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Earnings Management before M&As for Target Firms, and Analyses of the Consequences

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by

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Preface

"An investment in knowledge pays the best interest"

Benjamin Franklin

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Abstract

Mergers and acquisitions (M&A) are important corporate events with significant impacts on all stakeholders involved (target shareholders, bidders' shareholders, employees, managers, governments, etc.), and accounting plays a fundamental role in the process. Target managers have the ability and motivations to influence accounting choices before the announcement. The managerial choices can be divided into two motivations: managerial opportunism and efficiency rationale. To fully understand the managerial choices, it is crucial to understand the consequences and incentives.

The aim of this thesis is to detect the earnings management (EM) before M&A announcements of target firms. The existing literature has already studied this argument, with mixed results and interpretations. This thesis also aims to examine the consequences for the stakeholders of such manipulation and tries to disentangle the motivation behind the accounting decisions. To the author's knowledge, nobody has studied the argument under this perspective in depth yet, including the direction of the manipulation, the effects, and the possible motivations.

EM is defined as the use of managerial discretion to influence the measure of earnings, and it can occur through three main techniques: accruals earnings management, real-activity earnings management and classification shifting (Walker 2013). Moreover, as suggested by Ronen and Yaari (2008), EM can be either opportunistic or efficient. For the sample of European target firms over the period between 2005 and 2015, it is detected that firms manage their earnings downward through accruals and real-activity earnings management, consistent with most of the previous literature about management buyouts (MBO) and friendly takeovers.

Given the existing literature, two competing hypotheses arise to explain the downward manipulation. First, managers act opportunistically and bargain for private benefits with the shareholders' wealth. Second, managers act efficiently and respect their fiduciary duty. They employ efficient EM to signal private information, increase the likelihood of deal completion, decrease the likelihood of litigation and create fictitious post-acquisition performance through the EM reversal without harming the shareholders.

The first study focuses on the effect of EM on the premium. The results indicate that downward manipulation increases the premium offered by the bidder. Moreover, target firms with negative accruals benefit, on average, from a 9% higher premium than firms that do not manipulate or that manipulate upward. The results observed do not seem to support the hypothesis of managerial opportunism. Specifically, target management does not seem to choose income-decreasing accounting choices to decrease the acquisition price.

The second study investigates the effect of EM on CEOs' retention rate. Existing literature suggests and observes empirically that target managers are likely to collude with the acquirer to lower the acquisition price and profit from private benefits, like holding their CEO position in the combined company, receiving a golden parachute (e.g., Shleifer and Vishny 2003; Hartzell et al. 2004; Wulf 2004; Moeller 2005; Fich et al. 2011; Fich et al. 2013; Qiu et al. 2014). Based on that, this study examines whether CEOs of firms that downward manipulate are more likely to hold their position in the post-acquisition period. The results exhibit show that the retention rate of CEOs of firms that completed the deal is higher when they manipulate their abnormal accruals downward. Nevertheless, the results do not show that target CEOs manage the earnings to trade their position for a lower premium. Overall, the CEOs of target firms seem to select accounting procedures that please the acquirer, increase the likelihood of keeping them in the CEO position and seem not to harm the target shareholders.

The third chapter focuses on the transparency of financial statements around the M&A transaction. Prior research posits that EM can be misleading or informative (Lang and Lundholm 1996; Healy and Palepu 2001; Schrand and Verrecchia 2002). It is assumed that misleading EM is less transparent than informative EM. Hence, analysts' accuracy will be lower for firms with misleading EM compared to firms with informative EM. The results suggest a negative relation between EM and analysts' forecast accuracy for a sample of non-target firms; while for target firms, the results do not show any relation between the analysts' forecast error and the EM. The evidence advocates that target firms manage the earnings before the deal announcement transparently, in a way that does not mislead the market participants. The results are robust and support the hypothesis that target firms do not change their disclosure policy to hide information, despite the downward manipulation. Overall, EM of target firms seems to be a negotiated strategy that does not mislead the target shareholders.

In summary, European target firms seem to engage in income-decreasing accounting and real-activity choices the year before the announcement. This behaviour does not seem to be due to an opportunistic behaviour that harms the target shareholders. Indeed, target shareholders receive a higher premium, the market seems to understand the EM strategy and the CEOs that employ this strategy are more likely to be retained in the post-acquisition period. These results seem to support the hypothesis of efficient EM before the deal announcement. It is assumed that the motives behind the downward manipulation of target firms create fictive performance in the post-acquisition period through the EM reversals, decrease litigation risks with

conservative accounting and clean the balance sheet from past burdens, which pleases the acquirer.

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List of Abbreviations

AEM	Accruals Earnings Management
AFB / AFE	Analysts' Forecast Bias / Analysts' Forecast Error
CAR	Cumulative Abnormal Return
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CS	Classification Shifting
CSR	Corporate Social Responsibility
COGS	Cost of Goods Sold
EM	Earnings Management
EPS	Earnings per Share
EQ	Earnings Quality
EU	European Union
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
M&A	Merger and Acquisition
MBO	Management Buyout
MiFID	Market in Financial Instruments Directive
MiFIR	Market in Financial Instruments Regulation
REM	Real Earnings Management
ROA	Return on Assets
ROE	Return on Equity
R&D	Research and Development
SEO	Seasoned Equity Offering
SG&A	Selling, General and Administrative (Expenses)
SIC	Standard Industrial Classification
SOX	Sarbanes-Oxley Act
SPV	Special Purpose Vehicle
SRD	Shareholder Rights Directive
TD	Transparency Directive
US	United States (of America)

Introduction

The existing literature regarding EM detection before M&As focuses largely on firms highly suspected of opportunism, such as acquiring firms paying with stocks and MBOs. Nevertheless, studies about EM before the M&A announcements for target firms and its consequences are still incomplete. Because of the multiple possible motivations for EM and the different perspectives of the effects of EM, the existing literature does not provide a comprehensive view of EM strategies around M&A. Literature is not yet completely uniform about the direction of the manipulation of target firms before a M&A announcement or whether target firms are even able to manipulate. The distinction between hostile and friendly takeover seems to be crucial for the comprehension of EM before M&A announcements. Managers targeted by a hostile takeover attempt may select accounting procedures that increase the value of the firm as a defence mechanism (Easterwood 1998; Erickson and Wang 1999; Guan et al. 2004). Management of MBO firms may be motivated to engage in downward manipulation prior to the takeover announcement to lower the price of the transaction (DeAngelo 1986; Perry and Williams 1994). Apart from DeAngelo (1986), most of the studies find evidence of downward manipulation prior to MBOs (Perry and Williams 1994; Wu 1997; Begley et al. 2003; Fischer and Louis 2008; Mao and Renneboog 2015). Finally, friendly takeovers have been less frequently analysed by EM literature, and the motivations for EM are not yet completely clear. Friendly deals usually involve long negotiations between the target and the acquirer's management (Boone and Mulherin 2007). The existing literature finds mixed evidence on EM before a friendly M&A. Campa and Hajbaba (2016) and Vasilescu and Millo (2016) observe upward manipulation; however, some authors have found results of income-decreasing accounting choices (Ben-Amar and Missonier-Piera 2008; Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015). Nevertheless, the motivations of the manipulation are multiple and not yet clearly defined. Some authors argue that target managers may trade private benefits with shareholders' wealth during the negotiation process (e.g., Hartzell et al. 2004; Wulf 2004; Moeller 2005; Fich et al. 2011; Fich et al. 2013; Qiu et al. 2014). In this case, target managers can manipulate the earnings accordingly to deflate the stock price and make the acquisition less costly for the acquirer (Shleifer and Vishny 1997; Perry and Williams 1994; Ben-Amar and Missonier-Piera 2008). Additionally, downward EM may be a negotiated strategy between the two managements to increase post-acquisition performance through the reversal of accruals (Perry and Williams 1994; Ben-Amar and Missonier-Piera

2008; Chen et al. 2016).[1] Finally, target managers may efficiently employ downward EM to ease the transaction, for example, to attract new potential bidders (Anagnostopoulou and Tsekrekos 2015), free the target firm from past burden and increase the likelihood of completing the transaction (Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015) or avoid litigation risks due to high scrutiny in the M&A context (Abbott et al. 2006). However, few authors assume that target firms engage in income-increasing accounting choices prior to the acquisition to maximise the premium for shareholders and/or attract more potential buyers (Erickson and Wang 1999; Campa and Hajbaba 2016; Vasilescu and Millo 2016). To answer this research question, three separate studies are conducted. Because the detection of EM alone cannot distinguish the motivation of management behaviour, it is necessary to examine the consequences of EM and triangulate whether the outcomes support opportunistic or efficient behaviour.

More recently, some researchers have raised doubts about EM research principally because of the models employed to detect accounting manipulation (e.g., Ball 2013; Jackson 2018; McNichols and Stubben 2018). These critical studies challenge the researchers to improve their analyses of EM. McNichols and Stubben (2018) summarise some of the key suggestions in accruals-based studies. They suggest that the research design should be more appropriate to show causality between variables. First, this demonstrates a need to employ more sophisticated detection models, which would consider the statistical issues of basic models (Larson et al. 2018). Second, the benchmark group should be designed with more reliable approaches, such as propensity score matching and entropy-balancing. In the case of non-random treatment (e.g., M&As) the design should include all control variables that may capture differences between treated and benchmark groups. Third, triangulation of the outcomes should be employed as an alternative measure of management discretion to strengthen the results provided and test if the different outcomes are consistent with each other. Finally, Ball (2013) highlights that new studies on EM should check if the results are reasonable and economically plausible.

This thesis contributes to the literature in different aspects. From an empirical perspective, it supplies the EM literature around M&A with new evidence on recent data that consider the new regulation and actual merger wave that characterise the M&A market. Indeed, early studies were based on data starting in the 1980s (e.g. DeAngelo 1986; Perry and Williams 1994;

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[1] This motivation does not necessarily imply managerial opportunism.

Christie and Zimmerman 1994; Erickson and Wang 1999). Second, the regulatory setting has considerably changed in the last 20 years, with the introduction of more severe controls on managerial opportunism and the increase of transparency.[2] Moreover, the sample covers the European M&A market, which differs from the more investigated United States (US) market (La Porta et al. 1999; Faccio and Lang 2002; Leuz et al. 2002).

Although common models for EM detection reveal abnormal accounting, real activity or reporting choices, a research stream has focused almost exclusively on the opportunistic side of these choices. Thus, EM has become the definition of managerial discretion, with a negative connotation (see Healy and Wahlen's 1999 definition of EM and the studies that employ this definition).

From a methodological perspective, this thesis considers multiple techniques of manipulation and relies on different models to detect EM (e.g., Athanasakou et al. 2011; Abernathy et al. 2014). Furthermore, the research design of this thesis tests the effect of managers' behaviour on shareholders around M&A over different perspectives and triangulates an explanation that is supported by multiple analyses.

In terms of the results, this thesis provides evidence that seems to exclude an opportunistic behaviour of target management in their accounting and real-activity choices before an M&A announcement. Specifically, it is observed that target managers manage the earnings downward the year before the announcement, consistent with prior literature. The results suggest a negative relationship between the downward manipulation and the acquisition premium. The EM also seems related to chief executive officer (CEO) retention rate after the deal announcement. Indeed, it appears that abnormally low accruals are associated with a higher retention rate, but only for acquisitions that were eventually completed. Moreover, the results do not suggest that target managers manipulate downward to trade-off their position for the premium. Lastly, the effect of EM on analysts' forecast ability is investigated. The evidence suggests that forecast accuracy of target firms is not affected by EM measures, while there is a negative relationship between EM of non-target firms and forecast accuracy. Overall, target managers seem to respect their fiduciary duty to their shareholders and be rewarded by a higher retention rate in the post-acquisition period for their behaviour if the deal is completed. The

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[2] In Europe, under the influence of the EU, since the early 2000s, numerous new regulations have been adopted that could affect the usage of EM or the approach to tackling a friendly M&A: Regulation (EC) No. 1606/2002, 1725/2003, 1865/2005 about accounting standards; Takeover Directive 2004; Market in Financial Instruments Directive 2004 (MiFID), Market in Financial Instruments Directive 2014 (MiFID II), and Market Financial Instruments Regulation 2014 (MiFIR); Audit Directive 2006 and 2014; Transparency Directive 2004; Shareholders Right Directive 2007 and 2017 (SRD).

evidence observed seems less valid for real earnings management (REM) than accrual earnings management (AEM), probably because of the long-term effect on the performance of the firm. The results of these studies suggest that managers do not behave opportunistically, as they do not seem to harm the shareholders of the target firm. This indicates that no further regulation for this aspect seems to be needed to more strictly control the usage of EM around M&As. This thesis supports the idea that it is crucial for EM studies to investigate the consequences and the managers' choices under different points and triangulate the conclusions.

The thesis starts with an introductory chapter on the EM theme and an overview of the M&As environment. Successively, three studies are conducted for each consequence examined. The first study explores the detection of EM for target firms the year before the announcement and the consequences of EM on the acquisition premium for a sample of 578 takeovers or takeover attempts during the period between 2005 and 2015 in Europe. The second study investigates the association between EM measures and CEO retention rate after the M&A announcements. By using a sample of 174 takeovers or takeover attempts, this study examines whether EM affects the CEO retention and under which conditions. The third study analyses the relationship between EM and analysts' forecast accuracy. By using a sample of 387 takeovers or takeovers attempts, it seeks to empirically provide evidence of a relationship between EM and the analysts' forecast error around the announcement date. The last part provides an overall conclusion.

• Introductory Chapter: An Overview of EM and M&A Context

.1   Earnings Management

.1.1   Definitions

Earnings management has gained relevance in the press and in academic research since the revelation of some notorious accounting scandals (e.g., Enron, Worldcom, AIG, etc.). Even after becoming a widely studied topic, researchers do not completely agree on the definition of EM. As explained by Amiram et al. (2018), financial reporting misconduct includes a wide range of financial reporting choices with different severities of misconduct. Figure 1 proposes a scheme to facilitate the representation of the wide range of financial reporting choices that a manager may select. To the left of the spectrum, there are financial choices that are accepted by the law and generally accepted accounting procedures (GAAP). To the right of the spectrum, there are financial choices that do not respect the law or the GAAP. Earnings management stands in the middle of this spectrum and may be of two different kinds. Earnings management choices aim to correctly inform the market and are respectful of the law and accounting standards. However, there is EM that can or cannot respect the law and the accounting standards and intends to mislead and misrepresent the true financial situation of the firm. The distinction between the two EM choices is subtle and difficult to identify correctly. This is why Amiram et al. (2018) consider it as a grey area, because it contains financial reporting choices that can be either informative or misleading.

