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DISSERTATION

EARNINGS MANAGEMENT AND ACQUIRERS PRECEDING ACQUISITIONS IN EUROPE

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Resumo

O presente estudo analisa o comportamento por parte de empresas europeias cotadas e não cotadas quanto à prática de gestão de resultados. A amostra é constituída por 409 empresas adquirentes que anunciaram e completaram negócios de fusões e aquisições entre 2009 e 2016. Das 409 transações completadas, 29% dizem respeito a pagamentos em ações, enquanto 71% configuram pagamentos em dinheiro. Os *accruals* foram estimados através da versão modificada do modelo de Jones, de forma a poder ser obtida a componente de *accruals* discricionários como medida de gestão de resultados. A amostra testada englobou 400 empresas adquirentes, e 400 empresas *match* que não participaram em negócios de fusões e aquisições durante o período da amostra. Os resultados obtidos mostram uma fraca evidência quanto ao facto de os gestores manipularem os resultados no sentido ascendente, durante o período anterior à data do anúncio da transação. Estes resultados parecem estar em linha com os obtidos por Erickson & Wang (1999) e Koumanakos et al. (2005) em que não houve uma antecipada gestão de resultados por parte das empresas adquirentes que pagaram fusões e aquisições em dinheiro.

Palavras-chave: fusões e aquisições, gestão de resultados, *accruals* discricionários.

Abstract

This study examines the behavior of European listed and non-listed firms in terms of earnings management practices. The sample is composed by 409 acquirers which have announced and completed M&A deals between 2009 and 2016. From the 409 completed transactions, 29% of them concern stock payments, while 71% of them concern cash payments. The accruals were estimated via the modified version of Jones model in order to obtain the component of discretionary accruals, the main proxy for earnings management. The tested sample considered 400 acquirers combined with the respective 400 matching firms that have not participated in M&A deals during the sample period. The results provide weak evidence that managers manipulate earnings upwards in the period prior to their M&A announcements. These findings seem to approach those of Erickson & Wang (1999) and Koumanakos et al. (2005) for which pre-merger earnings were not managed by cash acquirers.

Keywords: mergers and acquisitions, earnings management, discretionary accruals.

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Abbreviations and acronyms

ADA – Absolute Discretionary Accruals

Big4 – The 4 most reputable auditing firms: Deloitte, EY, KPMG and PwC

BvD – Bureau Van Dijk, a business information provider

CFO – Chief Financial Officer

EU28 – European Union at 28 countries

IAS – International Accounting Standards

IFRS – International Financial Reporting Standards

M&A – Mergers and Acquisitions

NACE – " Nomenclature statistique des activités économiques dans la Communauté européenne "

OLS – Ordinary Least Squares, a statistical regression method

RDA – Real Discretionary Accruals

ROA – Return on Assets

ROE – Return on Equity

UK – United Kingdom

US – United States of America

1. Introduction

Mergers and acquisitions are corporate action events which determine the restructuring and concentration of firms with the purpose of broadening their activities and, by extension, their market position (Vazirani, 2015). The goal of this type of operations is to increase the corporations' influence, hence helping them to be powerful, profitable, competitive, and wealthy to shareholders as much as possible (Petmezas et al., 2010). Concretely, M&A transactions impact the market structure, in particular if they drive or tend to a formation of monopolies, oligopolies, or to an equivalent situation of market power (Andrade et al., 2001). In turn, managers can find in M&A a worthwhile chance to obtain potential efficiencies, wider market visibility and more competitive strategies for their firms, as well as it constitutes an opportunity to build managers' personal empire (Terjesen, 2009).

By a simple definition, a merger occurs when a firm agrees on becoming part of another firm through the incorporation of all their assets and liabilities, all vested into a single entity (Terjesen, 2009; Vazirani, 2015). To do so, the board of directors from both the merging and the merged firm agree on a price, giving the target shareholders the voting decision to approve or decline the merger proposal (Offenberg & Pirinsky, 2014). If the proposal is approved, the merged firm consequently ceases to exist and only the merging one remains on the market with the same name and entity (Hillier et. al, 2013).

A consolidation is an alternative way of combining two or more firms and their respective activities. It is nearly the same concept of merger, with the difference that the involved firms get dissolved in order to allow the creation of a brand new one (Gaughan, 2007; Hillier et. al, 2013).

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An acquisition (also commonly called a "takeover") is defined by Vazirani (2015, pp. 4) as "*a corporate action in which a firm buys most, if not all, of the target firm's ownership stakes in order to assume control of the target firm*". Bidders (i.e.: acquirers) can either opt to acquire the targets' assets or shares, depending on the takeover objective (Hillier et. al, 2013). If the bidder is about to acquire the target's assets, a proxy formal vote from the target shareholders is required (Hillier et. al, 2013). Otherwise, if the goal is to take control of the target firm via equity, the target shareholders are requested to respond to the corporate action on the market, launched by the bidder, by sending voluntary instructions on their eligible stock positions to the correspondent custodian, up to a specific deadline, whose options are either accept (i.e.: tender) or decline (i.e.: ignore) the offer. Rather than participating in the offer, the shareholder may opt to sell his position on the open market during the offer period (Groves, 2008). The offer is as well succeeded as the quantity of tendered positions fulfilled and satisfies the initial bidder's intention, usually described in the *prospectus* (i.e.: the offer document). The bidder might assume the commitment to purchase a certain percentage of outstanding shares, and, additionally, that it will only accept the tendered shares if a minimum tendered stock positions have been reached (Hillier et al., 2013).

It is notorious that M&A have been largely approached by a variety of academics, economists, financiers, regulators and accountants worldwide, who relate it to different contexts. In this paper, M&A deals are contextualized with earnings management because of the close relationship they seem to have, as vastly demonstrated in the literature.

Due to a considerable number of financial scandals that have occurred over recent years, mostly in Europe and US, the role of capital markets has been seriously questioned on matters of transparency and reliability. One of the main topics of discussion regards to

earnings management practices and to the quality of earnings reported. With this, earnings management has been applied to important areas of accounting and finance due to an increased importance in explaining managerial choice associated to market phenomena.

This paper investigates the market trend upon M&A deals in Europe and aims to relate it to the level of accruals reported by acquirers after the subprime crisis. Even though the most remarkable studies which combine M&A and earnings management take place in US (Erickson & Wang, 1999; Heron & Lie, 2002; Louis, 2004) and UK (Botsari & Meeks, 2008; Vasilescu & Millo, 2016), there are no studies applied to the EU28 as a whole. For that reason, this paper provides an additional contribute to the extant literature, as well as a suggestion for further investigations.

In the research methodology, I analyzed a sample of 409 deals in order to test whether earnings management was ahead of M&A announcements. My findings were not consistent with this prediction, suggesting that acquirers have not anticipated their deals.

The body of this paper is segmented in seven parts. In the next chapter, the literature review introduces the subject to be studied henceforth. In the third chapter are described the model determinants which support this study. The fourth chapter provides the hypothesis of study to be tested. The fifth chapter defines the earnings management measures and its method of estimation. The sixth chapter describes the research methodology and used data. The seventh chapter presents the results and the inherent analysis. Finally, the eighth chapter enunciates the main conclusions, limitations and further research suggestions.

2. Literature Review

2.1. Earnings management literature

A gentle definition of earnings management is suggested by Pungaliya & Vijh (2009). In their exact words, earnings management consists in *"inflating or deflating accruals and charges within generally accepted accounting principles"* (pp. 2). Healy & Wahlen (1999) and Lo (2008) are more assertive at describing this concept, who define earnings management as the deliberated willingness to skew the stakeholder's perception about the reported statements. Even assuming that managers who engage in earnings management do not have an actual willingness to provoke losses to shareholders, it is difficult to foresee that such will not occur. In order to mitigate misinformation, financial experts are nowadays more demanded to detect earnings quality on behalf of most investors. Since it is expected that financiers have the necessary skills to analyze the accuracy of statements and to detect imprecisions, they should therefore contribute in a positive way to a better and fairer market (Dechow & Schrand, 2004).

Teoh et al. (1998) believe that managers will find high incentives to manage earnings if their firms intend to sell shares on the market in the near future. Given this, the earnings quality decreases because the reported earnings do not reflect the actual firm performance. This issue is notorious because mainly shrewd investors are able to detect earnings quality, which causes information asymmetry for the rest of investors. It is then perceived that when firms present a high quality of earnings, the interested parties take informed decisions and thus the market becomes more efficient (Dechow et al., 2010). Nevertheless, De Jong et al. (2014) found evidence that financial analysts and CFOs are in agreement for considering that earnings have to be managed in order to make firms show better performances. With this, managers trust that better results can enhance

credibility in the market in order to sustain or inflate the stock valuation of firms (Graham et al., 2005).

