that cash flows indicators are more variable than accrual based indicators. Likewise, in this study we also focus on accrual-based earnings management.

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First we calculate discretionary accruals as a proxy of earnings management. Different models can be used to detect discretionary accruals, as for example: Healy (1985), DeAngelo (1986), Jones (1991), Dechow, Sloan & Sweeney (1995), Kothari *et al*. (2005). We based on the Kothari *et al*. model (2005) as it is an extension of the Jones model (1991), the most extensively used in identifying discretionary accruals, and includes a new variable, a performance measure (return on assets) that allows to control for the impact of the firm performance. The estimated model is the following:

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = k_1 + k_2 \times \frac{1}{Assets_{i,t-1}} + k_3 \times \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + k_4 \times \frac{PPE_{i,t}}{Assets_{i,t-1}} + k_5 \times ROA_{i,t} + \varepsilon_{i,t}$$

Where:

TA: total accruals is the variation of non-cash current assets, less the variation of current liabilities, plus depreciations;

Assets: total assets;

ΔSales: annual change in sales;

PPE: net amount of property, plant and equipment;

ROA: return on assets;

i: firm;

t: fiscal year.

Then, the coefficients obtained in the aforementioned equation $(\hat{k})$ are used to estimate non-discretionary accruals (NA). For it the following equation is used:

$$NA_{i,t} = \hat{k}_1 + \hat{k}_2 \times \frac{1}{Assets_{i,t-1}} + \hat{k}_3 \times \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \hat{k}_4 \times \frac{PPE_{i,t}}{Assets_{i,t-1}} + \hat{k}_5 \times ROA_{i,t}$$

Lastly, discretionary accruals is the difference between total accruals and estimated non-discretionary accruals.

$$DA_{i,t} = \frac{TA_{i,t}}{Assets_{i,t-1}} - NA_{i,t}$$

We also analyze the influence of the firm's characteristics on earnings management. Previous studies suggest that firm' size, growth, debt, and negative net profit in previous period impact earnings management (DeFond & Park, 1997, Chen *et al.*, 2006, Moreira & Pope, 2007, Jiraporn & DeDalt, 2009). Likewise, the following equation is established:

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$$DA_{i,t} = C + \beta_1 \times Dcrisis_{i,t} + \beta_2 \times Size_{i,t} + \beta_3 \times Growth_{i,t} + \beta_4 \times Debt_{i,t} + \beta_5 \times Dnp_{i,t}$$

Where:

DA: discretionary accruals;

Dcrisis: dummy variable that is one when the year is a period of financial crisis, and zero otherwise;

Size: natural logarithmic of total assets;

Growth: annual change in turnover;

Debt: total liabilities over total assets;

Dnp: dummy variable that is one when net profit of the previous year is negative, and zero otherwise.

This equation is estimated to each country in separate and to the total sample. In this last case a dummy variable of country is also included to detect country effect.

3.3. Principal statistics

The descriptive statistics of accruals variables (panel A) and the control variables (panel B) are provided in the table 1 to Portugal and table 2 to UK.

Table 1: Descriptive Statistics (Portugal)

	Mean	Median	Maximum	Minimum	Std. Dev.
Panel A: Accrual-based earnings management indicators					
TA	-0.0477	-0.0348	1.0158	-1.3395	0.1818
NA	-0.0510	-0.0535	0.0777	-0.2270	0.0408
DA	0.0033	0.0153	1.0441	-1.2975	0.1772
Panel B: Control variables					
Size	13.360	13.221	18.414	5.5984	2.2795
Growth	0.0579	0.0226	6.2105	-1.0000	0.3654
Debt	0.4078	0.4049	1.5046	0.0000	0.2050
Net profit	79184	6598	5672200	-12191	315688

Descriptive statistics of TA (total accruals: accruals divided by total assets of previous year), NA (non-discretionary accruals), DA (discretionary accruals), Size (natural logarithm of total assets), Growth (annual sales growth), Debt (total debt/total assets), Net profit. Source: Authors.