Because of the difficulty to situate the EM in the reporting choices, researchers have proposed various definitions. A generally accepted definition of EM that is widely used in the literature[3] is proposed by Healy and Wahlen (1999, 368), who define earnings management as follows:

> *Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.*

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[3] The paper of Healy and Whalen has more than 6,000 citations (Google Scholars).

Figure 1: Scheme of the financial reporting choices

Financial Reporting Choices

Earnings management	Financial misrepresentation	Financial reporting fraud

"Grey area"

Financial Reporting Misconduct

Potential Lawsuits and Potential Restatements
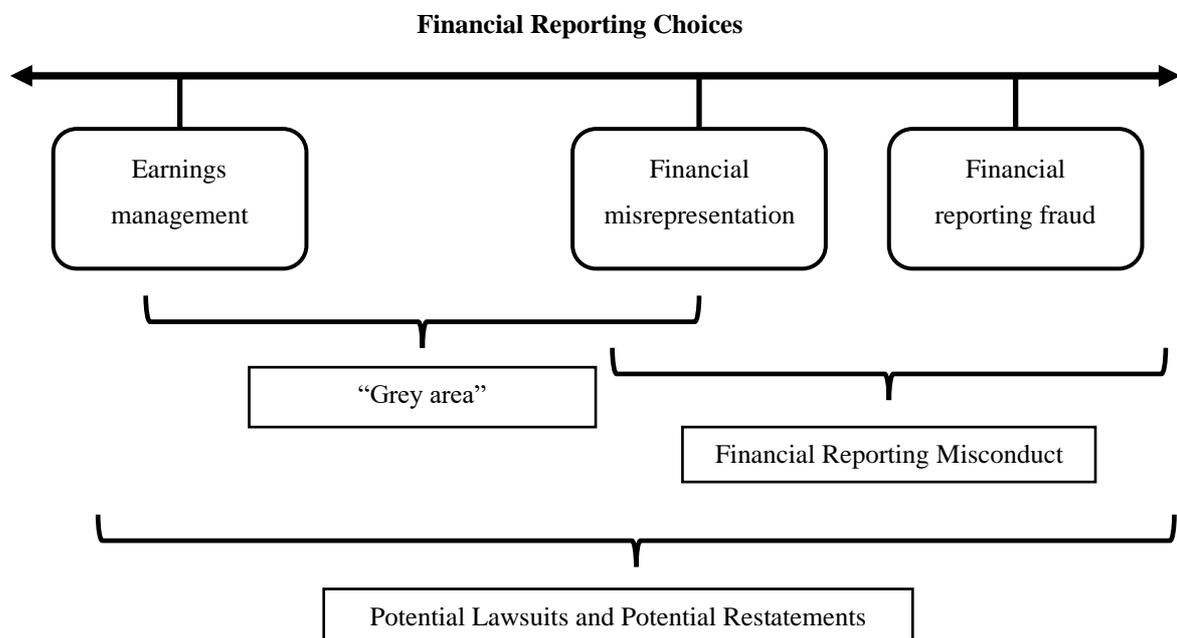
The figure is inspired by Figure 1 Amiram et al. (2018).

This definition is based on the managers' choices in the financial reporting process. It emphasises the misleading purpose of EM. Even though the distinction between misleading and informative EM was already mentioned by a few authors (e.g., Holthausen and Leftwich 1983; Christie and Zimmerman 1994; Dechow 1994), the literature mostly focuses on the opportunistic employment of EM (e.g., managers' compensation, target earnings meeting/beating, 'big bath' the first year as CEO, etc.). The efficient perspective[4] of EM is clearly defined by Beneish (2001, 5):

> *There are two perspectives on earnings management: […] the information*
> *perspective […] under which managerial discretion is a means for managers*
> *to reveal to investors their private expectations about the firm's future cash*
> *flows.*

Indeed, most of the models used in the literature detect abnormal behaviour, and (when the models are correctly specified) the abnormal behaviour is imputable to the managers'

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[4] For the purpose of this thesis, the adjectives efficient, beneficial, informative and signalling (referring to EM) are considered complete synonyms and perfectly opposing to opportunistic and misleading EM.

discretion. Managers can use discretion in their choices to make efficient decisions that profit the shareholders or opportunistic choices that benefits themselves.

Similarly to Amiram et al. (2018), Ronen and Yaari (2008, 25) define EM as a reporting choice that can take different forms:

> *Beneficial (white) earnings management enhances the transparency of reports; the pernicious (black) involves outright misrepresentation and fraud; the grey is manipulation of reports within the boundaries of compliance with bright-line standards, which could be either opportunistic or efficiency enhancing.*

According to their definition, opportunistic and misleading EM is categorized as 'pernicious' (similar to Healy and Wahlen [1999]), and efficient and informative EM is defined as 'beneficial' (similar to Beneish [2001]). Moreover, they propose a 'grey' EM that could have both effects. The main issue with these three definitions of EM is that they do not address the respect of the accounting standards. The literature discusses alternative definitions which consider EM within GAAP or not (e.g., Dechow and Skinner 2000; Nelson et al. 2003). Despite the debate over whether to consider EM within GAAP in the definition of EM, the literature establishes that a high amount of EM can be associated with fraud or restatements (Beneish 1997; Burns and Kedia 2006; Jones et al. 2008; Ettredge et al. 2010; Jones and Wu 2010).

A more recent definition proposed by Walker (2013, p. 446) makes explicit the methods for manipulation by openly listing EM techniques:

> *The use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic decisions to influence how underlying economic events are reflected in one or more measures of earnings.*

After the review of the various aspects that the definitions of EM consider, the definition of EM employed in this thesis is based on Walker's, which accounts for every technique of EM. However, the definition considered is also expanded to outside GAAP EM. Finally, similar to Ronen and Yaari (2008), EM can be opportunistic (by misleading stakeholders) or efficient (and informative).

.1.2 Determinants of Accounting Choices (Opportunism vs. Efficiency)

Since the start of positive accounting theory, the literature argues that accounting choices can have economic consequences through altering the distribution of cash flows or wealth for parties involved in the contract (Watts 1977; Watts and Zimmerman 1978).[5] This is because transaction costs exist (Williamson 1979). In a world without transaction costs, the contracts perfectly regulate the accounting rules to maximise firm value. Hence, any change in accounting choices would not change the value of the firm. Since transaction costs exist, the contracting parties (here, for the purpose of the thesis, managers and shareholders) cannot agree on a complete contract, because the transaction costs would be too high (Klein 1983).

Given the incompleteness of contracts, agency problem is likely to arise (Klein 1983). Based on agency theory (Jensen and Meckling 1976), the principal-agent relationship between shareholders and managers is examined. As utility maximisers, managers will not always act in the best interest of the shareholders. The parties can limit the divergences by establishing contracts that monitor and bond the managers' activities.

Because it is difficult to directly observe the managers' effort, shareholders and managers agree to a contract that is based on observable measures of the managers' efforts, which should ensure that the management is working in the shareholders' interest. Accounting numbers provide monitoring and bonding devices which can be used in contracts to measure managerial effort. Nevertheless, contracts that employ accounting numbers are not effective if managers have complete discretion over the accounting numbers, but shareholders also want managers to have some discretion over their accounting choices to maximise the firm value. Then, managers are restricted in some actions, but some discretion remains (an accepted set of accounting rules). The managers can exercise the discretion in their accounting choices in two ways: (1) by reducing information asymmetry and allowing accounting to accurately reflect the economic value of the firm, or making efficient choices to maximise the firm value (efficiency) and (2) by increasing their own wealth at the expense of shareholders (opportunism; e.g., Watts and Zimmerman 1986, 1990; Holthausen 1990; Healy and Palepu 1993). Lastly, it is impossible to contract with zero costs so that the agent will always make optimal decisions from the principal's viewpoint (i.e., residual costs).

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[5] Because of the potential of many contracts in explaining accounting choices that could differ from the typical scenarios expressed by the agency problem (debt contracting, managerial compensation, political costs), some researchers enlarge the definition to contracting costs instead to agency costs (e.g., Klein 1983), where contracting costs consist of transaction costs, agency costs, information costs, renegotiation costs and bankruptcy costs (Watts and Zimmerman 1990).

Few studies focus on the distinction between opportunism and efficiency. Perry and Williams (1994) examine takeover targets prior to an M&A and attempt to distinguish whether upward accounting choices are motivated by opportunism or efficiency. They select firms which undergo a takeover offer, and they consider them as non-value maximising firms. Successively, they compare the level of depreciation, inventory and investment tax credit accounting choices with non-target firms. Their univariate test shows that target firms choose opportunistic accounting choices more frequently than control firms in the same industry. Multivariate analysis confirms these results; however, evidence for efficient accounting choices is also detected (i.e., accounting choices consistent with tax reduction and financial distress). Subramanyam (1996) examined the pricing of abnormal accruals. He finds that discretionary accruals are, on average, positively related to the stock price. The results suggest that managerial discretion may improve the value relevance of the stock price by signalling private information about the future performance of the firm. Similarly, Press and Paek (1997) analyse the pricing of discretionary accruals related to manager compensation and debt covenants. Their results show a negative association between the stock price and discretionary accruals related to manager compensation but a positive association between discretionary accrual and the debt level to avoid debt covenants. Bowen et al. (2008) examine accounting discretion in relation to governance measures. They analyse the accounting discretion (aggregate measure of three accounting measures: absolute value of abnormal accruals, standard deviation of operating cash flows divided by the standard deviation of earnings and frequency with which firms report small earnings surprises) due to poor governance and the subsequent firm performance. The authors do not find any negative association, which means that accounting discretion seems related to efficient choices. Conversely, they find that accounting discretion is positively associated with future performance, which is consistent with the informative rationale of EM.

.1.3 Techniques

The review of EM detection models hereafter is not exhaustive but considers only the most relevant studies to the understanding of the thesis. The literature review first focuses on EM through accruals manipulation. Second, new techniques of EM appeared in the literature: real activities manipulation and classification shifting.

.1.3.1 Accruals Earnings Management

Since the elements that compose accruals[6] (depreciations, provisions and working capital accruals) are measured with a degree of subjectivity, the accruals are potentially a good instrument to manipulate the earnings (Raffournier 2018). To measure the manipulated portion of the accruals, the models must measure what would be the normal portion of accruals. The first attempts to measure the abnormal accruals are proposed by Healy (1985) and DeAngelo (1986), where the intention is to measure the levels and the changes in working capital accruals as abnormal accrual proxies. These two models are based on the simplifying assumptions that normal accruals are constant over time. Thus, the DeAngelo model employs the total accruals of the past period (TA_t) scaled by the lagged total assets (A_{t-2}) as a measure of normal accruals (NDA_t):

$$NDA_t = TA_{t-1}/A_{t-2}$$

Then the abnormal portion of accruals is measured as the difference between the total accruals in the present and the normal accruals ($DA_t = TA_t - NDA_t$).

Subsequently, more sophisticated models attempt to explicitly measure abnormal accruals. The most popular is attributable to Jones (1991). The main idea is to model normal accruals as a function of the three elements that compose the accruals. The depreciations depend on the amount of the firm's fixed assets. The working capital accruals and provisions depend on the amount of sales (e.g., accounts receivable). To compute the normal accruals of a firm is necessary to regress the observed total accruals of that firm with comparable firms (cross-sectional) or with a firm-specific estimation period (time-series). The residual of the regression ($\varepsilon_{i,t}$) represents the amount of the abnormal accruals:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

Where:

$TA_{i,t} =$	the total accruals in year t for firm i;
$A_{i,t-1} =$	the total assets at t-1 year-end for firm i;
$\Delta SALES_{i,t} =$	the change in sales for firm i;
$PPE_{i,t} =$	the gross property, plant and equipment for firm i;
$\varepsilon_{i,t} =$	the error term in year t for firm i;

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[6] Accruals are calculated expenses and income (e.g., depreciations, amortization, provisions) and change in working capital (current assets and current liabilities, such as accounts receivable or payable). Where: Net Income = Cash Flow from Operating Activities + Total Accruals

$i =$ 1, ..., N firms; and

$t =$ the year of suspected manipulation.

Dechow et al. (1995) improve the model by subtracting the change in accounts receivable from the change in sales. This adjustment allows the exogenous variable (i.e., $\Delta SALES$) to be maintained, since the accounts receivable can be manipulated by delaying the payment time. Several authors argue that accruals can be correlated to the profitability of the firm. Improved models were proposed that allow the models to work even when the sample contains firms with different profitability. Kothari et al. (2005) suggest two alternatives to account for the effect of profitability on the accrual levels. The first alternative is to match each firm with a control firm with a similar return on assets (ROA). The second is to add the ROA into the Dechow et al. (1995) model, as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta SALES_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \beta_4 ROA_{i,t;\,t-1} + \varepsilon_{i,t}$$

Where:

$TA_{i,t} =$ the total accruals in year *t* for firm *i*;

$A_{i,t-1} =$ the total assets at *t-1* year-end for firm *i*;

$\Delta SALES_{i,t} - \Delta AR_{i,t} =$ the change in sales minus the change in accounts receivable for firm *i*;

$PPE_{i,t} =$ the gross property, plant and equipment for firm *i*;

$ROA_{i,t;\,t-1} =$ the return on assets in year *t (or t-1)* for firm *i*;

$\varepsilon_{i,t} =$ the error term in year *t* for firm *i*;

$i =$ 1, ..., N firms; and

$t =$ the year of suspected manipulation.