2.2. Motives behind earnings management

Lo (2008) is relentless in stating that managers are not naive when they manage earnings because they always have an intention to obtain a personal profit or an intention to mitigate losses their firm may have had. Throughout the years, researchers have investigated and largely discussed the motives that possibly explain managers' behavior. Some of the most common motives are presented below.

- Capital market expectations

Once managers are influenced by the expectation that investors create on their firms, they are likely to manage earnings in order to raise the stock price and so to maintain the necessary confidence from investors (Healy & Wahlen, 1999). Nonetheless, managers will be extra-motivated to manage earnings if stock prices and compensation incentives are strongly correlated, as evidenced by Bergstresser & Phillipon (2006).

- Contractual incentives

Burgstahler & Dichev (1997) argue that firms which show great performances attract stakeholders at many levels. Firstly, if the firm demonstrates a prosperous guise, it is likely that customers will not bother to pay higher for goods. In the same way, great performers have the advantage that suppliers or lenders can ease and extend the payment dates due to giving the impression that managers are able to accomplish with the celebrated commitments.

- Bonuses plans

Rahman et al. (2013) attains that managers tend to manipulate earnings due to their personal incentives to maintain their wealthy status, as well as their position inside

the firm. Gaver et al. (1995) and Holthausen et al. (1995) found evidence that managers often use accounting techniques to diminish or enhance earnings, depending on the bonuses they might receive. The main idea is, if the firm's income surpasses the maximum (minimum) limit of bonuses attributable, managers will then reduce (raise) that income because they find it worthless to report their earnings higher (lower) without receiving any further compensation for that. Nonetheless, in order to misguide opportunism, it is recommended that firms, namely through their board of directors, adopt plans that promote a long-term performance, rather than a short-term one, since it best suits the shareholders' interests. As proven in former studies, a long-term policy seems effective in reducing the managers' incentive to manipulate earnings (Richardson & Waegelein, 2002).

2.3. Earnings management on mergers and acquisitions

When firms trace corporate strategies to enhance their value, many interests arise. In M&A deals, an acquirer has special interest in issuing stock when the current stock price is above the fair value (Erickson & Wang, 1999; Botsari & Meeks, 2008). Managers perceive that the higher the stock price of their firm, the lower the costs of financing a merger (because a less number of shares will have to be issued to the target). Being the case, there is a wide incentive in paying stock and small incentive in paying cash when the stock prices are overvalued.

From their complete sample of 119 US firms amongst 1985-1990, Erickson & Wang (1999) evidenced that 55 stock acquirers showed abnormal accruals before M&A, which indicates earnings management practices. On the other hand, no evidence of earnings management practices for the remaining 64 cash acquirers was found. After that, various studies which are consistent with the authors' findings were performed. For a

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sample of 120 deals in Malaysia, Rahman & Baka (2003) found that stock acquirers manage earnings upwards between 1991 and 2000. One year later, Louis (2004) took the same conclusions for a sample of 373 deals in US during 1992 and 2000, suggesting that stock payments reflect earnings manipulation, contrarily to cash payments. Similarly, Botsari & Meeks (2008) are able to find the same evidence on 176 UK firms during 1997 and 2001, posing that stock swap deals suggest earnings manipulation before the M&A year of announcement. More recently, Higgins (2013) demonstrates that 125 Japanese stock-acquirers also anticipate M&A deals in about 1 year through earnings manipulation.

Regarding the market performance, Louis (2004) argues that there is no advantage for acquirers to manage pre-merger earnings since it is negatively correlated with post-merger performance, being that acquirers who choose stock to finance the M&A deal do experience a negative performance in the long-run. That is, assuming a rational situation in which the market anticipates potential earnings manipulation, being real or not, it is expected that investors will naturally discount this factor to the firm's value. So, even if managers effectively manage earnings upwards, there will be no correlation. From Louis' (2004) perspective, this is evident except for cases that investors can assess the extent of earnings management and thus are able to make accurate judgments.

2.4. M&A methods of payment

In M&A transactions, the bidder must propose the method of payment to be used into the offer *prospectus*, whose document is always subject to approval by the market authorities. Huang et al. (2016) assumes that the deal is commonly financed via cash, stock (through a specific exchange ratio), or through a combination of both. However, the underlying implications of choosing one of these means of payment are evaluated by target shareholders, who will trace the success or failure of the operation. One of the

concerns for target shareholders is the tax influence in their tender decisions. If the bid is on equity, target shareholders can defer taxes on time, in the sense that they are not required to declare any potential capital gains until the moment they decide to sell their position (Franks et al., 1988). If the bid is on cash, capital gains have to be promptly declared to the due fiscal authority upon the receipt of proceeds (Franks et al., 1988). Even assuming that tax benefits may arise with stock payments, indeed cash payments provide an immediate liquidity, as well as eliminate moral hazard problems if the bidder has its voting control highly concentrated. As such, target shareholders may prefer cash in order to avoid becoming minority shareholders of the new firm (Faccio & Masulis, 2005). On the other hand, the referred authors indicate that the bidder is more reluctant to distribute stock when the target firm is composed by highly concentrated ownerships. In that case, the acquirer's voting control is threatened as it will have to be shared with target's shareholders when the merger becomes effective.

Another point to take into consideration is the possible asymmetric information amongst the involved parties. Franks et al. (1988) believe that when one firm is more informed than the other, opportunist acts might happen. On this, the authors enunciate two distinct visions. Firstly, acquirer and target firms are especially interested to participate in the acquisition when the market quotation from both is overvalued at the time. Secondly, assuming that the operation is financed in stock, the acquirer will be bided down by the target, in special if the target firm has issued shares very recently. Myers & Majluf (1984) and Heron & Lie (2002) explain that the takeover will be preferably paid in cash if the acquirer is presumably undervalued on the market, and in stock if otherwise.

3. Model Determinants

In this chapter, the seven model determinants which have already been tested in previous research works are described, relatively to the empirical relationship with earnings management. Table 1 provides a summary of each variable and its positive or negative association with earnings management.

Table 1 - Empirical relationship between the determinants and earnings management

	Negative association with Earnings Management	Positive association with Earnings Management
Firm Size	Peasnell et al. (2000); Banderlipe (2009); Gerayli et al. (2011); Alzoubi (2016)	Chen et al. (2007); Gulzar & Wang (2012); Alves (2013)
Firm Performance	Louis (2004); Gulzar & Wang (2012); Gill et al. (2013); Higgins (2013); Alves (2013)	
Firm Sales Growth		McNichols (2000); Pungaliya & Vijh (2009); Higgins (2013)
Firm Leverage	Peasnell et al. (2000); Park & Shin (2004); Alzoubi (2016)	Sweeney (1994); Gerayli et al. (2011); Gulzar & Wang (2012); Alves (2013); Higgins (2013)
Firm GDP Growth		Higgins (2013)
Firm Listed on the Stock Exchange	Burgstahler et al. (2006); Hope et al. (2013)	Liu & Lu (2007)
Firm Audit Quality	Kinney & Martin (1994); Francis et al. (1999); Davidson et al. (2005); Botsari & Goh (2014); Alzoubi (2016)	

3.1. Firm Size

In light of the positive theory, Watts & Zimmerman (1986) underline the role that firms play on the managerial accounting choice. For this effect, the authors enunciate the firm size hypothesis, which, in their words, means that "*ceteris paribus, the larger the firm, the more likely the manager is to choose accounting procedures that defer reported earnings from current to future periods*" (pp. 235).

Regarding an M&A transaction, when acquirer and target firms are very different in terms of size, acquirers do not feel a strong incentive to manage earnings, because the economic benefit would be quite insignificant. In contrast, it would be of interest for the acquirer to manage earnings in case that the target size is closer to acquirer's (Erickson & Wang, 1999; Higgins, 2013).

Even though certain literature has found a negative association between large firms and the level of discretionary accruals (Peasnell, 2000; Banderlipe, 2009), alternative literature (Chen et al., 2007; Alves, 2013) have found an inverse evidence. The positive correlation might possibly be explained by the fact that highly sized firms tend to alter their reports upward when pressured to satisfy the investors' expectations. On the other hand, highly sized firms are more likely to be kept under vigilance, hence being less flexible to manage earnings (Higgins, 2013). Because there is an apparent contrast in the literature and given the above explained arguments, SIZE can either assume a positive or a negative coefficient. This variable is calculated through the natural logarithm of firm's total assets in the year preceding the M&A announcement.

3.2. Firm Performance (ROA)

It is perceived that a considerable number of investors (mainly the "buy-and-hold" investors) want to bet in great performers that demonstrate consistent results over time.