In mean, total and non-discretionary accruals are negative, while discretionary accruals are around zero. Similar values were found by Xu & Yi (2016), and Lisboa (2016). Moreover, discretionary accruals are too volatile, suggesting that not all the firms manage results or at least not in the same direction (some upwards and other downwards).

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Sales growth is around 5.79%, but diverse companies have decreased sales over years. In mean, indebted is around 40.78%, but while some firms almost not use liabilities others are too indebted. Finally, net profit is in mean positive, although too volatile.

Table 2: Descriptive Statistics (UK)

	Mean	Median	Maximum	Minimum	Std. Dev.
Panel A: Accrual-based earnings management indicators					
TA	0.0239	-0.0222	4.8521	-3.9504	0.4700
NA	0.0458	0.0294	3.1782	-0.7475	0.1377
DA	-0.0218	-0.0507	4.7579	-4.3621	0.4494
Panel B: Control variables					
Size	11.650	11.370	21.5977	1.3863	2.8486
Growth	1.4868	0.0515	1252.64	-9.7060	30.085
Debt	0.2683	0.1458	98.667	0.0000	2.4071
Net profit	135613	1815	104388	-23541000	864119

Descriptive statistics of TA (total accruals: accruals divided by total assets of previous year), NA (non-discretionary accruals), DA (discretionary accruals), Size (natural logarithm of total assets), Growth (annual sales growth), Debt (total debt/total assets), Net profit. Source: Authors.

Analyzing the UK market, total and non-discretionary accruals are positive, and discretionary accruals is negative. Moreover, discretionary accruals is too volatile because while sometimes firms increase results, other times, manipulation is to decrease profits.

The firm's growth is positive and high, but there are some exceptions. Debt represent 26.83% of total assets, but some firms are not indebted. Finally, net profit is in mean positive.

Comparing Portugal and UK the following conclusions can be drawn: while UK firms have negative discretionary accruals, Portuguese firms have a positive value but near zero. It suggests differences in earnings management between the two countries, as expected in hypothesis 1. Sales growth and net profit in UK are higher than to the Portuguese firms. Likewise, Portuguese firms are more indebted as firm's self-funding is scarcer.

Tables 3 and 4 evidence the correlation between discretionary accruals and the control variables used to Portugal and UK, respectively.

Table 3: Correlation (Portugal)

	DA	Size	Growth	Debt	Net Profit
DA	1				
Size	0.0289	1			
Growth	-0.0563	-0.0846	1		
Debt	-0.2121 ***	0.0744 *	-0.0910 **	1	
Net profit	-0.0553	0.3426 ***	0.0630	0.0052	1

Correlation matrix of DA (discretionary accruals), Size (natural logarithm of total assets), Growth (annual sales growth), Debt (total debt/total assets), Net profit. * Significance level of 10%, ** 5% and *** 1%. Source: Authors.

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Analyzing table 3 the following facts emerge. Discretionary accruals is negatively impacted by debt. This conclusion suggests that more indebt firms engage less in earnings management, may be because creditors control the firm, as suggested by Jensen & Meckling (1976), which may avoid changing results. Moreover, the firms' size depend on debt and net profit. Finally growth is negatively related with debt, may be because firms with high growth sales have higher net profit and thus more self-funding.

Table 4: Correlation (UK)

	DA	Size	Growth	Debt	Net Profit
DA	1				
Size	-0.0793 ***	1			
Growth	0.0266	-0.0155	1		
Debt	-0.0693 ***	-0.0892 **	-0.0045	1	
Net profit	-0.0224	0.3486 ***	-0.0073	0.0007	1

Correlation matrix of DA (discretionary accruals), Size (natural logarithm of total assets), Growth (annual sales growth), Debt (total debt/total assets), Net profit. ** Significance level of 5% and *** 10%. Source: Authors.

To UK, discretionary accruals is negatively correlated with size and debt. Small firms and with less liabilities engage more in earnings management. This result suggests that these firms need to influence stakeholders' perception about the firm. Moreover, the firm' size is positively impacted by net profit and negatively by debt. Firms with more self-funding and less obligations with creditors can grow more. Finally, the other variables are not correlated, at least with a statistically relevance.