Dechow and Dichev (2002) present a model where the quality of the accruals of a firm is the residual of a regression for the changes in working capital on past, present and future operational cash flows. [7] Indeed, their intuition suggests normal accruals are always cashed or disbursed, while abnormal accruals do not have any impact on the cash flows. The authors focus only on the short-term working capital accruals (stocks, account payable, account receivable), since their model is difficult to apply to long-term accruals (depreciation and provisions). Formally, the model is presented as follows:

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[7] This model generally measures the accruals quality and not the accruals management; however, because of its wide use in the literature and because it is the basis for subsequent models, it is presented here.

$$\frac{\Delta WCA_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{CF_{i,t-1}}{A_{i,t-1}} + \alpha_2 \frac{CF_{i,t}}{A_{i,t-1}} + \alpha_3 \frac{CF_{i,t+1}}{A_{i,t-1}} + \varepsilon_{i,t}$$

Where:

$\Delta WCA_{i,t} =$ the change in total accruals in year t for firm i;

$A_{i,t-1} =$ the total assets at *t-1* year-end for firm i;

$CF_{i,t-1;\,t;\,t+1} =$ the cash-flow in year *t-1 (or t, or t-1)* for firm i;

$\varepsilon_{i,t} =$ the error term in year t for firm i;

$i =$ 1, …, N firms; and

$t =$ the year of suspected manipulation.

Since the development of the first AEM models, these models have suffered from misspecification. The first EM detection models consider manipulation when there was no manipulation (type I error) or consider non-manipulation when there effectively was some manipulation (type II error; Dechow et al. 1995; McNichols 2002). Over time, the literature about detection models has evolved in sophistication to decrease the misspecification. Fields et al. (2001) observe that, since the 1990s, one of the main issues has been to find a correct model to identify EM. Since Fields et al. (2001), some improvements have been made, but the Jones model (or the early evolutions of it) is still the base model for the detection of abnormal accruals. Thus, some statistical concerns are still present in the current methodology of a number of studies (Dechow, Ge, et al., 2010). The Jones model includes some limitations, mainly affecting the reliable identification of abnormal accruals (Dechow, Ge, et al., 2010). On such limitation is the low explanatory power of the test, explaining only 10% of the variation in accruals. Another is the concern proposed by Dechow et al. (2003) that the residuals of abnormal accruals are highly positively correlated with total accruals, positively correlated with earnings performance and negatively correlated with cash flows. These characteristics suggest that the model can misclassify a high rate of accruals as abnormal when they are not.

Successively, different models have been proposed with moderate success. Dechow et al. (2012) propose a model that simultaneously tests the suspected EM and the reversal in the subsequent periods. This allows increased power and specification of the test. The test power increases by 40% with their model when the year of the suspected manipulation is known. The incorporation of reversal in the test allows a reduction of misspecifications caused by omitted variables for firms with extreme economic characteristics. However, the power of the test is low for reasonable EM levels. Indeed, this method does not eliminate misspecification due to

the omission of correlated determinants of innate accruals. Furthermore, the tests are run only on working capital accruals, but the authors suggest extending the reversal technique to long-term accruals. Allen et al. (2013) suggest that the accruals are composed classified into accruals that correctly anticipate fluctuations of working capital and accruals that are estimation errors. Estimation error accruals will only reverse when the management understands that the benefits associated are not going to be realized. The authors' results show that on one hand, accruals reflect firm growth, while on the other hand, a reversing process reflects fluctuation in working capital. Furthermore, they find that the accrual estimation error is the least persistent component of earnings. More recently, Larson et al. (2018) have analysed the accruals in depth with a specific definition, measure and classification. Based on the analysis of the properties of accruals, they propose a model that considers the three main roles of accruals in a more complete manner. They think that comprehensive accruals are affected by capital investment and growth in operation, timing differences between business events and cash flows and conditional conservatism. When Larson et al. (2018) apply the model to the EM context to detect accounting misstatement, they observe that the component of accruals that most detects earnings misstatement is the noncurrent operating accruals, which is consistent with their expectation because it is easier to manipulate. Hence, they suggest future research concentrate on the detection of EM using this component of accruals. Formally, the cross-sectional regression equation proposed by Larson et al. (2018) is as follows:

$$COMPACC_{i,t} = \alpha_0 + \alpha_1 EMPGR_{i,t} + \alpha_2 EMPGR_{i,t} * NCI_{i,t-1} + \alpha_3 CF_{i,t-2} + \alpha_4 CF_{i,t-1} + \alpha_5 CF_{i,t} + \alpha_6 CF_{i,t+1} + \alpha_7 CF_{i,t+2} + \alpha_8 PL - MTLB_{i,t} + \varepsilon_{i,t}$$

Where:

$COMPACC_{i,t} =$	the comprehensive accruals;
$EMPGR_{i,t} =$	the annual percentage of employee growth;
$NCI_{i,t-1} =$	the net operating assets;
$CF_{i,t-1 \,;\, t \,;\, t+1} =$	the comprehensive cash flows in year $t-1$, t, and $t+1$;
$PL - MTLB_{i,t} =$	the piecewise linear transformation of market-to-lagged-book;
$\varepsilon_{i,t} =$	the error term in year t for firm i;
$i =$	1, …, N firms; and
$t =$	the year of suspected manipulation.

Some authors heavily criticize the literature concerning EM, arguing that the EM observed by researchers is inconsistent with reality (e.g., Gerakos 2012; Ball 2013; Jackson 2018). There

are several critiques made about EM literature. First, it is said that the amounts of discretionary accruals are implausible because of their magnitude relatively of the ROA, where in some cases the mean ROA is lower than the mean of abnormal accruals (Ball 2013). Most of the literature does not control for economic plausibility. Second, there is weak and contrasting evidence concerning the relation between AEM and the ex-post proxies for EM (i.e., restatements, accounting and auditing enforcement releases; Jackson 2018). Third, statistical concerns are raised by some authors regarding the two-stage models employed to detect EM (Chen et al. 2018; Christodoulou et al. 2018), and some authors suggest improvements in the method of selecting the benchmark group (Armstrong et al. 2010; McMullin and Schonberger 2020).[8] Lastly, McNichols (2002) and Zha Giedt (2018) argue that researchers do not control for the consistence of specific accruals accounts, only for the combined total accruals measure. Larson et al. (2018) suggest studies focus on articulating operating accruals, because they are potentially subjective and could be easily distinguished by other cofounding variables. Ibrahim (2009) proposes a research design that combines components of accruals and tests whether they are consistent with the direction of manipulation. On the sample of firms targeted by the US Securities and Exchange Commission for accounting violation, he finds that only 34% have more than one account manipulated in the same direction and 66% have only one account manipulated.

Despite these numerous critiques, results from a survey of chief financial officers (CFOs) of public companies show that around 20% of firms manipulate their earnings to misrepresent the real economic performance of the firm (Dichev et al. 2013; Dichev et al. 2016). In these surveys, there are no indications about what techniques are preferred and in which cases. The authors also report that, on average, the magnitude of the misrepresentation is at least 10% of the reported earnings, of which roughly 60% of the EM is upward manipulation, while the remaining 40% is downward. For the CFOs surveyed, the EM aims to influence the stock price, alleviate inside and outside pressure and retain their jobs. Finally, following managers' opinions, to detect EM, two main characteristics should be observed: persistent deviation

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[8] As suggested by the authors, the AEM (and likely the REM and the CS) models could be improved through multivariate matching approaches, such as propensity score matching and entropy balancing. These techniques avoid the two-step estimation and focus on the differences in covariates between the treated and the control group (Chen et al. 2018; Christodoulou et al. 2018). Contrarily, the two-step regressions lead to high type I errors for samples of extreme financial performance (Kothari et al. 2005). The results of these authors document that propensity score matching and entropy balancing better specify the abnormal accruals than normal two-step regression and that entropy balancing is better than propensity score matching in terms of specification, power and robustness to omitted covariates.

between earnings and cash-flows and unexplained differences between the firm and their peer competitors (Dichev et al. 2013).

.1.3.2   Real Earnings Management

Graham et al. (2005) raise awareness of the importance of examining multiple EM techniques, reporting that is likely that firms manage the earnings through different techniques to maximise the effect of manipulation and reduce the risk of detection. In their survey, Graham et al. (2005) report that almost 80% of managers interviewed sacrifice long-term value to meet or beat target earnings, using the REM technique (e.g., decrease discretionary spending, such as research and development [R&D], advertising and maintenance; delay starting a new project; provide incentives for customers to buy more product this period; etc.). They note that real activities' manipulations are more difficult to detect, and therefore, the combination of the two methods (i.e., AEM and REM) can reduce the risk of being detected. Since this breakthrough study, many authors have started to analyse the real activities manipulation. Gunny (2005) examines the following activities: R&D investments; selling, general and administrative (SG&A) expenditures; timing of recognition of the disposal of assets; and boost in the sales with price reduction and decrease in cost of goods sold (COGS) by overproduction. The results show that all kinds of real activities manipulation negatively impact the future operating performance. Moreover, investors seem to recognize the implication of the manipulation of some of these activities. They value negatively the short-term manipulation. Roychowdhury (2006) proposes three models to detect REM in which the following activities are detected: temporary increase in sales, overproduction and reduction of discretionary expenditures. Additionally, he finds that manipulations are mitigated in the presence of sophisticated investors and that the industry in which the firm operates has an impact on the level of EM. Formally, the three equations are the following:

$$\frac{OCF_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{SALES_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{SALES_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \beta_4 \frac{\Delta SALES_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t}$$

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{SALES_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

Where:

$OCF_{i,t} =$	the operating cash flow for firm i;
$DISEXP_{i,t} =$	the discretionary expenses for firm i;
$PROD_{i,t} =$	the cost of goods sold plus the change in inventories for firm i;
$SALES_{i,t} =$	the sales for firm i;
$\Delta SALES_{i,t} =$	the change in sales for firm i at time t;
$\Delta SALES_{i,t-1} =$	the change in sales for firm i at time t-1,
$A_{i,t-1} =$	the total assets at year-end t-1 for firm i;
$\varepsilon_{i,t} =$	the error term for firm i;
$i =$	1, …, N firms; and
$t =$	the year of suspected manipulation.

Osma and Young (2009) focus exclusively on the R&D expenditures to meet earnings target. They find that United Kingdom firms, which are not likely to meet their earnings target, are more apt to cut R&D expenditures. They also find that the response from investors to meet earnings target is lower for firms that have cuts in the R&D expenditure. This response is the lowest for firms in industries with high levels of R&D. Moreover, investors distinguish the cuts in R&D for manipulation reasons more than for other reasons unrelated to manipulation. The firms that manipulate earnings are more penalized by market participants. Cohen and Zarowin (2010) propose a model to understand firms' trade-off between the two techniques (AEM and REM). Firms' choices vary as a function of the cost of each technique and depend on the ability to use the techniques. Moreover, the authors investigate the impact of the two techniques on the post-event (i.e., Seasoned Equity Offering [SEO]) performance. The decline of performance post-event is more often due to REM than AEM. Similarly, Zang (2012) examines whether managers use REM and AEM as substitutes in managing earnings. She uses an empirical model that incorporates the costs associated with each technique and captures the managers' sequential decisions. Her results show that the AEM is adapted based on the level of REM realized during the year. Kothari et al. (2015) argue that because SEOs are under high scrutiny, any attempt to manipulate the earnings must be relatively opaque. However, they observe that the market during the post-SEO period negatively values firms with abnormally low R&D expenses. This result suggests that these firms select upward REM to overvalue the firm before the SEO. Because of this high scrutiny, the authors find that AEM is effective for overvaluing the firm

only when accompanied by REM. Chapman and Steenburgh (2010) investigate the marketing actions employed to manipulate the earnings. In their unique research setting, they combine supermarket scanner data with financial reporting data and observe that the marketing mix varies to influence the time of purchase. Moreover, they also find evidence that the decision to manage the earnings is made at a group level.

Several authors recently investigated the manipulation of off-balance sheet income. Dechow and Shakespeare (2009) examine the timing of recording securitization as 'gain on sale'.[9] The benefits of recording the transaction as a sale of account receivable instead of collateralized borrowing are (1) lower leverage because the liability is not recorded, (2) improved efficiency ratios because receivables are removed from the balance sheet even though the customer has not paid, (3) increased cash flows from operating or investment because cash received from securitization is not classified as financing cash flows and (4) cash flows from securitization are not traded in active markets which allows managers flexibility in valuing the retained asset. The authors find that a large proportion of transactions occurs during the five days before the publication of the financial statements. Moreover, the securitization transactions are more likely to have occurred at the end of the quarter if the firm barely exceeds the earnings threshold. These results suggest that transactions are engaged to manipulate earnings upwards to meet or surpass earnings targets. Feng et al. (2009) examine the earnings effects of off-balance sheet subsidiaries. They analyse the number of special purpose vehicles (SPV) not consolidated during the period 1997–2004. The authors assume that SPVs are, among other things, used to offer more flexibility in financial reporting by controlling the timing and amount of earnings reported and the amount of debt recorded. Special purpose vehicles arranged for financial reporting incentives are positively associated with EM to meet/beat target earnings. Dechow, Myers, et al. (2010) argue that managers seem to take advantage of the flexibility allowed in fair value accounting rules for securitization recording. Different results support that behaviour. Firstly, reported gains from securitization are consistent with the earnings smoothing hypothesis. Secondly, 'gains on sale' are not differentiated to other sources of earnings for CEOs' compensation. Moreover, strong corporate governance has little impact on the compensation sensitivity of securitization reported gains.

After the critical paper of Dechow, Myers, et al. (2010) on fair value accounting, the study of Barth and Taylor (2010) questions its findings. Indeed, they find an alternative explanation that

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[9] Securitizations of accounts receivable can be accounted for as collateralized borrowing or as a sale of the accounts receivable. If the firm reports a gain for the sale of the accounts receivable, then the term 'gain on sales' is employed.

defends fair value accounting. They explain that the negative relation between earnings from securitization and earnings before securitization could be due to a firm's economic earnings (i.e., firms competitive advantage in selling loans) or the fact that the carrying amount of some loans is below the market value. Moreover, the authors argue that there is a problem of methodology in the construction of variables used to calculate the negative relationship between income from transactions of securitization and income before transactions of securitization. In response to the relationship between securitization income and CEO compensation, Barth and Taylor (2010) argue that the results shown by Dechow, Myers, et al. (2010) do not prove that fair value estimates are manipulated but that CEOs have an incentive to manipulate securitization income. In conclusion, the literature about off-balance sheet manipulation is contrasting.