In financial terms, the most attractive firms are those which do generate better returns. For the effect, ROA is used to evaluate the firm's performance. Like Kothari et al. (2005) explains, ROA serves as an important financial indicator to compare the effectiveness of performance matching within an industry. Former studies find a negative association between performance and discretionary accruals (Higgins, 2013; Alves, 2013), which demonstrate that firms with positive returns are less tempted to manage earnings due to having fewer pressure than other firms with negative returns. For this reason, a negative sign is expected in the model's coefficient. ROA is measured as the net income scaled by the total assets in the year preceding the M&A announcement.

3.3. Firm Sales Growth

Once executed, sales are immediately recognized in the income statement, more concretely on the operating revenue. However, it may happen that some of the sold products may not be wholly profitable to the firm because of unpredicted circumstances over time (e.g.: lack of payment from the counter-party, devolution of the product and (or) incurred costs in warranties). In such cases, a difference in value is expected between the recorded sales and the recorded receivables. Thus, sales are sometimes viewed as a doubtful parameter in terms of quality for the presented facts, as it only takes into consideration the sold value at the time and hides other potential associated costs. The literature found evidence that overoptimistic stock-for-stock acquirers increase their inventory levels, which result in positive earnings management around M&A. This pattern leads to a situation in which managers expect a paced growth, even if the operating capability is not aligned with the growth expectation (Louis, 2004). Hence, it is likely that the higher the sales growth expectations, the higher the incentive to manage earnings (McNichols, 2000; Pungaliya & Vijh, 2009). Therefore, the sign of this variable is

predictably positive. SALESGR is measured as the 2-years compounded annual sales growth rate in the year preceding the M&A announcement.

3.4. Firm Leverage

The leverage is a crucial topic to evaluate how much debt a firm is consuming from its assets and how this issue is perceived by investors. Debt indicators take a major importance not only to the firm itself, but also to the counter-parties involved in debt contracts (e.g.: lenders, suppliers and other debt facilitators). Former studies suggest that leveraged firms pretend to boost their financial outcomes in order to continue being attractive to creditors, as well as to smooth the pressure relatively to the contracts that were celebrated until then (Burgstahler & Dichev, 1997; Ali et al., 2008; Alves, 2013).

Another aspect to be considered is the target's leverage and potential conflicts during and after the acquisition process. In this sense, the acquirers must manage the risk of buying stake from highly leveraged target firms, as the target creditors have claiming rights with the target firm (which will be transferred to the acquirer once the deal is effective). For the acquirer, it is important not only to mitigate conflicts with creditors, but also to understand if total assets and total liabilities of the target firm are stable and under control. Thus, if the target is in a bad financial situation, the acquirer's willingness to manage earnings will be higher in order to buffer potential losses in the future (Higgins, 2013).

Despite the above arguments, the literature seems to lodge controversial facts. While recent studies from Alves (2013) and Higgins (2013) proved that leverage was positively associated to earnings management, alternative studies from Peasnell et al. (2000) and Park & Shin (2004) found leverage as negatively signed. For all the above reasons, no predictions can be made about the sign that LEV will assume in the empirical

tests. The debt-to-asset ratio is used as a proxy for this variable in the year preceding the M&A announcement.

3.5. Firm Country Gross Domestic Product Growth

The macro-economic situation in which an acquirer is inserted may also take influence on its investment decisions. In Europe, it is known that upon its creation, the European Central Bank has been conducting a monetary policy around the price stability, namely by shielding inflation rates up to 2% for all the countries which adopted and maintain the common currency. Even under a same monetary policy, countries are not equal in terms of GDP growth nor in internal policies which drive their own economy. In turn, firms may feel an incentive to manage earnings during growth environments (especially during "booms") because managers believe they need to reach adjusted performances, so to follow business goals and market trends (Wang et al., 2010; Higgins, 2013). Accordingly, the expected association between this variable and earnings management is positive. GDPGR is measured as the growth rate in EU28's real seasonally adjusted GDP in the year preceding the M&A announcement.

3.6. Publicly Listed Firm

Healy & Wahlen (1999) highlight that managers are motivated to manage earnings upward in order to correspond to investors' market expectations. As investors create expectations based on fundamentals – although the technical analysis is very important too – these wish to have access to reliable financial information in order to evaluate an investment with a relative degree of certainty. Listed firms are pressured to exhibit even more accurate and detailed reports than non-listed firms, mainly due to their market reputation, but also due to audit questions and subsequent requirements to meet international accounting standards. If, on one hand, studies held by Burgstahler et al.

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(2006) and Hope et al. (2013) suggest a disincentive to manage earnings and corroborate with the above argument, Liu & Lu (2007), on the other hand, shows a different perspective about China's environment. In there, the motives that favor earnings management practices are mainly linked to market requirements, where there is a heavy pressure on listed firms to achieve very specific goals. According to the authors, China's listed firms must maintain ROE at a minimum percentage of 6% for three consecutive years in order to continue listed, besides the fact that listed firms get de-listed once they report net losses for three consecutive years.

Excluding the China's case where the incentives to manage earnings are motivated by a higher pressure, the LIST's sign is predictably negative. This variable is represented by a dummy, assuming a value of 1 if the firm is listed on the stock market and 0 if otherwise.

3.7. Firm Audit Quality (Big4)

In their study, Kinney & Martin (1994) enunciated that good audit practices reduce bias reporting and, in extent, the likelihood of earnings manipulation is lessened. However, as not all auditing is of high quality, investors are likely to trust more in a firm whose financial statement is assured by a reputable auditor, such as by one of the Big4 auditors. Because of their size, expertise and independency, these are recognized across the market as being very important agents on the goal of promoting accurate accounting reports. The reasons which make Big4 auditors be more recommended than non-Big4 auditors are the strong and sophisticated techniques to find out misinformation. In comparison, it is predicted that they have more and better internal resources, such as higher qualified human capital and better technological means than their competitors (Alzoubi, 2016). As a consequence, Big4 firms may therefore build a greater reputation

and embrace valuable projects, which allow them to have an easier access to funds and solidify their market power (Alzoubi, 2016). Reasonably, if discretionary acts are more likely to be detected and prevented by a Big4 auditor, then a negative relationship between them is expected. Represented by a dummy variable, BIG4 will assume a value of 1 if the acquiring firm is audited by a Big4 auditor and 0 if otherwise.

4. Research Question

When an acquirer decides to move on with an M&A transaction, it has to decide which mean of payment will sustain the bid. Even though some firms may be relatively liquid, they may decide not to limit their treasury resources – instead, they may opt to use alternatives in order to accomplish with their investment desires. As previously demonstrated in the literature, cash transactions do not denunciate earnings management practices and so far do not represent an incentive for acquirers like stock swaps do (Erickson & Wang, 1999; Botsari & Meeks, 2008; Higgins, 2013). Having said that, it is predicted that an acquirer is likely to propose stock as a possible mean of payment, especially when its share price is overvalued. Furthermore, if the acquirer has incurred in earnings management practices over time, it will feel an extra incentive to finance the deal via stock, presumably to benefit of a more favorable exchange ratio and, thus, a less costly operation.

H1. *It is predicted that acquirers manage earnings upward one fiscal year before the deal announcement.*

5. Earnings Management

5.1. Earnings measure and total accruals

By definition, earnings are no more than the sum of accruals and operating cash flows for a relative period of time. In general, the literature concludes that the quality of earnings rely directly on the accruals' measurement, more concretely whether accruals are reported with a high level of accuracy. Dechow & Schrand (2004) understand that since cash movements can be observed and reported as a result of the normal business activity, they are harder to be manipulated. On the other hand, as accruals are based on estimations, they are more uncertain and presumably less reliable than cash flows. According to the literature, accruals are divided in non-discretionary and discretionary ones. The difference between both accrual types is that non-discretionary accruals can be verified and measured by reflecting business conditions. Contrarily, discretionary accruals are hardly measured and reflects the possibility that managers have to make accounting choices with a relative degree of freedom. For those reasons, discretionary accruals are often linked to earnings management practices due to raising more suspicions than non-discretionary accruals.

5.2. Detecting earnings management

Both the original and the modified Jones model are commonly used in the literature as the main metrics to detect earnings management practices in firms. The modified model is seen as more complete and powerful than the original one because it includes the receivables variance in the calculation of accruals (Dechow et al., 1995).[1] In

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[1] $TA_{it} / A_{it-1} = \alpha (1 / A_{it-1}) + \beta_1 (\Delta REV_{it} - \Delta REC_{it} / A_{it-1}) + \beta_2 (PPE_{it} / A_{it-1}) + \varepsilon_{it}$, where: TA_{it} = total accruals of firm *i* in year *t*, scaled by lagged total assets (A_{it-1}); α, β_1, β_2 = OLS estimated parameters; ΔREV_{it} = change in operating revenues, scaled by lagged total assets (A_{it-1}); ΔREC_{it} = change in receivables, scaled by lagged total assets (A_{it-1}); PPE_{it} = gross property, plant and equipment, scaled by lagged total assets (A_{it-1}); ε_{it} = error term (main proxy for earnings management).

accordance, the modified version will be used in the present study, similarly to other studies (Pungaliya & Vijh, 2009; Linck et al., 2013). The total accruals scaled by the lagged total assets is the dependent variable of the model. All independent variables represent the non-discretionary accruals, whereas the regression's residuals (ε) represent the discretionary component, which is assumed as a proxy for earnings management (Dechow et al., 1995, following Jones, 1991).