In comparison, Portugal and UK discretionary accruals is negatively related with debt. To UK size also impact discretionary accruals. Moreover, debt is more used in Portugal and Portuguese firms need this type of finance to growth, while the UK firms growth more with less debt.

4. Results

First we use a univariate analysis to analyze the impact of financial crisis on discretionary accruals. For it we analyze the annual evolution of discretionary accruals to Portugal (graph 1) and UK (graph 2).

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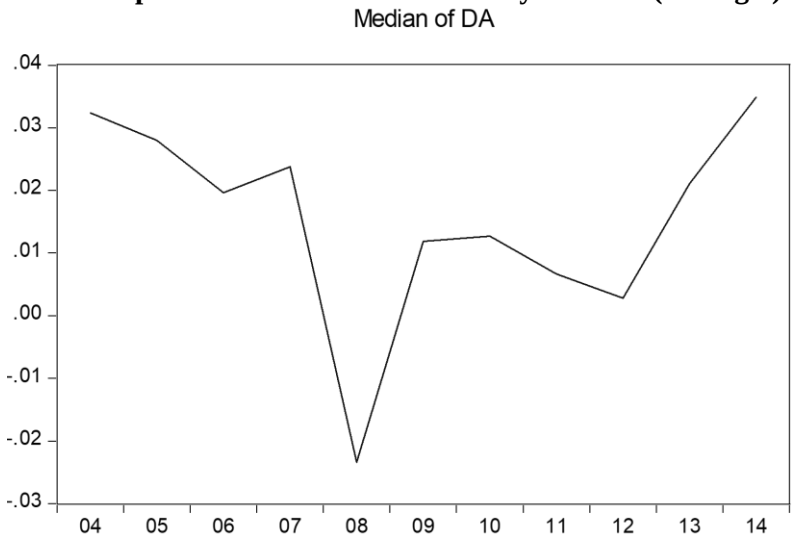
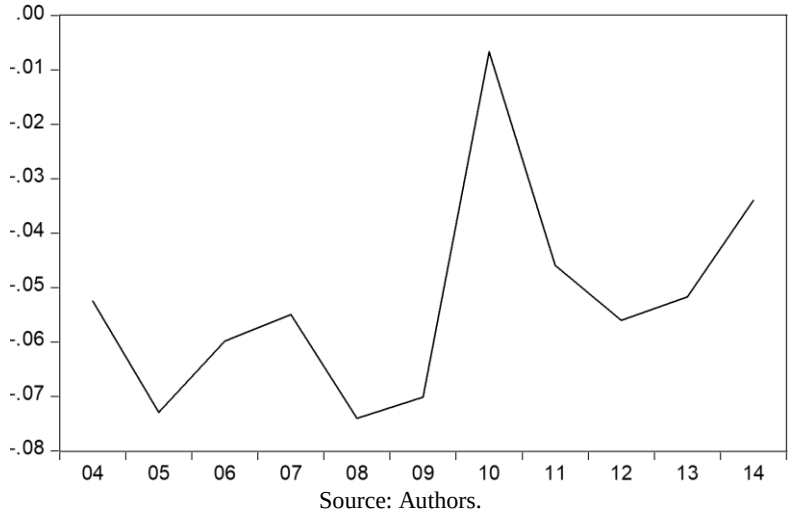
Graph 1: Evolution of discretionary accruals (Portugal)



Source: Authors.

Analyzing the previous graph we can see a decrease of discretionary accruals in Portugal in the year of 2008 (to negative values), but then it increases again. In the year of 2014 discretionary accruals reaches the higher value, even higher than before crisis.

Graph 2: Evolution of discretionary accruals (UK)



Source: Authors.

To UK market, the evolution of discretionary accruals is distinct. Discretionary accruals is always negative, and the mean values is similar through the years till 2009, after it increases reaching almost a zero value in 2010, and then decreases again but with higher values than before crisis.