.1.3.3 Classification Shifting

The last EM proxy investigated is classification shifting (CS), which is substantially different from other EM techniques because it does not affect bottom-line earnings. However, CS (also called vertical shifting) allows management to transfer some core profits/expenses to special items. Classification shifting allows management to meet/beat analyst earnings benchmarks, since special items are not usually included in analyst earnings definitions because they are considered non-recurring. This re-classification can decrease the accounting quality and affect the valuation of the firm. McVay (2006) examines CS during the period 1988–2003. She finds that firms that just meet analyst forecasts have unexpected core earnings increases with special items in the suspected year of manipulation, but it reverses during the subsequent year. Fan et al. (2010) extend the core earnings expectations model proposed by McVay (2006), excluding contemporaneous accruals to avoid a potential bias and adding additional controls for performance. Athanasakou et al. (2011) examine the market response to meet/beat analyst forecasts with EM in United Kingdom between 1994 and 2004 (the proxies chosen are REM, AEM and CS). The results show that the likelihood of achieving analyst expectations is unrelated to both AEM and REM, although it is related to CS. The main result is that the market rewards less firms that achieve analyst expectations with CS than firms that achieve it without CS. Fan and Liu (2017) report that some firms shift the part of COGS to the 'special items' to increase profitability and meet/beat the gross margin benchmark. Moreover, they observe a shift of the COGS and the SG&A to the 'special items' when the firms want to meet the core earnings benchmark. Lail et al. (2014) observe a form of CS that shifts core expenses to corporate/other expenses (i.e., captures miscellaneous operations that are not comprised in other

operating segments) to show better results in the core segments, especially for firms that have poor operating segment performance.

.1.3.4   Advantages and Disadvantages of the Techniques

The literature on EM techniques allows several conclusions about the use of these techniques in the specific context of M&As. The issues with model specifications have led to a considerable amount of literature concerning the development of detection models. However, results on managerial opportunism in many contexts still rely on basic detection models (Gerakos 2012). In the EM research around M&As, the accruals approach is largely employed as a proxy for EM. Few studies combine different approaches. Nevertheless, it seems likely that management combines different EM techniques to maximise the effect of EM and dilute the manipulation over multiple approaches to minimize the risk of detection (Graham et al. 2005; Kothari et al. 2015). The effect of EM cannot be examined by only investigating one technique (Fields et al. 2001).

Each technique of EM has a different impact on earnings because of timing, detection likelihood, difficulty of implementation, severity of consequences and constraints. Table 1 summarises the main characteristics of the three main techniques. The principal advantage of AEM and off-balance sheet manipulation is that they allow manipulation of the income late in the year, while REM takes more time to be implemented (Dechow and Shakespeare 2009; Zang 2012). Classification shifting provides managers with a manipulation tool that can be employed even after the accounting year-end (Abernathy et al. 2014).

One of the main advantages of REM compared to AEM is the lower detectability and, consequently, the lower litigation risks (McVay 2006; Roychowdhury 2006; Kothari et al. 2015). In this sense, Cohen et al. (2008) observe that since the enforcement of a stricter regulation (i.e., for US the Sarbanes-Oxley Act [SOX]), managers have moved from AEM to REM. Real earnings management has another drawback for managers, because the amount of the manipulation cannot always be precisely estimated before the implementation of the strategy. Contrarily, the amount of the manipulation through AEM or CS is perfectly known in advance (Zang 2012). A limitation for the usage of CS is that it may be implemented only if there are some income-decreasing special items (i.e., if the firms want to shift core expenses to special items to increase the result of the core business; Fan and Liu 2017).

The REM technique has the most serious consequences, because they may impact the future performance of the firm for missed opportunities (e.g., cut in R&D). Less severe, the use of

abnormal accruals generates reversals in the next accounting periods (McVay 2006; Roychowdhury 2006; Cohen et al. 2008; Cohen and Zarowin 2010; Gunny 2010). Moreover, Fan and Liu (2017) observe that, when possible, managers seem to prefer CS to REM.

Finally, literature observes different firm-level constraints that may influence the managers' manipulation technique preferences. Zang (2012) considers multiple costs related to REM and AEM. She argues that the technique preferred by managers will depend on the relative costs of each technique. The constraints identified for REM technique are the firms' competitive status in the industry, financial wealth, scrutiny from institutional investors and marginal tax rate. The constraints identified for AEM are the financial regulation and scrutiny and the firm accounting flexibility. In addition, Chi et al. (2011) and Burnett et al. (2012) observe that high quality auditors push managers to select REM instead of AEM. The analyst coverage has the same effect; indeed, when the analyst coverage decreases, managers are more likely to manipulate through AEM (Enomoto et al. 2015; Irani and Oesch 2016). Moreover, analysts' coverage also seems a monitoring tool for mitigating CS (Behn et al. 2013). Enomoto et al. (2015) observe that firms in countries with a stronger investor protection shift from manipulation through AEM to REM. Concerning CS, Behn et al. (2013) do not observe any influence of the country investor protection, while Haw et al. (2011) observe that civil law and strong legal institutions reduce the use of it in East Asia. With the introduction of a stricter accounting standard (i.e., International Financial Reporting Standards [IFRS]), it seems that firms also shift from the AEM to the REM technique (Ferentinou and Anagnostopoulou 2016; Ipino and Parbonetti 2017). Nevertheless, not all authors observe the same results (Doukakis 2014), and the outcomes observed seem to be driven only by certain countries (Ferentinou and Anagnostopoulou 2016; Ipino and Parbonetti 2017). Finally, Bruns and Merchant (1990), in their survey, report that managers consider real activities decisions more ethical than accounting manipulation. More generally, Campa and Camacho-Miñano (2015), in their literature review of the trade-off between AEM and REM, observe that the results are not conclusive and largely depend on the costs of the techniques and the firm's environment. Classification shifting is less examined by the literature than AEM and REM; only a few papers study the frequency and the breadth of this technique.

Table 1: Comparisons of EM Techniques

Technique	AEM	REM	CS	Related Literature
Timing	At the end of the accounting year.	During the year; at the end of the year for off-balance sheet manipulation.	After the end of the accounting year.	Dechow and Shakespeare (2009); Zang (2012); Abernathy et al. (2014).
Detection Risk	High.	Low.	Moderate.	McVay (2006); Roychowdhury (2006); Cohen et al. (2008); Kothari et al. (2015).
Difficulty to Implement	Low.	High.	Low.	Zang (2012); Fan and Liu (2017).
Severity of Consequences	Low (reversal).	High.	Very low (cost of detection and future expectation).	McVay (2006); Roychowdhury (2006); Cohen et al. (2008); Cohen and Zarowin (2010); Gunny (2010).
Constraint	Prior manipulation, GAAP*/accounting flexibility, auditors, analyst coverage, enforcements bodies.	Firm's competitive status, financial wealth, corporate governance, marginal tax rate.	Analyst coverage, investor protection.	Chi et al. (2011); Haw et al. (2011); Burnett et al. (2012); Zang (2012); Behn et al. (2013); Irani and Oesch (2016); Enomoto (2015); Ferentinou and Anagnostopoulou (2016); Ipino and Parbonetti (2017).
Perceptions from Managers	Less ethical.	More ethical.	-	Bruns and Merchant (1990).

* There is contrasting evidence on the effect of IFRS introduction over AEM and REM (Doukakis 2014).

.2 Mergers and Acquisitions

.2.1 Mergers and Acquisitions Activity

Mergers and acquisitions activity has been, since the 19th century, categorized in waves (e.g., Brealey et al. 2011; Gaughan 2015), which describe the characteristics of the mergers within a defined timeframe. The merger waves predominantly describe the US market until the fifth wave, which became more international. The understanding of the M&A market contextualises the market conditions and characteristics in which target managers behave.

The first wave occurred between 1898 and 1904 after the Depression of 1883 and was characterised by horizontal combinations that resulted in an almost monopolistic market structure for some industries (Gaughan 2015). The second wave lasted from the end of the First World War until the market crash of 1929. Because of the greater scrutiny of the government and stricter anti-trust regulation (Sherman and Clayton Acts), the second wave was characterized by vertical mergers that resulted in an oligopolistic market structure. The third wave (1965–1969) was known as the conglomerate merger period and coincided with a period of high economic growth. All horizontal mergers were still subject to a strict antitrust enforcement (Celler-Keauver Act). The characteristic of the fourth wave (1984–1989) was the significant role of hostile takeovers. Moreover, this merger wave is also distinguished from the prior waves by the large use of debt to finance the acquisitions and by the large size of the target firms. The fifth wave (1993–2000) was still characterised by large mergers, but there was a decline in the rate of hostile takeovers. Instead, more strategic mergers occurred. The fifth wave also spread internationally, and acquirers from emerging markets became more prominent (Gaughan 2015).

Literature about the merger wave(s) since the year 2000 is limited. In the 21st century, the sixth merger wave started in 2003 and finished in 2007 with the financial crisis (Alexandridis et al. 2012; Golubov et al. 2013; Alexandridis et al. 2017). Nowadays, some authors claim the actual period as the seventh or the prolongation of the sixth merger wave (Cordeiro 2014; Alexandridis et al. 2017). Alexandridis et al. (2012) observe the characteristics of the sixth merger wave which may explain the motives behind such a sudden increase in the number and value of M&As. First, the authors exhibit a decrease in the premium offered during the time, but it seems not to affect the combined long-term value created. Second, the authors advocate that the motive of acquisition is not the overvaluation of the acquirer, because the acquiring firms employ the stock swap technique less frequently and the acquirer seems not to appear

overvalued. Furthermore, cash financing is more prevalent, and private equity buyers represent a quarter of all M&A activity. Finally, the authors argue that, compared to the fifth merger wave, the investor sentiment plays a minor role. More recently, Alexandridis et al. (2017) examined the deal characteristics after the 2009 in the US. The average abnormal return for the acquirer around the deal announcement is positive, while it was negative during the period 1990–2009. They also document that the combined gain for acquiring and target firms is the highest documented by any US study, suggesting the fair payment of the target. The increase in deal quality (i.e., measured by positive abnormal returns for both target and acquirer's firms around the announcement) seems especially pronounced for mega-deals (i.e., valued at least $500 million). The authors argue that their results can be explained by the change in motivations for M&As. Managers of acquiring firms are seen by the market as less biased by over-optimisms and more focused on synergistic acquisitions. Similarly, Tampakoudis et al. (2018) find positive abnormal return around the announcements of M&A transactions for a sample of European firms between 2003 and 2017. Moreover, they observe that corporate governance qualities are positively associated with abnormal returns.

The evolution of M&A activity in Europe in recent years seems related to the change in regulation. Moschieri and Campa (2014), in their analysis of the European (EU-15) M&A market between 2001 and 2007, observe that the recent changes seem to have led to an increased use of cash to settle transactions, an increased number of cross-border deals, an industry consolidation through M&A, an increase in private equity activity and a decrease in the time needed to complete deals. They also observe that, within their sample, the most active markets are Benelux, Denmark, France, Germany, Italy, Spain and the United Kingdom. These countries represent around 80% of the total number of completed transactions. Despite the convergence of regulation and a development of a homogeneous market within Europe, the transaction characteristics (e.g., attitude of the transaction, technique of acquisition, method of payment) did not vary in the European M&A market, principally because of the high ownership concentration typical of the European market that remained constant over time.

The number of transactions has increased significantly since the 1980s, making investigation of the M&A market more important (Institute for Mergers, Acquisitions and Alliances [IMAA] 2020). Figure 2 presents the number and value of transactions worldwide. In 2007, the value decreased dramatically after the financial crisis, and only in 2014 did the total value of the transaction reach its peak level since before the crisis. The trend observed for the number of transactions is not like that of the value of the transaction. Since 2007, the number of deals has

remained stable during and after the financial crisis until 2014, when it started to slightly increase. As of 2016, the number of transactions worldwide exceeds the number of deals before the crisis.

Figure 2: Number and Value of M&As Worldwide
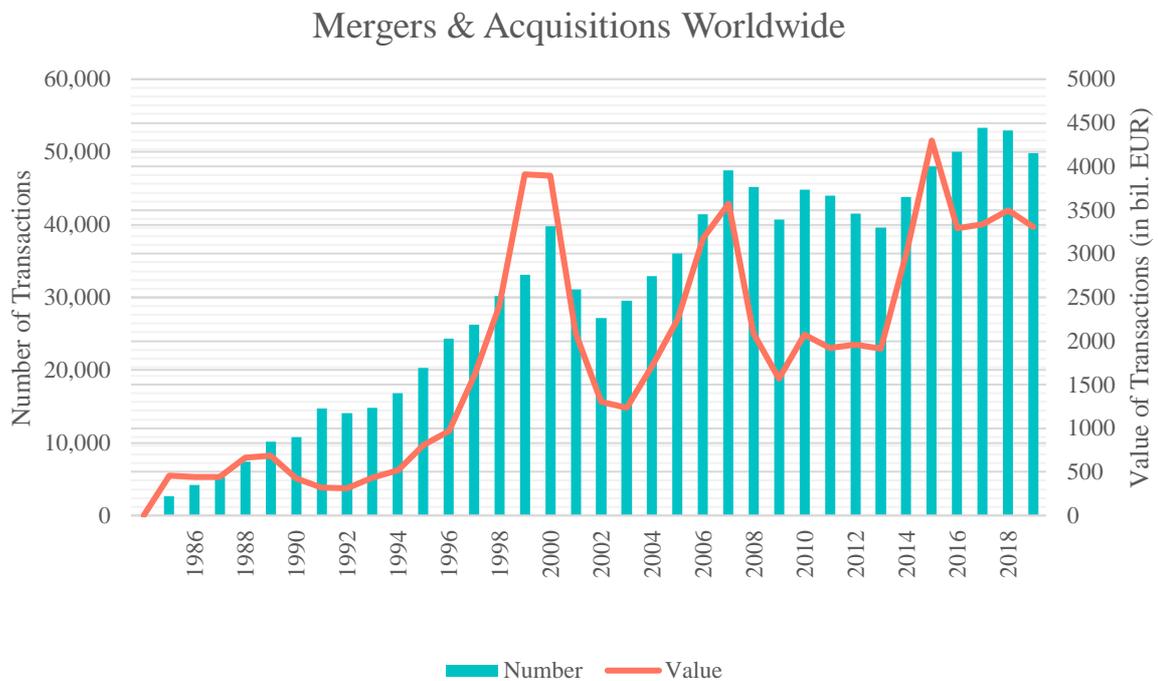
The data and the graph are provided by Institute for Mergers, Acquisitions and Alliances (IMAA; 2020).