6. Research Methodology and Data

6.1. Sample

The data of the sample was downloaded in September of 2016 through the combination of two databases, *Amadeus* and *Zephyr*, both belonging to *BvD*, a business information provider. I used *Amadeus* database to search for all firms from EU28 that were involved in mergers and acquisitions from 2009 until the last available year, 2016. The searched firms are all consolidated ones, in order to analyze accounts ruled by the same reporting standards. As commonly done in previous research, all firms related to NACE Sector K (Financial and Insurance Activities) and NACE Sector O (Public Administration and Defense; Compulsory Social Security) were excluded of the sample, mainly because of reporting differences relatively to firms from other sectors, higher complexity in their accounting standards and other intrinsic particularities that make them peculiar. The resulting firms were crossed with *Zephyr* database, wherein was collected the list of completed deals during 2009 and 2016, referring both acquirer and target firms in the process. From this list were only considered transactions paid via cash, stock, a combination of both, or by at least one of these means of payment. Consistent with Higgins (2013), all cross-border deals were excluded, a situation in which a target firm is a foreign one (i.e.: placed outside the EU28), when compared to the acquirer. Since both

Amadeus and *Zephyr* software are owned by the same provider, the filter used to meet the respective acquirers simultaneously in both databases was "BvD ID" (Bureau Van Dijk's Identifier), as it is assumed that this identifier is presumably not subject to changes, contrarily to other possible matching criteria such as firm's name (due to possible name changes during the sample period), ISIN code or ticker (because not all firms of the sample are, or were, listed). Moreover, because there were acquirers with more than one completed deal, only the deal with the earliest announcement was included in the sample. The objective is to assess the acquirer's behavior in its very first acquisition intention, hence eliminating possible retroactive effects that any of the subsequent announcements could embed (Botsari & Meeks, 2008). Still, firms with lack of available information to fulfil the key variables for the study were excluded too. The final sample is then composed by 409 acquiring firms, which are spread by 17 principal industries and 8 deal announcement years.

Table 2 describes the acquirers' sample distribution, showing the number of acquirers which used stock payments (partially or fully) to finance their deals over different years. The majority of announcements occur in 2009 and 2010, the period immediately followed by the subprime crisis, where 167 out of 409 acquirers effectively initiated their acquisitions. From these 167 acquirers, only 53 of them have used stock as a mean of payment, meaning that 114 acquirers preferred to finance their transactions via cash or cash combined with other kind of payables that are not stock. Overall, there were 119 acquirers (about 29%) which used stock against 290 acquirers which used cash as the selected method of payment (about 71%).

Table 2 - Sample of acquirers

Deal announcement year	Number of acquirers	Number of acquirers using stock	Number of acquirers only using stock	Cumulative frequency of acquirers	Cumulative percentage of acquirers
2009	86	28	9	86	21%
2010	81	25	6	167	41%
2011	53	9	1	220	54%
2012	39	12	4	259	63%
2013	49	15	4	308	75%
2014	46	16	1	354	87%
2015	40	11	3	394	96%
2016	15	3	1	409	100%
Total	**409**	**119**	**29**		

This table describes the sample acquirers over 8 deal announcement years, considering stock payments.

6.2. Methodology

6.2.1. Application of Modified Jones Model

The applied methodology is similar to the one used by Higgins (2013), in the sense that it compares the level of discretionary accruals for the year immediately before the deal announcement of an acquiring firm and of its best matching firm with available data. The combination criteria for both the acquirers and their matches was done taking into account EU28 firms of the same industry with similar characteristics in terms of size and performance, in order to be correctly comparable. Ideally, the total assets of one firm in relation to another could not be superior or inferior to 50%, as well as the return-on-assets also needed to have the same sign and closest percentage amongst each other. Moreover, the matched firm is unique and never repeated, meaning that it only combines with one single acquirer throughout all the sample, as well as it cannot ever be an acquirer in a different year of the sample. To calculate total accruals, some literature uses the balance sheet method (Koumanakos et al., 2005; Pungaliya & Vijh, 2009) instead of the cash-

flow method (Botsari & Meeks, 2008; Higgins, 2013). In this work, I opt to use the balance sheet method[2] essentially due to data availability.

In practice, I identified each acquirer and compared its level of accruals with the industry-related firms with available data in the concurrent year. As a consequence, 96 modified Jones model regressions were run under the OLS method. In each regression was chosen the firm that best suited the respective acquirer, considering the tight criteria that there could not be any repeated firms, as well as the matched firms needed to be the most similar in terms of size and performance relatively to their acquirers.

After concluding this process, each firm's discretionary accruals was saved and annexed to the RDA (Real Discretionary Accruals) variable, which is one of the dependent variables of the principal *cross-sectionally* pooled models (described in table 4). From 409 acquirers, only 9 did not meet a firm of the same sector with similar characteristics. Thus, 800 firms completed the pool of acquirers and matches, where half are acquirers and the other half are matches.

6.2.2. Variables description

According to the earnings management literature, table 3 shows the determinant variables and respective formulas to be applied in this study.

Table 3 - Determinant variables (measured 1 year before the deal announcement)

Variables	Initials	Definition	Formula	Empirical Support
Firm Size	SIZE	A dimension indicator, considering the natural logarithm of total assets	ln (Total Assets)	Alves (2013); Alzoubi (2016)

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[2] The balance sheet method to calculate total accruals is given by: TA_{it} = [Δ Current Assets$_{it}$ - Δ Cash and Cash Equivalents$_{it}$] - [Δ Current Liabilities$_{it}$ - Δ Short term financial debt$_{it}$] - Depreciations and Amortizations$_{it}$, where: TA_{it} = total accruals of firm *i* in year *t*; Δ Current Assets$_{it}$ = difference between current assets in year t and t-1; Δ Cash and Cash Equivalents$_{it}$ = difference between cash and cash equivalents in year t and t-1; Δ Current Liabilities$_{it}$ = difference between current liabilities in year t and t-1; Δ Short term financial debt$_{it}$ = difference between short term financial debt in year t and t-1; Depreciations and Amortizations$_{it}$ = depreciations and amortizations in year t.

Firm Performance	ROA	A performance indicator, considering the return-on-assets ratio	Net Income / Total Assets	Kothari et al. (2005); Higgins (2013); Alves (2013)
Firm Sales Growth	SALESGR	n years compounded sales growth of a firm	$\left(\dfrac{Sales\ in\ n}{Sales\ in\ 0}\right)^{1/n} - 1$	Louis (2004), Higgins (2013)
Firm Leverage	LEV	Level of firm leverage, considering the debt-to-asset ratio	Total Liabilities / Total Assets	Higgins (2013); Alves (2013); Alzoubi (2016)
Firm GDP Growth	GDPGR	EU28 GDP performance (source: Pordata)	<no formula>	Higgins (2013)
Firm Listed on the Stock Exchange	LIST	Dummy: situation in which the firm is listed on the Stock Exchange	{1 = Firm is listed; {0 = otherwise	Burgstahler (2006)
Firm Audit Quality	BIG4	Dummy: situation in which the firm is audited by Big4 auditor	{1 = Firm is audited by Big4; {0 = otherwise	Botsari & Goh (2014); Alzoubi (2016)

6.2.3. Empirical models

Since there is still a reasonable number of non-listed acquirers in the sample, this study contrasts with extant studies of Japan (Higgins, 2013), UK (Botsari & Meeks, 2008) and US (Erickson & Wang, 1999) which only analyze listed acquirers. All mentioned authors have found evidence that stock-for-stock deals were effectively planned by acquirers, proving that acquirers managed their earnings upward in a short period before launching a bid. Hence, the present work aims to test whether European acquirers, which decided to bid during the period of the subprime crisis until recently, also anticipated their transactions through favorable accounting techniques. For the effect were created two base models. In the first one, the dependent variable is RDA, whereas in the last one, the dependent variable is ADA (Absolute Discretionary Accruals). The equations are shown in table 4.