In a second approach we compare the mean and standard deviation difference between discretionary accruals before and with crisis and to Portugal and UK. Results are shown in table 5.

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Table 5: Comparison of discretionary accruals

	Mean		Std. Dev.	
Panel A: Pre vs with crisis				
	Pre-Crisis	**Crisis**	**Pre-Crisis**	**Crisis**
DA Portugal	-0.0004	0.0037	0.0999	0.1463 ***
DA UK	-0.0137	-0.0082	0.2433	0.3781 ***
Panel B: Portugal vs UK				
	Portugal	**UK**	**Portugal**	**UK**
DA	0.0033	-0.0218	0.1772	0.4494 ***

Mean and standard deviation values of DA (discretionary accruals). *** indicate a difference in median/standard deviation between crisis and pre-crisis period, Portugal and UK, at a significance level of 1%. Source: Authors.

To Portugal, before crisis discretionary accruals is negative, while with crisis are positive. This suggests a different aim to engage in earnings management in both periods, although the mean difference is not statistically significant. Before crisis managers have "destroy" some results to pay less income taxes or to avoid volatilities in net income and exhibit stability to financial investors. With crisis, most firms in Portugal encounter financial problems due to the financial contraction measures applied by the Portuguese government. Therefore, managers have increased results in order to avoid a negative perception of stakeholders, and show confidence and credibility. Moreover, after 2008, the difference among firms propensity of earnings management increases and standard deviation differences is significant. This result goes in line with the conclusions found by Filip & Raffournier (2014), Xu & Yi (2016), and Lisboa (2016).

To UK, before and with crisis managers engage in earnings management to reduce results. It suggests that managers may try to satisfy personal benefits. Although during crisis the value is around zero, showing less propensity to engage in earnings management, but the mean differences is not statistically significant. Moreover, during crisis periods, the difference among firms is higher and so standard deviation differences before and with crisis is relevant. This results confirm the conclusions of Filip & Raffournier (2014)

Comparing Portugal and UK, while Portuguese firms upward results, UK firms downward results, but the difference is not statistically significant. To both countries earnings manipulation exist, meaning that the quality of investors' protection is not significant to avoid managing of results. Results suggest that the dimension of the country and the quality of life impacts results. UK is a large-size country, more rich than Portugal, and so firms have less difficulties to achieve positive net profits. Therefore earnings management is to reduce results. Contrary, Portugal is a small-size country, and the country faced public deficit. As a consequence, firms need to increase results in order to present a better picture to all stakeholders. Moreover, to both countries, firms not all have the same propensity to engage in earnings management, but the difference is more expressive to UK firms. Dimitras *et al.* (2015) found similar results analyzing European countries.

Next table shows the impact of firm' characteristics in earning management.

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Table 6: Impact of firm' characteristics on earnings management

	Portugal	UK	Total
C	-0.0071	0.1053 ***	0.0587
Dcrisis	0.0125	0.0243	0.0249 *
Size	0.0060 *	-0.0124 ***	-0.0107 ***
Growth	-0.0322	0.0004	0.0004
Debt	-0.2154 ***	-0.0142 ***	-0.0143 ***
D_{NP}	0.0420 **	0.0176	0.0184
D_{UK}	-		0.0294
Adjusted R^2	5.38%	1.37%	1.45%
F-statistic	7.2312 ***	8.7770 ***	9.0639 ***

Regression between DA (discretionary accruals), and DCrisis (dummy variable which equals to one when is a recession year and zero otherwise), Size (natural logarithm of total assets), Growth (annual sales growth), Debt (total debt/total assets), DNP (dummy variable which equals to one if net profit of the previous year is negative, and zero otherwise), DUK (dummy variable which equals to one if the country is UK, and zero if is Portugal). *, **, *** Significant level of 10%, 5% and 1%, respectively. Source: Authors.