Table 2 exhibits the most popular industries and countries for target firms. Worldwide, the most attractive target industries have been the oil and gas industry and the banking industry, followed closely by the power, metal and mining and insurance industries. It can be observed that the extraction-energy industries and finance-related industries are dominant in this classification. In terms of countries of residence of target firms, most of the targets are from the US (50%). Far behind and consistent with the literature, the United Kingdom is home to around 8% of the target firms. With just 3.56%, in third position is China, and Germany, Canada and France are close behind. A high number of Western European countries belong to this top 20.

In Europe, the trends observed in terms of number of deals is similar to those observed worldwide (see Figure 3), while the trend for the value of the transaction differs. Indeed, after the decrease in the post-financial crisis, the value of transactions reached only half the level observed before the crisis. Moreover, since 2015, a slight decrease in the value of transactions

is observable, while the number of deals seems stable. The European market now represents a third of the world's transactions (similar to the North American market).

Finally, Figure 4 exhibits the number and value of hostile takeovers worldwide. It is possible to observe a massive decrease in hostility since around the 2000s. Hostile takeovers are not actual anymore, consistent with a change in the M&A approach.

Table 2: Top 20 Industries and Countries Involved in M&As as Targets

Target Industry (%)		Target Nation (%)	
Oil & Gas	7.68	United States	49.34
Banks	7.62	United Kingdom	7.80
Power	4.73	China	3.56
Metals & Mining	4.21	Germany	3.46
Insurance	4.13	Canada	3.42
Telecommunications Services	3.65	France	3.40
Food & Beverage	3.24	Australia	2.70
Transportation & Infrastructure	3.23	Japan	2.62
Pharmaceuticals	3.09	Italy	2.30
Chemicals	2.50	Netherlands	1.80
Wireless	2.48	Spain	1.72
Automobiles & Components	1.94	Brazil	1.58
Cable	1.90	Russian Federation	1.47
Healthcare Equipment & Supplies	1.81	Switzerland	1.34
Software	1.81	South Korea	0.94
Real Estate Investment Trusts	1.79	Hong Kong	0.84
Food & Beverage Retailing	1.78	Sweden	0.80
Computers & Peripherals	1.76	Mexico	0.76
Other Financials	1.71	Belgium	0.68
Professional Services	1.59	India	0.58

The left part of the table indicates the top 20 industries in which target firms operate worldwide with the relative percentage of M&As during the period 1985–2020. The right part of the table indicates the top 20 countries in which target firms reside with the relative percentage of M&A during the period 1985–2020. The data is provided by Institute for Mergers, Acquisitions and Alliances (IMAA; 2020).

Figure 3: Number and Value of M&As in Europe
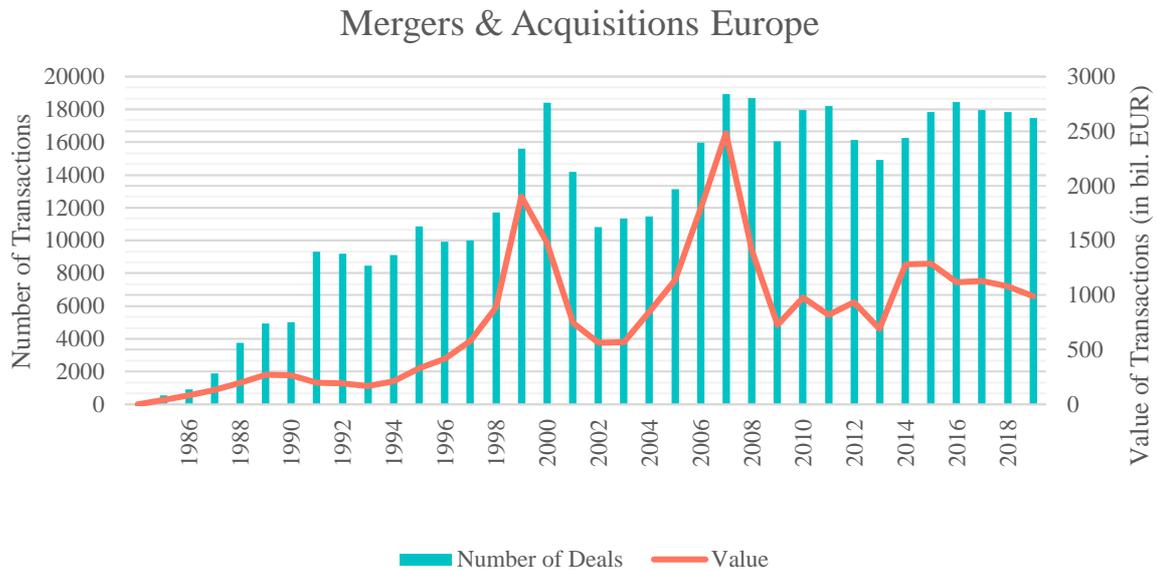
Mergers & Acquisitions Europe

The data and graph are provided by Institute for Mergers, Acquisitions and Alliances (IMAA; 2020).

Figure 4: Number and Value of Hostile M&As Worldwide
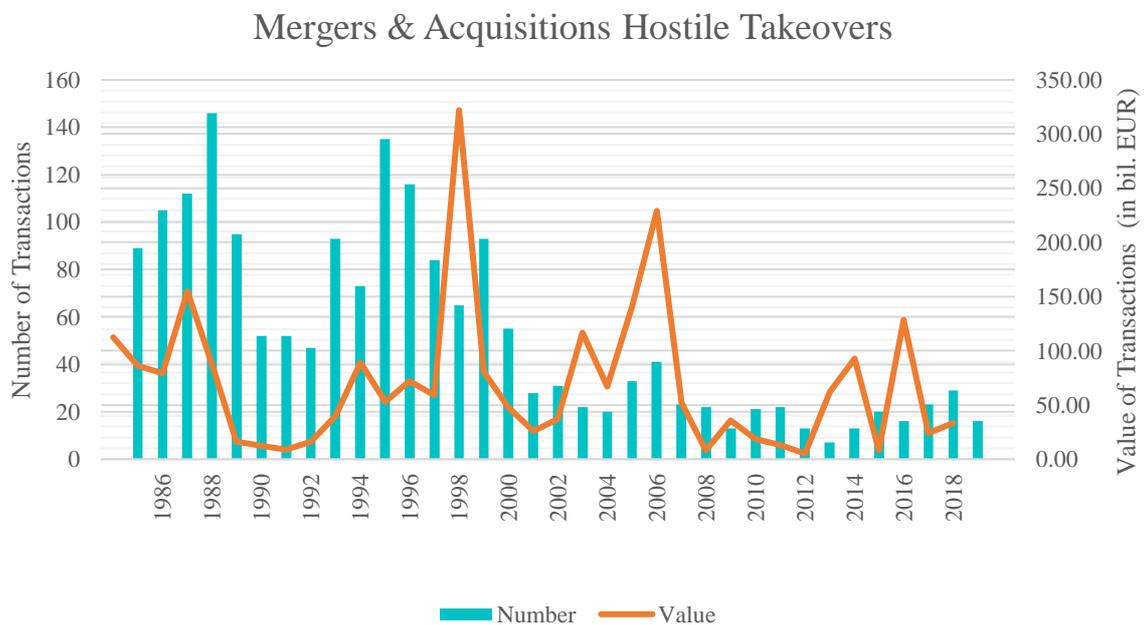
Mergers & Acquisitions Hostile Takeovers

The data and graph are provided by Institute for Mergers, Acquisitions and Alliances (IMAA; 2020).

.2.2 The European Context and Regulatory Setting

The European context allows for analysis of numerous countries with the same accounting standards and partially common regulation. Moreover, it allows examination of countries that

are less analysed in current research and comparison of the widely spread results about Anglo-Saxon countries. Within European countries, different regulations can affect the takeover outcome (e.g., abnormal return around the announcement, method of payment, the attitude of the transaction) depending on the country of residence of the target firm. In terms of legal systems, the United Kingdom (which has the largest corporate control market in Europe) and Ireland are based on common law, while Continental European countries are based on civil law, which impacts investor protection differently (La Porta et al. 1999). Common law ensures better investor protection, positively affects the company valuation and growth potential and decreases agency costs (Levine 1999; La Porta et al. 2002; Himmelberg et al. 2004). The second major difference between the United Kingdom and Continental Europe is the corporate ownership structure. In the United Kingdom (similarly to the US), ownership is widespread, which allows for a higher number of hostile takeovers, while in Continental Europe, ownership is more concentrated (Faccio and Lang 2002). Majority shareholders, which are more present in Continental European firms, may act as an additional monitor for management to ensure that takeover decisions are efficient, but they may also use their control over the management to expropriate minority shareholders (Morck et al. 2005; Faccio and Stolin 2006). Martynova and Renneboog (2011) examine the differences between the corporate control markets in the United Kingdom and Continental Europe during the period from 1993 to 2001. They observe that in Continental Europe, acquisitions of partial control and takeovers with undisclosed transaction terms are more frequent than in the United Kingdom. Moreover, in the United Kingdom corporate control market, hostile takeovers and tender offers are more likely. Finally, the better investor protection in the United Kingdom seems related to higher returns for target shareholders than Continental Europe shareholders. More generally, Rossi and Volpin (2004) observe that target firms of cross-border transactions are more likely to reside in countries with poorer investor protection compared to the acquirers. They also report that the acquisition premium is higher in countries with higher shareholder protection, but this result is driven by Anglo-Saxon countries.

.2.2.1   The Regulatory Setting that Can Influence M&A

In terms of regulation, the European Union (EU) established three strategies to facilitate the M&A activity within its member nations: industry de-regulation, common currency and legal framework (Moschieri and Campa 2014). Since the 1980s, the European Commission has aimed to liberalise some industries that have generally been state-owned (Campa and Hernando 2004). Nevertheless, national governments still retain the power to interfere in the free market

in some specific fields (e.g., transportation, communications, electricity and gas), which has led to lower abnormal returns around M&A announcements for these industries than for unregulated industries (Campa and Hernando 2004). Second, the introduction of a common currency in 2002 created a more liquid capital market, with new sources of financing, and it reduced the currency risks for intra-EU cross-border M&A (Martynova and Renneboog 2006). This characteristic is important, because in Europe, the proportion of cross-border bids settled in cash only is higher than in the US (Hagendorff et al. 2008). Finally, the EU has aimed to set a harmonized legal framework for the M&As market, including strengthening shareholders' rights (European Parliament and Council 2004, vol. 142 OJ L). However, differences in the national systems of takeover regulation persist (Clerc et al. 2012; Humphery-Jenner 2012). Moschieri and Campa (2014) observe that these differences are principally due to structural characteristics transmitted from past regulations and the environment, such as concentrated ownership, governance structure and bank dependence. These characteristics influence the attitude of the transaction, the method of payment and the likelihood of deal completion. The disparities are exacerbated by the fact that each member state regulates M&As, which must comply with EU regulations. The aim of the Takeover Directive (European Parliament and Council 2004, vol. OJ L 142,) is to increase the mobility of companies within the EU. Despite the aim to harmonize European regulation, the discretion left to local government in the application of the latter has led to divergences between countries (Clerc et al. 2012). For example, the threshold for the mandatory bid may vary between 30% and 50% of voting rights; moreover, some countries allow for derogations to the mandatory offer. Additionally, some differences are present in the way the equitable price is set for the mandatory offer. The minimum price must correspond to the highest price paid by the bidder over a period ranging from 6 to 12 months before the bid, but the range period is decided by the country. Similarly, the threshold for the squeeze-out right can vary between 90% and 95% of the voting rights depending on the country. Wang and Lahr (2017) examine the effect of takeovers on shareholders' wealth in the EU between 1986 and 2010. In their analysis, they examine six takeover provision laws: ownership disclosure, mandatory bid, fair price for minority shareholders, squeeze-out rights, sell-out rights and management neutrality. They observe that a stricter regulation increases the combined announcement returns by 4.5 percentage points when transitioning from a weak to a high shareholder protection environment. Individual provisions, such as the mandatory bid rule and ownership disclosure, are the most influent provisions to increase synergistic gains. Moreover, a stricter regulation seems to also reduce the time of completion of a deal. However, Humphery-Jenner (2012) observes findings

suggesting an increase in the entrenchment of managers in the EU after the introduction of the Takeover Directive (TD). The results show a lower market reaction to the takeover announcement, a longer time for deal completion and a shift from cash payment to stock-based payment. Clerc et al. (2012) observe that harmonisation is difficult because of the discretion allowed in the application of the rules. They also observe that countries outside the EU have introduced similar legislations to those of the EU (e.g., Switzerland, Russia, etc.). Finally, the authors observe weak results about a positive relationship between the directive and the cumulative abnormal returns around M&A announcements.

Lastly, Bozos et al. (2014) find that IFRS adoption within EU countries (European Parliament and Council, vol. 243 OJ L) is associated with lower premiums, and the effect is stronger for target firms that are mandatory adopters and in countries where the local GAAPs are most different from IFRS. The authors argue that IFRS adoption decreases information asymmetry for the acquiring firms. The increase of transparency helps bidders make offers closer to the fair value of the firm, which reduces the scope of overpayment.

.2.2.2   The Regulatory Setting that Can Influence EM

The European context allows for examination of different countries that follow the same regulations, although some differences in the enforcement and application of the regulations persist. The regulatory change in Europe most considered in literature is IFRS adoption. However, other regulatory changes have been adopted around the introduction of mandatory IFRS that could affect the usage of EM directly or indirectly (e.g., the TD, Market in Financial Instruments Directive [MiFID], etc.). Moreover, part of the literature argues that the introduction of mandatory IFRS is not enough to increase accounting quality. The increase in the accounting quality only occurs through a strong enforcement of the new regulation (Ball et al. 2003; Dao 2005; Ball 2006; Ding et al. 2007; Barth et al. 2008; Daske et al. 2008).