Table 4 - Model equations (RDA and ADA)

Tested Variables	Model Number	Equation
SIZE	1	$\mathbf{RDA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,SIZE_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
	6	$\mathbf{ADA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,SIZE_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
ROA	2	$\mathbf{RDA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,ROA_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
	7	$\mathbf{ADA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,ROA_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
SALESGR	3	$\mathbf{RDA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,SALESGR_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
	8	$\mathbf{ADA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,SALESGR_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
LEV	4	$\mathbf{RDA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,LEV_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
	9	$\mathbf{ADA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,LEV_{it} + \beta_4\,GDPGR_{it} + \beta_5\,LIST_{it} + \beta_6\,BIG4_{it} + \varepsilon_{it}$
All variables	5	$\mathbf{RDA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,SIZE_{it} + \beta_4\,ROA_{it} + \beta_5\,SALESGR_{it} + \beta_6\,LEV_{it} + \beta_7\,GDPGR_{it} + \beta_8\,LIST_{it} + \beta_9\,BIG4_{it} + \varepsilon_{it}$
	10	$\mathbf{ADA_{it}} = \beta_0 + \beta_1\,ACQDUM_{it} + \beta_2\,ACQDUM*STOCK + \beta_3\,SIZE_{it} + \beta_4\,ROA_{it} + \beta_5\,SALESGR_{it} + \beta_6\,LEV_{it} + \beta_7\,GDPGR_{it} + \beta_8\,LIST_{it} + \beta_9\,BIG4_{it} + \varepsilon_{it}$

RDA is real discretionary accruals, estimated via the modified Jones model (1991); ADA is absolute discretionary accruals, measured as the absolute value of RDA; ACQDUM is a dummy variable that assumes a value of 1 if the firm is an acquirer and 0 if it is a match; STOCK is a dummy variable that assumes a value of 1 if the firm is an acquirer which used stock as a mean of payment and 0 if it did not use stock at all, or if it is a match; ACQDUM*STOCK is an interaction between acquirer and their stock payments in order to provide support to H1 ; SIZE is natural logarithm of total assets; ROA is return-on-assets ratio, measured in percentage; SALESGR is firm's 2 years compounded sales growth in the 2 years before the announcement, measured in percentage; LEV is debt-to-asset ratio, measured in percentage; GDPGR is the growth rate of EU28 seasonally adjusted GDP in the year before the announcement, measured in percentage; LIST is a dummy variable that assumes a value of 1 if the firm is listed on the stock exchange and 0 if otherwise; BIG4 is a dummy variable that assumes a value of 1 if the firm is audited by a Big4 auditor and 0 if otherwise.

As previously referred, the RDA was estimated through the modified Jones model for each acquirer and respective match firm in the year preceding the M&A announcement. The purpose is to simultaneously measure the direction and dimension of earnings management upon an M&A process. The absolute discretionary accruals are no

more than the absolute value obtained from the real discretionary accruals metric. In ADA, only the earnings management's dimension is able to be verified. In order to deepen the statistical inference, five combinations were tested through the OLS method in a *cross-sectionally pooled* model for each dependent variable. The variables ACQDUM, GDPGR, LIST and BIG4 were kept permanent in every tested model, hence following the literature which most approximates of this work.

All models were controlled by fixed effects, such as announcement year and industry.

Year: created n-1 dummy variables according to the number of years of the sample. This dummy takes the value of 1 if the firm had announced the deal in that year and 0 if otherwise.

Industry/Sector: created n-1 dummy variables according to the number of years of the sample. This dummy takes the value of 1 if the firm belongs to that sector and 0 if otherwise.

The control of fixed effects per year is important due to possible economic and financial conjectures that might have influenced firms to announce or void their investment decisions in that year (e.g.: European debt crisis of 2012, which led to a reduction of credit conditions and contagious lack of confidence). Furthermore, the industry fixed effects aim to control particular circumstances of a given sector. Besides, it is understood that in a competitive market, firms tend to follow their competitors. Since that each industry has its own conditions and faces different trends (e.g.: in the last years, the technology sector is expected to have had a faster pace than some other unrelated sectors), a sectorial dummy serves to control potential intrinsic effects which may have affected that industry.

6.3. Data

6.3.1. Descriptive statistics

Table 5 provides the descriptive statistics of the studied variables (except the dummy variable ACQDUM which is only used to control the type of firm).

Table 5 - Summary of variables

Variable	N	Mean	Median	Standard deviation
RDA	409	-0.02	-0.02	0.15
ADA	409	0.09	0.05	0.12
SIZE	409	18.77	18.60	2.19
ROA	409	1.89	4.71	16.59
SALESGR	409	15.83	5.06	83.97
LEV	409	53.36	50.74	24.87
GDPGR	409	0.20	1.20	2.46
LIST	409	0.78	1.00	0.41
BIG4	409	0.69	1.00	0.46

RDA is real discretionary accruals, estimated via the modified Jones model (1991); ADA is absolute discretionary accruals, measured as the absolute value of RDA; SIZE is natural logarithm of total assets; ROA is return-on-assets ratio, measured in percentage; SALESGR is firm's 2 years compounded sales growth in the 2 years before the announcement, measured in percentage; LEV is debt-to-asset ratio, measured in percentage; GDPGR is the growth rate of EU28 seasonally adjusted GDP in the year before the announcement, measured in percentage; LIST is a dummy variable that assumes a value of 1 if the firm is listed on the stock exchange and 0 if otherwise; BIG4 is a dummy variable that assumes a value of 1 if the firm is audited by a Big4 auditor and 0 if otherwise.

It is possible to verify that, on average, an acquirer shows a positive performance of almost 2%, a 2-years compounded sales growth rate of almost 16%, and a leverage level close to 53%. Even though the results meet the expectations for these variables, they are not similar to the results presented by Higgins (2013) concerning Japanese acquirers, who report an average for sales growth at 2% and for leverage at 39%. Comparing the sales growth's mean and median, there is still a significant difference of more than 10%, which induces that the sample of acquirers shows very different levels of operating revenue between firms. Furthermore, on average, an acquirer has more than half of its assets consumed by its debt, which may constitute an incentive for them to gain synergies through an acquisition and hence alleviate the creditors' pressure. The negative

percentage of real discretionary accruals means that, on average, a firm manages its earnings downwards around -2%. For the absolute discretionary accruals, the 9% average indicates the dimension of earnings management.

6.3.2. Correlation matrix

Table 6 (in annex) shows the Pearson correlation matrix from the studied variables. In general, the variables do not show a strong correlation amongst themselves. The highest correlation is provided by SIZE & BIG4, which suggests that high sized firms are normally associated to a Big4 auditor. In turn, the SIZE & LEV correlation suggest that high sized firms are more able to bear a higher level of debt than low sized firms. The RDA & ROA correlation indicates that there is a strong evidence that profitable acquirers have a bigger margin to engage in earnings management than firms with a lower performance. On the other hand, there is a negative relationship between ADA & SIZE and ADA & BIG4, which suggest that smaller acquirers, as well as acquirers not audited by a Big4 auditor, are associated to a higher extent of earnings management.

7. Results

Table 7 (in annex) summarizes both total accruals and discretionary accruals to build a base for univariate analysis. It is verified that the total accruals of both acquirers and matches are negative on average (-4.98% and -3.93% respectively), whose results are consistent with the ones in Higgins (2013). However, the percentages obtained in this study are less negative than in the author's study. A curious fact is that, on average, RDA are more negative for acquirers (-1.72%) than for their matches (-0.27%), although the matches' average is not statistically significant. The results on average show a contrary expectation regarding the H1, which assumes that acquirers manage earnings upward in the period preceding a deal announcement. Lastly, ADA show a magnitude of 8.74% on

average for acquirers and earnings management practices, which is less expressive in comparison to their matches (9.92%).

Tables 8 and 9 (in annex) report the equations output of the multiple combinations that were performed for the 800 pooled firms (400 acquirers and 400 matches). In table 8, RDA is the dependent variable, while in table 9, ADA is the dependent variable. In table 10 (in annex), the independent variables are regressed altogether in two equations, where RDA and ADA are the dependent variables of each one of them.

The outputs show that even though ACQDUM is positive in 5 models out of 10, it is not statistically significant in any of them, therefore providing weak support to the H1. Unlike in related literature (Higgins, 2013), this result is not consonant with the prediction that acquirers are likely to present higher levels of abnormal accruals when compared to non-acquirers. In a further analysis done to stock acquirers (i.e.: those which used stock to finance M&A deals), it is shown that ACQDUM*STOCK is positively signed in 9 models out of 10, and statistically significant at 10% in the model 9. Even considering a positive association between earnings management and stock swaps for the majority of tested models, the H1 is weakly satisfied.