Analyzing each country in separate, financial crisis did not seem to impact earnings management, but when total sample is analyze, crisis positively impacts earnings management as expected in hypothesis 1. During financial crisis managers engage in earnings management to influence stakeholders' perception of the firm. In this period, most firms have some economic and financial problems, and thus managers avoid negative losses to sustain relationships with creditors, and to influence stock price. Similar results were found by Filip & Raffournier (2014), Persakis & Iatridis (2015), Xu & Yi (2016), and Lisboa (2016).

Contrary to our expectations, country effect is not statistically relevant to explain discretionary accruals. Likewise, hypothesis 2 is not validated. In a univariate analysis, Portugal and UK firms have different aim to engage in earnings management, and use different techniques to manage results. Dimitras *et al.* (2015) found differences among European countries. Although in this study this differences are present in a univariate analysis but disappear when firm' characteristics are included, suggesting that the differences are explained by the difference in the characteristics.

To Portugal, discretionary accruals is influenced by firm' size, debt and negative net profit. To UK, discretionary accruals is influenced by firm' size and debt.

While size positively influences earnings management in Portugal, to UK this impact is negative. Hypothesis 3 is validated only to the Portuguese sample. In Portugal, larger firms have more propensity to engage in earnings management. These firms have better accounting service so have more tools to change results. Moreover, in these firms ownership is less concentrated, and thus managers may focus on the maximization of their own wealth at the expense of the firm's value maximization. Similar results were found by DeFond & Park (1997). To UK, where the firm's dimension is larger than that of Portuguese firms, smaller firms have more propensity to engage in earnings management. Larger firms have a more efficient control system, and thus is more difficult for managers to engage in earnings manipulation. Similar results were found by Watts & Zimmerman (1986).

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Debt negatively influences earnings management to both countries, contrary to our expectations in hypothesis 5. More indebted firms are more controlled by creditors, and thus managers have less possibilities to engage in earnings management.

Finally, in Portugal a negative net profit in previous year is also significant to explain earnings management. As suggest in hypothesis 6, firms with negative net profit have more tendency to engage in earnings management to sustain their relationships with all stakeholders. Similar results were found by Moreira & Pope (2007).

5. Conclusion

This paper analyzes the 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 the extent of their engagement in activity of financial manipulation and earnings management. Furthermore, this study aims to define the impact of financial crisis in each country, whether the level of financial manipulation increases in the period when the world undergoes certain financial stress. Studies analyzing both crisis and country effects in simultaneous are scarce, so this study contributes to the enrichment of earnings management literature.

We have used the Kothari *et al*. model (2005) to calculate discretionary accruals, a proxy of earnings management. Then we analyze firm's characteristics impact on earnings management. Findings suggest that despite the fact that common law countries have higher quality of accounting, both Portuguese and UK firms engage in earnings management. Although the difference is not statistically significant, suggesting that is explained by the difference in the firms' characteristics. Furthermore, earnings management increases during financial crisis, suggesting that in turbulent periods, firms need to manage earnings to show confidence and credibility to stakeholders. Firm' size and debt also impact discretionary accruals. The impact of firms' size differs to Portugal and UK. While in Portugal large-size firms engage more in earnings management since have more accounting techniques to do it, so UK, large-size firms are more concern with reputation, and thus focus more in quality of information. Finally, more indebt firms present less tendency to manage earnings as these firms are controlled by creditors, making it difficult to satisfy managers own interests.

The main conclusions of this study are of great value to all stakeholders that use the firm's financial statements to make decisions. Results are also relevant to all regulators in the way to control earnings management to avoid it and to improve the quality of the firm's financial reporting. Finally, shareholders may understand when the firms manage earnings, and managers may understand the benefits and cons of doing it.

With this study we have accomplished the proposed aims. Although, it has some limitations as all studies. First, only two countries were selected for analysis, so results cannot be extrapolated to other countries. For future research other countries must be analyzed in order to validate results and extrapolate conclusions. Second, only listed firms were studied. Although listed firms are a small group of firms in all countries, with specific characteristics not present in all firms. In a future analysis this study must be done to non-listed firms, which may have different reasons to manipulate, since they do not have access to capital

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market. 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.

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