The EU has worked to harmonise corporate reporting, corporate governance, the audit process, supervision bodies and collaboration between countries. Furthermore, the EU has made efforts to increase the enforcement of regulations in EU countries (Daske et al. 2008). First, in 2002, the European Commission declared that all EU listed companies must use IFRS (European Parliament and Council, vol. 243 OJ L). Nevertheless, Regulation (EC) No 1725/2003 rules that the International Accounting Standards (IAS) are not adopted completely, because IAS 32 and IAS 39, about financial instruments, were excluded (European Parliament and Council 2003, vol. OJ L 261). This implies that, when implemented in 2005, the accounting standard adopted was the '*IFRS as adopted by the EU*'. In 2004, the EU endorsed the IAS 39 with two

carve outs (i.e., provisions on the use of full fair value option and hedge accounting), and finally, in 2005, the amended IAS 39, with a restricted fair value option, was endorsed by the EU (European Parliament and Council 2008, vol. OJ L 299).

In 2013, the EU adopted the Accounting Directive (European Parliament and Council 2013, vol. OJ L 182) with the aim to present financial statements that reflect the true and fair view of firms. Specifically, the directive's goal was to ease international investment, facilitate comparison and increase trust in financial statements. The Accounting Directive legislates the reporting requirements for firms, from micro-companies to large companies.

In 2004, the TD was introduced (European Parliament and Council 2004, vol. OJ L 390) with the aim to equally inform all investors across Europe. The main points introduced were the biannual financial report, the obligation to disclose major changes in the holding of voting rights and the obligation to treat the shareholders equally when disclosing information that could affect the stock price (European Securities and Markets Authority 2020). The member states had until January 2007 to implement such directives. In 2013, a new version of the TD was amended (European Parliament and Council 2013, vol. OJ L 294) with the aim to reduce the administrative burden on smaller issuers (e.g., cancellation of the obligation to issue interim reports) and improve transparency (European Commission, 2013). Despite the divergences in corporate governance regulations between countries, the EU has made improvements to converge member states' legislations (Naciri, 2008). In 2003, the EU had already started planning how to modernise and simplify the regulatory framework and corporate governance in the EU, with the aim of enhancing efficiency and competitiveness of businesses and strengthening shareholders and third parties' rights (Commission of the European Communities, 2003).

In 2007, the Market in Financial Instruments Directive (MiFID) entered into force (European Parliament and Council 2004, vol. OJ L 145) with the aim to increase investor protection and protect market integrity. After the financial crisis of 2008, the EU wanted to strengthen regulation regarding shareholders' protection, and in 2014, the MiFID II and the Market in Financial Instruments Regulation (MiFIR) (European Parliament and Council 2014a, vol. OJ L 173; European Parliament and Council 2014b, vol. OJ L 173) was introduced. The new directive requires companies to provide more information (new reporting requirements and tests). Moreover, the investors' protection is increased through higher requirements for governance and the responsibility of management bodies; incentives; information and reporting to clients, cross-selling, remuneration of staff, and best execution (European Securities and Markets Authority 2019).

In 2006, the EU adopted a directive about the auditing of company accounts (European Parliament and Council 2006, vol. OJ L 157). The aim of this directive was to ensure the independence and ethics of statutory auditors, secure better public supervision over the auditors and improve cooperation between the supervision bodies of different member states. Some of the key points are the requirement to establish an audit committee composed by non-executive members and at least one financial expert, the disclosure of audit fees (for audit and non-audit services) and the independence and objectivity of the auditor. Nevertheless, similar to other EU directives, the member states have discretion in the implementation of some features, for example, the obligation to rotate the key auditor within seven years (Quick et al. 2007). In 2014, the directive was amended by the Directive 2014/56/EU (European Parliament and Council 2014, vol. OJ L 158). The aim is still to increase the audit quality, transparency and audit supervision. The new directive requires more detailed and informative audit reports and a stronger monitor from audit committees. This new directive introduces mandatory rotation for public interest entities (enforceable from 2020), exclusion of certain non-audit services from the audit and a cap amount on permitted non-audit service fees (European Parliament and Council 2014a, OJ L 158; European Parliament and Council 2014b, vol. OJ L 158).

Finally, the Shareholder Rights Directive (SRD; European Parliament and Council 2007, vol. OJ L 184) aims to encourage and facilitate shareholder engagement in the long-term. In 2014, the directive was amended by the SRD II (European Parliament and Council 2017, vol. OJ L 132). The main points are the identification of shareholders, facilitation of the exercise of shareholders' rights, support of transparency for intermediaries (asset managers and proxy advisers), public disclosure by institutional investors and the right to vote on directors' remuneration.

Overall, the regulation adopted by the EU starting in the 2000s has been meant to increase the amount and the quality of the information provided and add additional control to the firms.

.2.3 Merger and Acquisition Determinants and Transaction Characteristics

Gaughan (2015) lists the determinants for M&A activity as growth and synergies, diversification, horizontal and vertical integration, hubris hypothesis, improved managers, improved R&D, improved distribution and tax motives. Alternative definitions are also provided with different degrees of detail. For example, Powell (1997) proposes three main views about the determinants of M&A activity. The first appears when the management is not efficient and the takeover replaces the inefficient management to maximise value (Morck et al. 1988). In the second, M&As activities exploit the synergies between the two firms to create

value. The last view considers bidders' managers that act on their own interest and buy firms to 'build an empire', also called managerial hubris (Roll 1986). The motivation for entering into a M&A transaction can, therefore, affect the target manager's opinion about the deal. Indeed, if the target manager perceives the deal as motivated by disciplinary motives, it can act differently than if they perceive it as motivated by the exploitation of synergies (which also influences the attitude of the transaction).

As Morck et al. (1988) suggest, the characteristics of the target firms may differ depending on whether the takeover is disciplinary or synergistic. Because it is likely that the manager's behaviour towards the takeover will be different depending on the motivation of the transaction, they suggest that the target manager behaviour can be related to the firm's characteristics. Morck et al. (1988) simplify the distinction between disciplinary and synergistic takeovers with the attitude of the transaction. They observe that friendly targets have a higher managerial ownership, the probability of an acquisition raises with managerial ownership, and the presence of a founding family is negatively related to hostile bids. In terms of firm characteristics, hostile takeovers have a lower Tobin's q compared to industry peers, while friendly targets are younger and fast-growing firms compared to non-target firms. Similarly, Powell (1997) distinguishes hostile target characteristics to friendly target characteristics. Hostile targets seem to be targeted by disciplinary takeover (i.e., lower profitability and higher free cash flow), while friendly targets have higher leverage, smaller sizes and higher tangible fixed assets. Finally, the target's management of friendly deals appears to usually hold the position in the combined firm (Dahya and Powell 1998; Morck et al. 1988), and Healy et al. (1997) show that acquirers are typically willing to pay less for friendly takeovers compared to hostile ones. The determinant for a M&A seems to influence the attitude of the transaction, and the attitude of the transaction is likely to influence the choice (or the ability) to manipulate and the direction of the manipulation.

In addition to the attitude of the transaction, other transaction characteristics can have a significant effect on the acquirer, the target shareholders and the EM motivation. These transaction characteristics are the method of payment, industry relatedness and geographic scope. First, the method of payment can take the form of cash, equity or a combination of the two. The main distinction between cash and equity payment is how the risk is shared between the target and the acquirer's shareholders. Existing literature bent over the motives that push the acquirer to choose one method of payment over the other. Most of the studies argue that the acquirer will choose the equity payment when there is high information asymmetry to share the

risk (e.g., Myers and Majluf 1984; Hansen 1987; Fishman 1989). The choice of financing is not only dependent on perception of risk, but it is also influenced by the credit market condition and the liquidity levels (Martynova and Renneboog 2006; Jackson and Miyajima 2007).

Second, the literature about the industry relatedness principally focuses on the acquirer affects with mixed evidence. The combined announcement returns from a diversifying deal announcement are generally positive (e.g., Graham et al. 2002; Villalonga 2004; Akbulut and Matsusaka 2010), but the returns have decreased over time (Akbulut and Matsusaka 2010). The industry relatedness can affect the EM strategy of the target firms. Indeed, the managers can be more afraid to be replaced because the acquirer's management already holds the industry experience and knowledge. Additionally, the acquirer is more likely to be able to detect EM in an industry-related acquisition than in a non-related M&A because of its specific knowledge.

Third, cross-border deals literature shows mixed evidence about the effect on the acquirers' shareholder wealth (e.g., Goergen and Renneboog 2004; Gregory and McCorriston 2005; Moeller and Schlingemann 2005). Moreover, part of the wealth gains seem to be related to contextual conditions, such the shareholders' rights protection, corporate governance and legal regimes of the target country (e.g., Rossi and Volpin 2004; Martynova and Renneboog 2006). As with the effect of industry relatedness on EM, cross-border deals can increase the information asymmetry for the acquirer regarding the accounting practices in the target country. Moreover, the target management may hold important knowledge of the national market and the culture that the buyer wants to retain.

.3   Structure of the Thesis

The remainder of this thesis is organised as follows. Chapter 1 investigates whether target firms manage the earnings before friendly takeovers. Moreover, it analyses the consequences of EM on the deal's premium. To examine EM in the year preceding the deal announcement in Europe during 2005–2015, three detection models measuring abnormal accruals and three models for measuring REM are used. Empirical findings document an income-decreasing EM for target firms the year prior to the announcement. Furthermore, a negative association between the downward manipulation and the premium offered by the acquiring firm is observed. The results withstand several sensitivity tests.

Chapter 2 seeks to understand whether the EM of target firms of friendly M&As is related to the target CEO's retention rate around the deal. Using archival data from a European sample of 174 M&As, the empirical analysis indicates that downward AEM is associated with higher CEO retention, but only for acquisitions that were completed. However, the results do not

suggest that target managers manipulate downward to trade-off their position with premium. Overall, the results suggest that CEOs of target firms do not seem to select opportunistic accounting choices; that is, they manage downwards to please the acquirer, increase the likelihood of retaining their CEO position, but do not harm target shareholders.

Chapter 3 investigates the impact of EM on analysts' forecast accuracy before 387 friendly M&A. Empirical findings first document that forecast accuracy of target firms is not affected by EM measures, while there is a negative relationship between EM of non-target firms and forecast accuracy. Overall, the results suggest that EM before friendly takeovers does not mislead the market participants. The results withstand several sensitivity tests, supporting the hypothesis that target firms do not change their disclosure policy to hide information despite downward manipulation.

Lastly, the conclusion summarises the results observed in the three studies and analyses the motivations for EM before a friendly M&A by triangulating the evidence of the studies.

• **Chapter 1: The Impact of EM on the Acquisition Premium**[10]

.1 Introduction

Several studies have investigated managers' incentives for managing earnings before M&A transactions. Previous literature suggests that the type of acquisition (hostile vs. friendly) drives EM policy. With hostile takeovers, as managers do not agree with the acquisition, they may strive to convince the current shareholders that the firm's performance is sufficient. In doing so, they may then opt for income-increasing accounting procedures (Easterwood 1998; Erickson and Wang 1999; Guan et al. 2004). The earnings policy choice raises more debate in the case of friendly takeovers. Some authors advocate that target managers strive to decrease the premium for the acquirers (Perry and Williams 1994; Ben-Amar and Missonier-Piera 2008). They are, therefore, more likely to choose an income-decreasing procedure. Alternatively, other articles consider that management may try to maximise the wealth of the target shareholders and then select an income-increasing accounting procedure so as to increase the acquisition premium (Erickson and Wang 1999; Campa and Hajbaba 2016; Vasilescu and Millo 2016).

Outside the EM literature, some authors also examine the behaviour of managers around M&A transactions. They advocate that target managers are likely to act opportunistically to trade the target shareholders wealth for private benefits (e.g., Hartzell et al. 2004; Wulf 2004; Moeller 2005; Fich et al. 2011; Fich et al. 2013; Qiu et al. 2014). If target managers behave opportunistically around M&A transactions, it is likely that they will manage the earnings accordingly. Hence, it is assumed that opportunistic managers downward manipulate to decrease the cost of acquisitions. Alternatively, it is assumed that efficient managers manipulate the earnings to ease the transaction without harming the target shareholders and respect their fiduciary duty.

This study investigates the impact of EM practices on the premium offered in the case of friendly takeovers.[11]

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[10] This chapter is partially based on a working paper co-authored with Prof. Dr. F. Missonier-Piera.

[11] To the best of the author's knowledge, these opposite advocated associations have not been empirically tested. Only a few papers observe a negative relationship between the acquisition premium and EQ, partly proxied by the absolute value of abnormal accruals (Skaife and Wangerin 2013; Raman et al. 2013; McNichols and Stubben 2015). However, the sign of EM is not taken into account.

The analysis is based on a sample of 578 European firms that have been subject to an acquisition or acquisition attempt during 2005–2015. Earnings management is identified with abnormal accruals and abnormal real activities in the annual report immediately preceding the acquisition announcement. Three exchangeable models for AEM detection are employed (Dechow et al. 1995; Kothari et al. 2005; Larson et al. 2018), as well as complementary models proposed by Roychowdhury (2006) for detecting REM. The empirical results indicate that European target firms manage their earnings downward, both through accruals and real EM, which suggests that target firms may facilitate the acquisition process from the acquirer's viewpoint. The analysis also reveals that EM (the year before the announcement) affects the deal premium. That is, most abnormal accruals and REM proxies are negatively associated with the premium. Moreover, target firms with negative abnormal accruals benefit from 9% higher premiums. Overall, results seem to support the hypothesis of efficient employment of EM by target managers before M&A announcements.