Relatively to the range of tested variables, it is notable that SIZE is statistically significant at 1% in all models it was tested (i.e.: model 1, 5, 6 and 10), being positively associated to RDA and negatively associated to ADA. This evidence meets the expectation that larger firms tend to manage earnings more upwards than smaller ones, even though it is inferred that smaller firms manipulate earnings in a higher scale. ROA shows a positive coefficient in models 2 and 5 where RDA is the dependent variable, being statistically significant at 1% in both. The positive relationship suggests that profitable firms consider earnings management as a driver for their continuous

enhancement. On the other hand, models 7 and 10 evidence ROA as negatively related to ADA, although only in the model 7 this variable shows statistical significance at 10% confidence. This proposes that, in extension, firms with lower income levels are more associated to discretionary acts due to a higher pressure from stakeholders towards the management to attain better performances. SALESGR is positively linked to RDA in models 3 and 5, reaching 10% of significance in this latter one. The coefficient sign corresponds to the expectation that firms with higher growing perspectives are more engaged in earnings management than those with lower perspectives. LEV is statistically significant at 1% and 5% in the tested models, having a negative coefficient in models 4 and 5, and a positive one in models 9 and 10. The negative sign for LEV relatively to RDA hints that high leveraged firms are tendentiously more monitored and scrutinized by creditors and lenders, which disincentive firms to manage earnings. On the opposite side, the positive association between LEV and ADA indicates that leveraged firms feel pressured to report a higher level of earnings in order to keep up the creditors' confidence. The macroeconomic indicator GDPGR looks unrelated to RDA and related to ADA. The negative sign may denunciate that firms behavior are not associated with the European economic environment to pursue earnings management practices. However, since that no statistical significance was found for any models it was tested, there are no viable conclusions with respect to this variable. LIST presents a negative sign in all of 10 tested models, which emphasizes the fact that listed firms are less subject to manage earnings than non-listed firms because of higher scrutiny from market agents, such as investors or regulators. Furthermore, there is less flexibility for these firms to alter accounting reports due to special requirements to follow IAS/IFRS practices. Even though negatively signed with both dependent variables, LIST is statistically significant (at 1% and 5%) only for

the equations in which RDA is the dependent variable. Finally, BIG4's coefficient is negative in 6 models out of 10 (i.e.: models 1, 6, 7, 8, 9 and 10), being statistically significant at 1% when the ADA is the dependent variable (i.e.: models 7, 8 and 9). The negative association confirms the prediction that firms are less flexible to engage in earnings management in the presence of any of the Big4 auditors due to their accounting expertise.

Analyzing the tests for the multiple combinations where RDA is the dependent variable (table 8), it is verified that ROA presents the highest R-squared (8.61%) in comparison to the rest of the tested variables. On the other hand, when taking ADA as the dependent variable (table 9), it is able to confirm that LEV presents the highest R-squared (13.80%) overall. In practice, this means that discretionary accruals are more conditioned by performance in the earnings management direction, whereas these are more conditioned by leverage in the earnings management dimension.

8. Conclusions, limitations and suggestions for future researches

8.1. Conclusions

This study examines the behavior of EU28 acquiring firms in the period subsequent to the subprime crisis, with the purpose to explore the relationship between mergers and acquisitions and earnings management.

The results do not suggest that mergers and acquisitions are anticipated by acquirers, even though the acquirer dummy variable shows a positive sign in 5 models out of 10. In depth, it means that there is no statistical evidence that acquirers report positive abnormal accruals for the fiscal year immediately before the deal announcement. Moreover, the results of the interaction between acquirers and stock swap payments do not presuppose that this type of payment is linked to pre-merger earnings management.

Despite being positive in 9 models out of 10, this variable is statistically significant at 10% only in the model 9. In this sense, the findings do not meet the main assumption that stock swap acquirers manage earnings upward in order to mitigate the cost of the operation (Erickson & Wang, 1999; Botsari & Meeks, 2008; Higgins, 2013). On the other hand, as the majority of deals were paid via cash or cash combined with other kind of payments that are not stock, the lack of evidence confirms the prediction that cash-related acquirers effectively do not find an incentive to manage earnings (Erickson & Wang, 1999). For these reasons, the H1 is not confirmed as initially forecasted.

The results also suggest that some of the studied determinants provide an important insight about this thematic. It was strongly evidenced that firms of higher dimension and positive performance show a higher association to earnings management than firms with inverse conditions, which denunciates not only that it is of interest for larger firms to stimulate accounting reports, but also that obtaining profit is a key factor in management's accruals choice. Furthermore, it is deducted that scrutiny and control has influence in firms, which lessens the incentive of these to pursue discretionary acts. In practice, leverage indicators alarm creditors and lenders about credit risks (i.e.: firms' inability to meet their liabilities, either in short-term or long-term), which conduct such agents to supervise leveraged firms in a higher way. In a similar mood, it was evidenced that listed firms face more obstacles to succeed in earnings management than non-listed firms.

Since to my knowledge there are no related studies which test for evidence of abnormal accruals in EU28 firms after the subprime crisis, the results hereby presented are not exactly comparable to results from other studies that were performed for other jurisdictions and different time horizons. Furthermore, the sample of this paper is larger

than samples of related papers because, contrarily to a big part of them which only analyzes listed firms, this one takes into account both listed and non-listed firms. The inclusion of both firm types in the sample provides a different perspective relatively to the extant literature, as well as could confirm the prediction that listed firms are less agile to manage earnings than non-listed firms.

8.2. Limitations

The first limitation of these type of studies consists in the effective detection of discretionary accruals and how to best measure this component. Even though most literature is consensual in choosing the Jones model to do that (either the original or the modified version), it is naturally unable to embed and reflect all factors that contribute to earnings management. Furthermore, the literature evokes that total accruals may be estimated through either the cash-flow or the balance sheet method. For that reason, the discretionary accruals may contain errors because it is not clear which method best applies to each sample and in particular to each firm within it.

Another aspect to be highlighted concerns a database limitation. Firstly, in the search process were identified acquirers in *Zephyr* without any records in *Amadeus* and vice-versa. As a consequence, such observations were immediately excluded because this study uses data from both software programs in order to harmonize the information. Secondly, as there were acquirers without all the necessary accounting information to compose total accruals and other key measures, these were not possible to make part of the acquirers' sample. Also, when choosing the most similar entities in relation to the final list of acquirers, some potential matching firms did not have enough accounting information to perform the multivariate tests. In order to surpass the issue, the next best candidate with available data had to be chosen, under the guarantee that it would not be

repeated across all the sample. Although having been the most feasible solution, this criteria is itself limitative and inevitably lessened the sample's power.

The third limitation concerns some unavailability on target's financial statements, especially for older periods of analysis. Due to mergers and acquisitions, target firms were incorporated into their acquirers and thus only a few records with respect to them remained in the searching database. Also, by interacting targets and acquirers, the combined sample would undesirably decrease in more than 50%. Hence, no targets data was used to help explain acquirers' behavior because it would not assure an accurate inference.

8.3. Suggestions for future researches

Since that the financial world is becoming more and more competitive, managers are permanently seeking for value enhancement on business. As more sophistication predictably brings more business opportunities, it would be important to continue developing studies linked to earnings management and mergers and acquisitions for more recent dates. In future researches, that would be interesting to include corporate governance indicators as they are likely to increase the explanatory power of the main results around this thematic. Examples of possible indicators mean to follow former studies, such as board size (Lipton & Lorsch, 1992; Ebrahim, 2007; Alves, 2013; Botsari & Goh, 2014), non-executive directors on the board (Cotter et al., 1997; Davidson et al., 2005; Botsari & Goh, 2014), duality of executive functions (Coombes & Wong, 2004; Botsari & Goh, 2014) or managerial ownership (Warfield et al., 1995; Kao & Chen, 2004; Botsari & Goh, 2014). Another suggestion would pass by including variables that could better explain the managers' behavior, such as bonuses (Gaver et al., 1995; Holthausen et

al., 1995; Richardson & Waegelein, 2002) and contractual incentives (Burgstahler & Dichev, 1997) these may have received in periods before M&A announcements.