This study contributes to the literature by providing empirical evidence of the impact of EM on M&A deals' premiums in the European setting. The study's findings suggest that (1) as soon as target managers anticipate the deal, they start to manage earnings downward. However, because real activity manipulation needs time, managers seem to focus mainly on discretionary expenses (compared to production costs and operating cash flows). At year-end, managers amplify downward manipulation through accruals to facilitate the transaction. (2) The negative relation between EM and the premium suggest the exclusion of managerial opportunism in the EM strategy of target firms of friendly takeovers. Despite evidence of downward manipulation that confirms the results of previous literature, it is observed that these accounting and real choices do not negatively affect the wealth of the target shareholders. The negative association is explained by what seems an efficient managerial behaviour, which also has a positive effect for the acquirer. First, downward manipulation allows for the reversal in the post-acquisition period (especially for abnormal accruals). Second, the downward EM observed can be the result of conservative accounting choices that reduce the risk of litigation in the M&A context where the scrutiny and risk of litigation is high. Third, target managers want to clean the balance sheet and free it from past burden. (3) Finally, a question is raised about whether the few studies that link (EQ) and premiums (Skaife and Wangerin 2013; Raman et al. 2013; McNichols and Stubben 2015) cannot be explained (at least partially) by downward manipulation. Nevertheless, the analyses about the effect of EM on the deal completion do not support this conclusion. Indeed, EM seems to decrease the likelihood of deal completion. This result may

be explained by the third parties involved in the transaction that may misunderstand the intent of EM (e.g., auditors, shareholders, etc.).

The remainder of this chapter is organised as follows. Section 2 summarises the previous literature dealing with managerial motivations around M&As and exposes the hypotheses. Section 3 presents the study's research design. The empirical results are discussed in sections 4 and 5, followed by the conclusion.

.2 Literature Review

.2.1 The Effect of EM on Market Valuation

The first expected consequence of the accounting choices in the context of M&As is the impact on the cost of the acquisition. The cost of the acquisition reflects the market value of the firm plus the possible synergies that the combined companies are expected to do. In this subsection, a review of whether the literature observes that EM is priced by the market and under which conditions is made. Furthermore, the effects of EM prior to certain corporate events, such as initial public offerings (IPOs), SEOs, stock-for-stocks acquisitions and stock repurchases, are reviewed. There is widespread literature about the pricing of EM and especially on abnormal accruals. The focus here is to review whether the market is affected by the information provided in the financial statements, including the EM. Sloan (1996) shows that investors do not fully integrate the information contained in accruals and cash flow components but mostly consider the current earnings. According to these results, investors are not able to fully distinguish EM. Xie (2001) extends these findings by showing that the market overprices abnormal accruals. In fact, it seems that the market overprices abnormal accruals because investors overestimate the persistence of abnormal accruals. However, the market seems not to misprice the normal part of accruals. By contrast, Subramanyam (1996) shows that the market positively values abnormal accruals, which smooth the income and improve earnings persistence. Similarly, Press and Paek (1997) find that the pricing of abnormal accruals is positive if the manipulation is in the interest of investors (i.e., income-smoothing or income-increasing choices to avoid debt covenants). Alternatively, they show that the market reacts negatively to accounting choices that are related to managerial compensation. Correspondingly, Chen and Cheng (2002) decompose abnormal accruals in opportunistically motivated (i.e., meets analysts' forecast, avoids losses, increases bonuses, etc.) and signalling motivated choices. Their results show a negative relationship between abnormal accruals related to opportunism and future abnormal

returns, while they exhibit a positive relationship between abnormal accruals related to signalling and future abnormal returns. Francis et al. (2005) observe that firms with poor accruals quality experience a larger earnings-price ratio than comparable firms in the same industry. Moreover, they find that low accrual quality firms have a significantly higher cost of equity than high accrual quality firms. More importantly, they show that innate and discretionary accruals are not priced in the same manner by the market. Indeed, the market seems to recognize the higher information risk that represents discretionary accruals. Similarly to previous literature, Chan et al. (2006) also note the predictive power of accruals for stock returns. Furthermore, they try to explain the motive of stock return predictability by accruals, and they determine that the reason is EM. Li and Hwang (2018) observe that when the stock price of the firm increases, the EM is priced positively by the investors, while when the stock price decreases the relationship between the discretionary accruals and the share price is negative.

Some authors extend the literature about abnormal accruals pricing, examining EM around firm-events, which can have some similarities with target firms' manipulation around M&A announcements. Teoh, Welch, et al. (1998a) examine firms making an SEO. They are more likely to have upward accounting manipulations in pre-issue than comparable firms and inversely in the post-issue period. Indeed, the authors observe current discretionary accruals in the pre-issue period, which are related with the post-issue underperformance and post-issue negative stock returns. Rangan (1998) observes a comparable effect, where the SEO firms are temporarily overvalued due to AEM, and because of the reversal, they suffer from a lower performance in the post-SEO period. Kim and Park (2005) exhibit a direct link between EM in the pre-offer period and the offer price, suggesting that managers act opportunistically before the SEO to maximise issuer wealth. Cohen and Zarowin (2010) observe the same pattern for REM, which causes the post-SEO operating performance of the issuing firm to decline even more than AEM. Similarly, Roychowdhury et al. (2012) document the employment of both AEM and REM before SEO to overvalue the firm; moreover, they observe a link between the stock underperformance and the REM level. Shivakumar (2000) finds evidence of EM before SEO, but he finds no evidence of a relationship between abnormal accruals and long-term performance for post-SEO firms. However, he does find a negative relation between the pre-announcement EM and the stock price reaction to the announcement, which is consistent with the hypothesis that investors fully infer the EM and undo it during the equity offering announcement. He suggests that managers anticipate the behaviour of investors who discount the stock price of the firm announcing an SEO because of the suspected EM. Hence, according

to market expectation, managers inflate the earnings to not be undervalued after the announcement.

In the context of IPOs, Teoh et al. (1998) find results consistent with opportunistic manipulation prior the corporate event to sell overvalued shares. Moreover, in the post-IPO, the authors observe unusually low earnings due to the reversal of accruals and that abnormal accruals predict post-IPO underperformance in the three years after the issue. They also observe that firms that manipulate the earnings more aggressively before the IPOs have a significantly lower cumulative abnormal return in the post-IPO than firms with the lowest magnitude of manipulation. DuCharme et al. (2004) document a negative relationship between the abnormal accruals before the IPO and the post-issue stock returns, which is positively related to the likelihood of litigation.

Similarly, but for the stock swap acquisition, few authors show a negative relationship between abnormal accruals and long-term stock performance for the stock-for-stock acquirers (Erickson and Wang 1999; Louis 2004; Botsari and Meeks 2008; Higgins 2013). They suggest that acquiring firms inflate the stock price to reduce the cost of the acquisition and show that the reversal of the abnormal accruals is a determinant of short and long-term underperformance for stock-for-stock acquirers. The only contrasting evidence is documented by Heron and Lie (2002), who do not observe any EM for acquiring firms, even when they pay in stocks. However, they find that acquiring firms outperform comparable firms in the same industry in the pre-acquisition period.

Gong et al. (2008) study EM in the context of stock repurchases. They exhibit that post-repurchase abnormal return and operating performance is – at least in part – driven by accruals reversal of EM in the pre-repurchase period. Moreover, there is a negative relationship between the magnitude of the downward EM and the percentage of managerial ownership. It seems to suggest that managers act opportunistically to decrease the repurchase price. Similarly, Rodriguez and Yue (2008) observe downward manipulation prior to the stock repurchase announcement, which is related to positive stock return in the post-repurchase period. Moreover, downward abnormal accruals seem incorrectly interpreted by analysts, who are over-pessimistic with these firms, leading to positive earnings surprises in the post-repurchase period. Finally, the magnitude of manipulation is positively related to managerial ownership.

Together, these results suggest that it is possible to extrapolate the performance given the previous EM. However, it seems that investors are unable to fully understand the earnings choices of managers; hence, they can be misled by EM on some occasions. The existing

literature documents a recurring pattern that negatively associates EM (both AEM and REM) with stock returns or operating performance.

.2.2 Merger and Acquisition Activity and EM Detection

Prior literature has identified events that may lead to opportunistic accounting choices, the real activities or the reporting choices (IPOs, SEOs, stock repurchases, etc.). Among them, M&As are situations that may trigger particular EM practices. Because of the multiple takeover motives, M&A characteristics and determinants that may coexist, the expectations about EM are difficult to predict. An examination of the determinants and consequences can help define the context of M&As and clarify the motivations of target management to manipulate. Existing literature on EM in the M&A context has identified multiple determinants which could influence the outcome of the takeover (e.g., attitude of the acquirer, method of payment, number of bidders and method of sale). However, the attitude towards the transaction has often been advocated to be the key determinant in understanding the motivation for managers to engage in EM. The three main groups of M&As examined in the literature are hostile takeovers, friendly takeovers and MBOs.[12] Each category could influence target firms' accounting choices differently. This separation allows better outlining and summarizing of the different motivations and results of empirical research.

The management of a hostile takeover target company is supposed to select accounting procedures that may increase the value of the firm (Easterwood 1998; Erickson and Wang 1999; Guan et al. 2004). This makes the transaction more expensive for the acquirer. Moreover, hostile takeovers are generally 'disciplinary' because of prior management inefficiencies (Morck et al. 1988; Healy et al. 1997). Managers of targeted firms are more likely to be removed if the transaction is completed. To convince the current shareholders to reject the offer, target managers may select accounting procedures that increase the value of the firm as a defence mechanism (Easterwood 1998; Erickson and Wang 1999; Eddey and Taylor 1999; Guan et al. 2004).

In the US context, studies from Easterwood (1998) and Guan et al. (2004) provide evidence suggesting upward manipulation by management of the hostile takeover target. These findings are detected in different moments prior to the takeover. Easterwood (1998) finds results

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[12] Even if MBOs are fundamentally friendly takeovers under the definition used in this thesis, they fall under a separate category due to the particular nature of the acquirer.

suggesting upward manipulation in the quarter prior to initiation, while Guan et al. (2004) detect EM the year prior to the transaction. The results of Easterwood (1998) are based on target firms of tender offers in the period between 1985 and 1989 for a sample of 57 hostile takeover targets and 53 friendly takeover targets. She exhibits upward manipulation for the sample of hostile target firms only. The models employed to compute abnormal accruals are the DeAngelo model and the modified Jones model using time-series data. In her analysis, she considers the partitioning scheme problem raised by Dechow et al. (1995), where the authors find that high performance correlates with high accruals. However, in her sample, the income-increasing choices made by hostile target firms may not be driven by high performance, because descriptive statistics show lower performance than control firms. Guan et al. (2004) observe income-increasing accounting choices the year before the initial tender offer. Their sample is based on 106 US target firms during the period from 1990 to 1998. The evidence of upward manipulation holds after controlling for confounding factors that the modified Jones is not able to explain. Finally, Eddey and Taylor (1999) report no evidence of upward manipulation prior to the takeover bid. Contrary to expectations, they exhibit evidence of downward manipulation for a sample of 19 hostile target firms traded on the Australian Stock Exchange from 1986 to 1991. The authors explain these results by the poor performance of the hostile target firm before the takeover attempt compared to industry peers. To confirm their results, the authors disaggregate the accruals to better understand whether all the accrual components consistently decrease the earnings.[13] Results show that the majority of accrual components behave consistently with upward manipulation, but the large negative unexpected current asset accruals dominate the upward unexpected accruals. Hence, only one component of accruals leads to downward manipulation results. Furthermore, they regress the EM measures to the director recommendation (binary variable hostile-friendly) after controlling for the bid premium. The findings do not support the hypothesis that EM is associated with the attitude of the transaction. Nevertheless, their results are based on a small sample, and the regression may suffer from omitted variable bias.

Earnings management in the context of MBOs has also been widely investigated because of highly suspected opportunistic behaviour, even though it represents a much smaller market than hostile or friendly takeovers. On one hand, management of MBO firms may be motivated to engage in downward manipulation prior to the takeover announcement to lower the price of the

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[13] The unexpected accruals (change in accruals over time) are separated into components following Bernard and Skinner (1996).

transaction (DeAngelo 1986; Perry and Williams 1994). On the other hand, managers may choose to increase the earnings to show lenders their managerial skills and ultimately facilitate the borrowing process of the necessary amount (Fields et al. 2001; Fischer and Louis 2008). Besides DeAngelo (1986), the studies find evidence of downward manipulation prior to MBOs (Perry and Williams 1994; Wu 1997; Begley et al. 2003; Fischer and Louis 2008; Mao and Renneboog 2015). DeAngelo (1986) examines the framework in which the management buyouts are made, the actors involved and the possible motivations. To alleviate the appearance of opportunism, managers generally hire an investment bank to independently value the firm. Nevertheless, she reports that MBOs are likely to generate litigations with the shareholders because of the asymmetry of information. She also underlines the importance of earnings in both fairness opinion and courts to judge the fairness of the acquisition price. Two other control mechanisms are in place for MBOs: the scrutiny of the US Securities and Exchange Commission for disclosure of going-private firms and the competition in the M&A market. However, the effectiveness of such measures seems limited, mainly for the competition in the M&A market, since one-third of the sample examined has a pre-bid majority control. Her analysis is based on 64 MBOs that went private during the period between 1973 and 1982. Results do not show any accruals manipulation. The results of DeAngelo (1986) might be due to the specifications of the model used, which is less sophisticated than those used by authors who did find evidence of manipulations. Indeed, Wu (1997) finds positive results when applying the Jones industry-based model on the same sample as DeAngelo (1986). Begley et al. (2003) find that both corporate governance and market mechanisms are insufficient to eliminate the manipulation of accounting data. However, they detect that firms targeted by outsiders have more severe downward manipulation than firms targeted by managers. Moreover, they observe that firms with severe manipulation have higher premiums. Consistent with the hypothesis of upward manipulation due to financing proposed by Fields et al. (2001), Fischer and Louis (2008) find that external financing for managers is negatively related to the presence of negative abnormal accruals. Nonetheless, Mao and Renneboog (2015) do not find any evidence supporting this relationship. The authors explain that this difference may be due to the timing of the credit market of their analysis, which allows easier borrowing conditions.