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Annexes

Table 6 - Pearson (Spearman) correlation matrix

	RDA	ADA	SIZE	ROA	SALESGR	LEV	GDPGR	LIST	BIG4
RDA	1								
ADA	**-0.2312*****	1							
	(0.0000)								
SIZE	0.0191	**-0.2121*****	1						
	(0.6999)	**(0.0000)**							
ROA	**0.1362*****	0.0113	**0.1554*****	1					
	(0.0058)	(0.8198)	**(0.0016)**						
SALESGR	0.0298	0.0241	**-0.1031****	**0.1439*****	1				
	(0.5478)	(0.6264)	**(0.0372)**	**(0.0036)**					
LEV	0.0167	-0.056	**0.3479*****	-0.0259	-0.0605	1			
	(0.737)	(0.2588)	**(0.0000)**	(0.6014)	(0.2223)				
GDPGR	-0.0072	-0.0643	-0.0306	0.0268	**0.1306*****	**-0.1086****	1		
	(0.8839)	(0.1945)	(0.5371)	(0.5893)	**(0.0082)**	**(0.0281)**			
LIST	-0.0448	-0.0696	**0.1347*****	0.0037	**-0.1137***	**-0.1321*****	0.0461	1	
	(0.3665)	(0.16)	**(0.0064)**	(0.9403)	**(0.0214)**	**(0.0075)**	(0.3519)		
BIG4	0.0599	**-0.1799*****	**0.5795*****	**0.1130****	**-0.0908***	**0.1209****	-0.0536	**0.1936*****	1
	(0.2265)	**(0.0003)**	**(0.0000)**	**(0.0222)**	**(0.0666)**	**(0.0144)**	(0.2793)	**(0.0001)**	

RDA is real discretionary accruals, estimated via the modified Jones model (1991); ADA is absolute discretionary accruals, measured as the absolute value of RDA; SIZE is natural logarithm of total assets; ROA is return-on-assets ratio, measured in percentage; SALESGR is firm's 2 years compounded sales growth in the 2 years before the announcement, measured in percentage; LEV is debt-to-asset ratio, measured in percentage; GDPGR is the growth rate of EU28 seasonally adjusted GDP in the year before the announcement, measured in percentage; LIST is a dummy variable that assumes a value of 1 if the firm is listed on the stock exchange and 0 if otherwise; BIG4 is a dummy variable that assumes a value of 1 if the firm is audited by a Big4 auditor and 0 if otherwise.

* 10% significance

** 5% significance

*** 1% significance

Table 7 - Summary measures of discretionary accruals (scaled by lagged total assets)

All measures scaled by total assets in deal announcement -2		Panel A - acquirer sample		Panel B - match sample	
Total accruals	Mean	-4.98%		-3.93%	
	(p-value)	*(0.00)****		*(0.00)****	
	Std. Dev.	19.57%		13.31%	
	% Positive	24.21%		44.75%	
		Acq. RDA	**Acq. ADA**	**Match RDA**	**Match ADA**
Discretionary accruals	Mean	-1.72%	8.74%	-0.27%	9.92%
(real & absolute)	*(p-value)*	*(0.02)***	*(0.00)****	*(0.75)*	*(0.00)****
	Std. Dev	14.56%	11.77%	16.87%	13.63%
	% Positive	38%	100%	45%	100%

The table describes the discretionary accruals that were estimated via the modified Jones model (1991) in the year before the deal announcement. Total accruals are given by: TAit = [Δ Current Assetsit - Δ Cash and Cash Equivalentsit] - [Δ Current Liabilitiesit - Δ Short term financial debtit] - Depreciation and Amortizationit. where: TAit = total accruals of firm i in year t; Δ Current Assetsit = difference between current assets in year t and t-1; Δ Cash and Cash Equivalentsit = difference between cash and cash equivalents in year t and t-1; Δ Current Liabilitiesit = difference between current liabilities in year t and t-1; Δ Short term financial debtit = difference between short term financial debt in year t and t-1; Depreciations and Amortizationsit = depreciations and amortizations in year t. The modified Jones model to estimate discretionary accruals is given by: TAit /Ait-1 = α (1 / Ait-1) + β1 (ΔREVit - ΔRECit / Ait-1) + β2 (PPEit / Ait-1) + εit. where: TAit = total accruals of firm i in year t, scaled by lagged total assets (Ait-1); α, β1, β2 = OLS estimated parameters; ΔREVit = change in operating revenues, scaled by lagged total assets (Ait-1); ΔRECit = change in receivables, scaled by lagged total assets (Ait-1); PPEit = gross property, plant and equipment, scaled by lagged total assets (Ait-1); εit = error term (main proxy for earnings management).

* 10% significance

** 5% significance

*** 1% significance

Table 8 - Regression of real discretionary accruals on the pool of acquirers and matches

Regression of real discretionary accruals on the pool of acquirers and matches.

RDA$_{it}$ = β_0 + β_1 ACQDUM$_{it}$ + β_2 ACQDUM*STOCK + β_3 SIZE$_{it}$ + β_4 ROA$_{it}$ + β_5 SALESGR$_{it}$ + β_6 LEV$_{it}$ + β_7 GDPGR$_{it}$ + β_8 LIST$_{it}$ + β_9 BIG4$_{it}$ + ε_{it}

Variable	Expected Sign	Model 1 (SIZE)	Model 2 (ROA)	Model 3 (SALESGR)	Model 4 (LEV)
Constant		-0.26	-0.06	-0.04	-0.02
		(0.008)***	(0.462)	(0.626)	(0.773)
ACQDUM (**H1**)	+	0.02	0.01	0.01	0.01
		(0.338)	(0.617)	(0.484)	(0.570)
ACQDUM * STOCK (**H1**)	+	0.02	0.02	0.00	-0.00
		(0.325)	(0.392)	(0.988)	(0.874)
SIZE	+/-	0.01	.	.	.
		(0.000)***	.	.	.
ROA	-	.	0.00	.	.
		.	(0.000)***	.	.
SALESGR	+	.	.	0.00	.
		.	.	(0.145)	.
LEV	+/-	.	.	.	-0.00
		.	.	.	(0.006)***
GDPGR	+	-0.00	-0.00	-0.00	-0.00
		(0.682)	(0.663)	(0.747)	(0.738)
LIST	-	-0.05	-0.04	-0.04	-0.04
		(0.003)***	(0.016)**	(0.01)***	(0.007)***
BIG4	-	-0.01	0.02	0.02	0.02
		(0.683)	(0.182)	(0.124)	(0.079)*
Fixed industry effects		Yes	Yes	Yes	Yes
Fixed year effects		Yes	Yes	Yes	Yes
N		800	800	800	800
Model F		2.32	2.60	1.87	2.08
Prob > Model F		0.0001***	0.0000***	0.0043***	0.0010***
R-squared		7.79%	8.61%	6.36%	7.02%

The regressions were run on the pooled sample including both acquirers and their matches. The match of an acquirer is an EU28 firm of the same industry as the acquirer, and is the closest to the acquirer in terms of total assets and ROA in the concurrent year. RDA is real discretionary accruals that were estimated via the modified Jones model (1991) in the year before the deal announcement. Total accruals are given by: $TA_{it} = [\Delta$ Current Assets$_{it}$ - Δ Cash and Cash Equivalents$_{it}]$ - $[\Delta$ Current Liabilities$_{it}$ - Δ Short term financial debt$_{it}]$ - Depreciation and Amortization$_{it}$. The modified Jones model to estimate discretionary accruals is given by: TA_{it} /A_{it-1} = α (1 / A_{it-1}) + $\beta 1$ (ΔREV_{it} - ΔREC_{it} / A_{it-1}) + $\beta 2$ (PPE_{it} / A_{it-1}) + ϵ_{it}. Where: TA_{it} = total accruals of firm i in year t, scaled by lagged total assets (A_{it-1}); α, $\beta 1$, $\beta 2$ = OLS estimated parameters; ΔREV_{it} = change in operating revenues, scaled by lagged total assets (A_{it-1}); ΔREC_{it} = change in receivables, scaled by lagged total assets (A_{it-1}); PPE_{it} = gross property, plant and equipment, scaled by lagged total assets (A_{it-1}); ϵ_{it} = error term (main proxy for earnings management). ACQDUM is a dummy variable that assumes a value of 1 if the firm is an acquirer and 0 if it is a match; STOCK is a dummy variable that assumes a value of 1 if the firm is an acquirer which used stock as a mean of payment and 0 if it did not use stock at all, or if it is a match; ACQDUM*STOCK is an interaction between acquirer and their stock payments in order to provide support to H1; SIZE is natural logarithm of total assets; ROA is return-on-assets ratio, measured in percentage; SALESGR is firm's 2 years compounded sales growth in the 2 years before the announcement, measured in percentage; LEV is debt-to-asset ratio, measured in percentage; GDPGR is the growth rate of EU28 seasonally adjusted GDP in the year before the announcement, measured in percentage; LIST is a dummy variable that assumes a value of 1 if the firm is listed on the stock exchange and 0 if otherwise; BIG4 is a dummy variable that assumes a value of 1 if the firm is audited by a Big4 auditor and 0 if otherwise.

* 10% significance

** 5% significance

*** 1% significance

Table 9 - Regression of absolute discretionary accruals on the pool of acquirers and matches

$ADA_{it} = \beta_0 + \beta_1 ACQDUM_{it} + \beta_2 ACQDUM*STOCK + \beta_3 SIZE_{it} + \beta_4 ROA_{it} + \beta_5 SALESGR_{it} + \beta_6 LEV_{it} + \beta_7 GDPGR_{it} + \beta_8 LIST_{it} + \beta_9 BIG4_{it} + \varepsilon_{it}$

Variable	Expected Sign	Model 6 (SIZE)	Model 7 (ROA)	Model 8 (SALESGR)	Model 9 (LEV)
Constant		0.19	0.06	0.06	0.04
		(0.017)**	(0.331)	(0.381)	(0.541)
ACQDUM (H1)	+	-0.01	-0.00	-0.00	-0.00
		(0.674)	(0.881)	(0.82)	(0.974)
ACQDUM * STOCK (H1)	+	0.01	0.01	0.02	0.02
		(0.519)	(0.304)	(0.181)	(0.079)*
SIZE	+/-	-0.01	.	.	.
		(0.005)***	.	.	.
ROA	-	.	-0.00	.	.
		.	(0.081)*	.	.
SALESGR	+	.	.	-0.00	.
		.	.	(0.748)	.
LEV	+/-	.	.	.	0.00
		.	.	.	(0.000)***
GDPGR	+	0.00	0.00	0.00	0.00
		(0.663)	(0.681)	(0.712)	(0.695)
LIST	-	-0.01	-0.02	-0.02	-0.01
		(0.381)	(0.196)	(0.221)	(0.295)
BIG4	-	-0.01	-0.03	-0.03	-0.03
		(0.281)	(0.008)***	(0.007)***	(0.002)***
Fixed industry effects		Yes	Yes	Yes	Yes
Fixed year effects		Yes	Yes	Yes	Yes
N		800	800	800	800
Model F		4.05	3.85	3.73	4.41
Prob > Model F		0.0000***	0.0000***	0.0000***	0.0000***
R-squared		12.83%	12.28%	11.94%	13.80%

The regressions were run on the pooled sample including both acquirers and their matches. The match of an acquirer is an EU28 firm of the same industry as the acquirer, and is the closest to the acquirer in terms of total assets and ROA in the concurrent year. ADA is absolute discretionary accruals and are the absolute value of the real discretionary accruals that were estimated via the modified Jones model (1991) in the year before the deal announcement. Total accruals are given by: TA_{it} = [Δ Current Assets$_{it}$ - Δ Cash and Cash Equivalents$_{it}$] - [Δ Current Liabilities$_{it}$ - Δ Short term financial debt$_{it}$] - Depreciation and Amortization$_{it}$. The modified Jones model to estimate discretionary accruals is given by: TA_{it} /A$_{it-1}$ = α (1 / A$_{it-1}$) + β1 (ΔREV$_{it}$ - ΔREC$_{it}$ / A$_{it-1}$) + β2 (PPE$_{it}$ / A$_{it-1}$) + ε$_{it}$. Where: TA_{it} = total accruals of firm i in year t, scaled by lagged total assets (A$_{it-1}$); α, β1, β2 = OLS estimated parameters; ΔREV$_{it}$ = change in operating revenues, scaled by lagged total assets (A$_{it-1}$); ΔREC$_{it}$ = change in receivables, scaled by lagged total assets (A$_{it-1}$); PPE$_{it}$ = gross property, plant and equipment, scaled by lagged total assets (A$_{it-1}$); ε$_{it}$ = error term (main proxy for earnings management). ACQDUM is a dummy variable that assumes a value of 1 if the firm is an acquirer and 0 if it is a match; STOCK is a dummy variable that assumes a value of 1 if the firm is an acquirer which used stock as a mean of payment and 0 if it did not use stock at all, or if it is a match; ACQDUM*STOCK is an interaction between acquirer and their stock payments in order to provide support to H1; SIZE is natural logarithm of total assets; ROA is return-on-assets ratio, measured in percentage; SALESGR is firm's 2 years compounded sales growth in the 2 years before the announcement, measured in percentage; LEV is debt-to-asset ratio, measured in percentage; GDPGR is the growth rate of EU28 seasonally adjusted GDP in the year before the announcement, measured in percentage; LIST is a dummy variable that assumes a value of 1 if the firm is listed on the stock exchange and 0 if otherwise; BIG4 is a dummy variable that assumes a value of 1 if the firm is audited by a Big4 auditor and 0 if otherwise.

* 10% significance

** 5% significance

*** 1% significance

Table 10 - Regressions of both real and absolute discretionary accruals on the pool of acquirers and matches

$RDA_{it} = \beta_0 + \beta_1\ ACQDUM_{it} + \beta_2\ ACQDUM*STOCK + \beta_3\ SIZE_{it} + \beta_4\ ROA_{it} + \beta_5\ SALESGR_{it} + \beta_6\ LEV_{it} + \beta_7\ GDPGR_{it} + \beta_8\ LIST_{it} + \beta_9\ BIG4_{it} + \varepsilon_{it}$

$ADA_{it} = \beta_0 + \beta_1\ ACQDUM_{it} + \beta_2\ ACQDUM*STOCK + \beta_3\ SIZE_{it} + \beta_4\ ROA_{it} + \beta_5\ SALESGR_{it} + \beta_6\ LEV_{it} + \beta_7\ GDPGR_{it} + \beta_8\ LIST_{it} + \beta_9\ BIG4_{it} + \varepsilon_{it}$

Variable	Expected Sign	Model 5 - RDA (All variables)	Model 10 - ADA (All variables)
Constant		-0.22	0.17
		(0.028)**	(0.035)**
ACQDUM (**H1**)	+	0.01	-0.00
		(0.512)	(0.836)
ACQDUM * STOCK (**H1**)	+	0.02	0.02
		(0.322)	(0.29)
SIZE	+/-	0.01	-0.01
		(0.005)***	(0.01)***
ROA	-	0.00	-0.00
		(0.001)***	(0.739)
SALESGR	+	0.00	-0.00
		(0.084)*	(0.663)
LEV	+/-	-0.00	0.00
		(0.045)**	(0.000)***
GDPGR	+	-0.00	0.00
		(0.621)	(0.642)
LIST	-	-0.05	-0.01
		(0.004)***	(0.464)
BIG4	-	0.00	-0.02
		(0.994)	(0.151)
Fixed industry effects		Yes	Yes
Fixed year effects		Yes	Yes
N		800	800
Model F		2.84	4.26
Prob > Model F		0.0000***	0.0000***
R-squared		10.28%	14.66%

The regressions were run on the pooled sample including both acquirers and their matches. The match of an acquirer is an EU28 firm of the same industry as the acquirer, and is the closest to the acquirer in terms of total assets and ROA in the concurrent year. RDA is real discretionary accruals that were estimated via the modified Jones model (1991) in the year before the deal announcement; ADA is absolute discretionary accruals and are the absolute value of the real discretionary accruals that were estimated via the modified Jones model (1991) in the year before the deal announcement. Total accruals are given by: $TA_{it} = [\Delta$ Current Assets$_{it}$ - Δ Cash and Cash Equivalents$_{it}$] - [Δ Current Liabilities$_{it}$ - Δ Short term financial debt$_{it}$] - Depreciation and Amortization$_{it}$. The modified Jones model to estimate discretionary accruals is given by: TA_{it} /A_{it-1} = α (1 / A_{it-1}) + $\beta1$ (ΔREV_{it} - ΔREC_{it} / A_{it-1}) + $\beta2$ (PPE$_{it}$ / A_{it-1}) + ε_{it}. Where: TA_{it} = total accruals of firm i in year t, scaled by lagged total assets (A_{it-1}); α, $\beta1$, $\beta2$ = OLS estimated parameters; ΔREV_{it} = change in operating revenues, scaled by lagged total assets (A_{it-1}); ΔREC_{it} = change in receivables, scaled by lagged total assets (A_{it-1}); PPE$_{it}$ = gross property, plant and equipment, scaled by lagged total assets (A_{it-1}); ε_{it} = error term (main proxy for earnings management). ACQDUM is a dummy variable that assumes a value of 1 if the firm is an acquirer and 0 if it is a match; STOCK is a dummy variable that assumes a value of 1 if the firm is an acquirer which used stock as a mean of payment and 0 if it did not use stock at all, or if it is a match; ACQDUM*STOCK is an interaction between acquirer and their stock payments in order to provide support to H1; SIZE is natural logarithm of total assets; ROA is return-on-assets ratio, measured in percentage; SALESGR is firm's 2 years compounded sales growth in the 2 years before the announcement, measured in percentage; LEV is debt-to-asset ratio, measured in percentage; GDPGR is the growth rate of EU28 seasonally adjusted GDP in the year before the announcement, measured in percentage; LIST is a dummy variable that assumes a value of 1 if the firm is listed on the stock exchange and 0 if otherwise; BIG4 is a dummy variable that assumes a value of 1 if the firm is audited by a Big4 auditor and 0 if otherwise.

* 10% significance

** 5% significance

*** 1% significance