Friendly takeovers have been less frequently analysed by EM literature, despite the recent increase in friendly M&As.[14] They usually involve long negotiations between the target and the

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[14] Particularly in the period when hostile takeover activities were more common (Moeller 2005).

acquirer, but the literature diverges regarding the timing allowed to manipulate the earnings prior to a friendly takeover. Erickson and Wang (1999), Skaife and Wangerin (2013) and Anagnostopoulou and Tsekrekos (2015) suggest that the management might not have enough time to prepare the manipulation starting from the bid of the acquirer. However, Boone and Mulherin (2007) find that almost half of the acquisition process starts on the target's side, which implies that target firms potentially have enough time to manage their earnings. They also provide two examples (Blount Inc. and BankBoston) of friendly takeovers that exhibit private negotiations beginning at 8 months and 11 and a half months, respectively, before the public announcements. Moreover, managers may have the ability to suspect whether their firm could be a potential target of a M&A by analysing different factors. Their superior knowledge of the firm and the market in which they operate allows them to understand if the firm is undervalued and whether the M&A market is inclined to M&A activity (interest rate, actual merger wave, industry necessity for concentration, competitors' needs of external growth, etc.). Grossman and Hart (1980) suggest that target managers anticipate a possible bid by 'toehold purchases' (i.e., when potential bidders acquire less than 5% of a target company). Finally, informal talks may start before the official negotiation between boards and top management members of the two companies when they know each other (e.g., Cai and Sevilir 2012; Ishii and Xuan 2014; Renneboog and Zhao 2014).

Another subset of the existing literature assumes that target firms do engage in income-increasing accounting choices prior to the acquisition to maximise the premium for shareholders and/or to attract more potential buyers (Erickson and Wang 1999; Campa and Hajbaba 2016; Vasilescu and Millo 2016). However, some authors suggest that firms may engage in income-decreasing accounting choices before a M&A to ease the transaction (Eddey and Taylor 1999; Ben-Amar and Missonier-Piera 2008).

Confirming the divergent hypotheses in the literature about the direction of the manipulation, empirical studies also show mixed results. Eddey and Taylor (1999) examine 24 firms traded on the Australian Stock Exchange during the period 1986–1991 and do not find statistically significant results of downward manipulation. Similarly, Erickson and Wang (1999) test and observe whether acquiring firms manipulate the income upward to pay less stock-for-stock transaction costs. Nevertheless, the authors find no evidence of manipulation for target firms; they suggest that target firms do not have enough time to prepare such manipulation and litigation risk is high prior to a M&A.

Alternatively, Ben-Amar and Missonier-Piera (2008) analyse a sample of Swiss target companies between 1990 and 2002 and conclude that earnings are manipulated downward

during the year prior to the announcement. Moreover, they find that the determinants that affect accrual earnings manipulation are only the takeover activity and timing of the M&A. Other control variables often employed in the literature (including leverage, firm size and return on equity [ROE]) do not seem to have an impact on the magnitude of abnormal accruals. Chen et al. (2016) empirically support the idea of the EM reversal to artificially increase the post-performance of the combined firm. Indeed, they observe that EM of the target firm after the announcement date and before the deal completion is related to the performance of the acquirer in the post-merger period. Anagnostopoulou and Tsekrekos (2015) focus on US firms that sought to be acquired during the period 1990–2009. The choice of this particular sub-sample comes from the assumption that the management potentially has more time to prepare the manipulation before an acquisition. Their specific sample of firms appears to be more levered and distressed; they have a slower growth, are less liquid and have worse performance compared to non-target firms. The authors assume that downward EM can be employed to increase attractiveness and facilitate the sale of assets by reporting all bad news before the acquisition. The results confirm that firms engage in a downward manipulation through AEM starting two years before the announcement. Moreover, they find that abnormal accruals are positively related to abnormal market returns around the announcement of seeking a buyer. However, firms engaged in EM activities have a lower chance of being acquired after the announcement. They suggest that bidders avoid opaque earnings disclosure. Similarly, Anagnostopoulou and Tsekrekos (2013) examine downward manipulation at firms seeking a buyer in a European sample. They find that downward EM is more prominent in countries with more competitive corporate control markets. Moreover, they find a positive relation between EM and abnormal returns around a 'seeking a buyer' announcement. By contrast, Campa and Hajbaba (2016) find evidence suggesting that target companies are more likely to engage in income-increasing REM if the payment of the transaction is settled in cash. This behaviour has a negative impact on the post-performance of the acquiring firm because of the reversals. They also suggest that because of high scrutiny during the due-diligence, the target firms do not engage in any accrual-based manipulation.

Recent studies examine the impact of EQ on M&As, considering, among other things, the magnitude of abnormal accounting choices. The issue of these studies in the context of this thesis is that researchers lose the information about the direction of the misstatement. Raman et al. (2013) examine the relationship between EQ and takeover attitude. The authors measure EQ using the residuals of the McNichols (2002) model. First, the results show that if the target

has low EQ, then the bidder is more likely to engage in a friendly takeover than a hostile one. Second, they find that the relationship between the premium and EQ is negative. They argue that bidders obtain valuable information through the negotiation process. Finally, their results also show that the transactions of firms with low EQ are more likely to be settled with equity, which allows bidders' shareholders to share the information risk with the target shareholders. Skaife and Wangerin (2013) examine EQ through different proxies and analyse the impact of EQ on M&A deals. The proxies used for EQ are the magnitude of abnormal accruals, likelihood of a weakness in internal control, off-balance sheet liabilities, analysts' forecast errors and analysts' forecast dispersion. They find that low quality reporting firms receive a higher premium from acquirers. However, low EQ also increases the likelihood of renegotiating the M&A agreement and the M&A being aborted before the conclusion. Similarly, McNichols and Stubben (2015) examine the relationship between accounting quality of target firms and the performance of acquiring and target firms in a sample of US firms from 1990 to 2010. They proxy the accounting quality by applying the McNichols (2002) model and a model based on the ability of reported accruals and cash flows to predict future cash flows. The results show that target firms have lower returns around the announcement date (three-day window) when the accounting quality is high. These results are consistent with Begley et al. (2003), Skaife and Wangerin (2013) and Raman et al. (2013). Moreover, McNichols and Stubben (2015) explain that firms with low EQ do not allow acquirers to bid effectively. Their explanation does not coincide with that of Raman et al. (2013) who also find similar results. Finally, Lim and Chang (2017) examine the relationship between EQ (proxied by accruals quality) and the probabilities of having a deal withdrawn for South Korean firms during the period 2002–2011. Results show that poor EQ is related to higher chances of a bidder withdrawing from a deal. They suggest that target firms take advantage of poor EQ to increase transaction value. However, target firms who excessively decrease the quality of their earnings are more likely to suffer from deal withdrawals, similar to the results of Skaife and Wangerin (2013).

As literature exhibits, it seems fundamental to distinguish the attitude of the transaction to predict the expected reaction of target managers to the deal. Friendly transactions are the main focus, because they represent the predominant deal attitude in Europe and are more representative of today's M&A activity. Moreover, the identification of the relationship between EM and its motivation is easier when the attitude of the transaction is considered separately. Finally, a friendly deal is more likely to be known in advance by target managers

than a hostile one, which allows more time for friendly target managers to select EM accordingly.

Based on the above literature, it is possible to make the following assumptions. The null hypothesis states that target firms do not have enough time to anticipate the deal and manage the earnings accordingly (Erickson and Wang 1999; Skaife and Wangerin 2013; Anagnostopoulou and Tsekrekos 2015). Formally, the null hypothesis is the following:

H0: There is no association between the EM strategy of a target firm and the M&A announcement.

By contrast, it is assumed that managers of friendly takeovers are supposed to manipulate the earnings downward to ease the transaction with the acquirer (Eddey and Taylor 1999; Ben-Amar and Missonier-Piera 2008; Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015). Formally, the hypothesis is the following:

H1a: There is negative association between the EM strategy of a target firm and the M&A announcement.

The alternative hypothesis states that managers of a target firm want to maximise the value of the actual shareholders and/or their private gains linked to the sale of the firm. In this case, the managers are supposed to manipulate the earnings upward before the transaction announcement (Erickson and Wang 1999; Campa and Hajbaba 2016; Vasilescu and Millo 2016). Formally, the alternative hypothesis is the following:

H1b: There is positive association between the EM strategy of a target firm and the M&A announcement.

.2.3 Motivations for EM Before a M&A

The focus of this study is to observe whether the accounting choices and the real economic decisions made before the deal announcement have an impact (and in which direction) on the target shareholders' wealth. There are two potential effects of downward EM on the premium. First, a negative impact on the target price from a decreasing earnings procedure has been advocated to ease the transaction (Eddey and Taylor 1999; Ben-Amar and Missonier-Piera 2008; Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015; Abbott

et al. 2006) and for target managers to gain private benefits (e.g. Shleifer and Vishny 2003; Hartzell et al. 2004; Wulf 2004; Moeller 2005; Fich et al. 2011; Fich et al. 2013; Qiu et al. 2014).

Previous literature suggests that target managers are likely to have a wealth-drop because of their dismissal or a decrease in power.[15] Hence, in the context of M&As, the consequence of managerial opportunism may be the trade-off between their own personal wealth and the shareholders' wealth. Managers that predict the termination of their contract may be more likely to act opportunistically, because they know that monitoring mechanisms are not perfect on the short term, consistent with the horizon problem (Butler and Newman 1989; Dechow and Sloan 1991; Davidson et al. 2007; Kalyta 2009).

The press also noticed some anecdotal evidence of target managers' opportunistic behaviour (Sorkin 2002; Maremont 2009).[16] Wulf (2004) observes a trade-off between target manager power in the post-merger entity and the wealth of the target shareholders. CEOs seem to lower the acquisition price at the expense of shareholders to maintain a position of power in the post-acquisition firm. Similarly, Qiu et al. (2014), with a large sample of US transactions between 1994 and 2010, find that the retention of target CEOs is related to a 6% lower premium. Moreover, they exhibit that when the target CEO is not retained, the side payments are negatively related to the premium. Both results suggest opportunistic behaviour by target CEOs. Hartzell et al. (2004) find results suggesting that some CEOs trade large side payments or bonuses with the position in the combined company. The CEOs that are likely to act in such opportunistic behaviour are those who have the highest abnormal compensation during the pre-acquisition period. Fich et al. (2011) observe the trade-off between the premium and unscheduled stock options and Fich et al. (2013) between the premium and golden parachutes. An alternative hypothesis which partly matches with these results may be driven by endogeneity (Fich et al. 2013; Qiu et al. 2014; Broughman 2017). High synergistic acquisitions are related to higher premiums. However, for low-synergy acquisitions, managers must be incentivized to compensate the lower premium extracted by personal ownership to support the merger.

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[15] Literature has widely observed that target managers suffer from a higher turnover than managers of non-target firms (Walsh 1988; Walsh 1989; Martin and McConnell 1991; Hambrick and Cannella 1993; Kennedy and Limmack 1996; Denis et al. 1997; Dahya and Powell 1998). Moreover, as suggested by Hayes (1979), non-value maximising cannot be the only motive for higher managerial turnover; the human element may also play a role. In his study, he finds that around 80% of the departed managers regret the decision to sell, mainly due to the loss of autonomy. Hambrick and Cannella (1993) propose an alternative motivation to the economic logic; they hypothesise that target managers' turnover is due to the relative standing. Independently of whether it is a voluntary or involuntary departure, some target managers leave the combined firm because of their new social status.

[16] The target CEO of J.P. Morgan received a special bonus of $20 million for the deal completion with Chase Manhattan Corporation (the regular salary bonus included was $6 million). The target CEO of Compaq was offered $14.4 million for the deal completion with Hewlett-Packard.

Some authors observe results that do not support managerial opportunism. Agrawal and Walkling (1994) note that CEOs who remain in place after a deal do not have a significantly higher salary than non-target peer firms' CEOs. Moreover, following their results, the completion of the deal or the attitude of the transaction does not influence retention rate. Bargeron et al. (2010) investigate the relationship between premiums and the private benefits of CEOs. In terms of turnover, results show that there is no association with the premium; however, the authors find an association with the skills and knowledge of the CEOs. Finally, Bargeron et al. (2017) examine private equity deals. The authors observe that the retention rate is higher when it is a private equity acquisition. More importantly, private equity acquisitions that retain the CEO gain an additional 10–18% in pre-acquisition value. They support their findings with the facts that private equity does not have managers already in place that can replace target managers and the CEO is valuable to continuing the strategy of the firm. This hypothesis seems confirmed by their results and explains the positive relationship between the retention rate and the control premium in the context of private equity deals.

However, target managers may choose downward EM to ease the transaction without necessarily harming the target shareholders' wealth, for example, to clean the balance sheet of past burdens, create fictive accrual reversals in the post-acquisition period or decrease the risk of litigation in the highly scrutinized context of M&As (Eddey and Taylor 1999; Ben-Amar and Missonier-Piera 2008; Anagnostopoulou and Tsekrekos 2013; Chen et al. 2016). Anagnostopoulou and Tsekrekos (2013) and Anagnostopoulou and Tsekrekos (2015) advocate that income-decreasing accounting choices in firms seeking a buyer can be a strategy to show that the target firm is free of past burdens and ready to make a new start in the combined company. Moreover, similar to the arguments of Ben-Amar and Missonier-Piera (2008) and Chen et al. (2016), downward EM before the deal can be reversed in the post-acquisition period and create a fictive performance that helps the acquirers to justify their M&A strategy. Earnings management may aim to 'clean up' the balance sheet (i.e., record all necessary depreciation, impairment losses, provisions and bad debts before the deal completion). This procedure can minimise any unexpected bad news once the acquisition is completed, and due to accrual reversals, it may potentially increase the post-acquisition performance of the target firm. The acquirers may perceive well (or even require) such downward impact on earnings. Moreover, Abbott et al. (2006) suggest that managers may prefer conservative accounting choices because of the high likelihood of litigation around a M&A transaction and the high scrutiny of stakeholders (Krishnan et al. 2012). Bidders may be ready to pay more for a less risky

transaction, which could lengthen the time of completion and reflect negatively on the company image. These three arguments (which are non-mutually exclusive) can ease deal completion, decrease risk and push the acquirer to pay a higher premium.

This study aims to empirically investigate the association between EM and deal premiums. Given the literature reviewed above, it is possible to assume that EM may be associated with the premium offered by the acquirer. Depending on the motivations of management, a relation is possible between the accounting choices and the acquisition premium. If managers act opportunistically, colluding with the acquirer to gain private benefits and not respecting their fiduciary duty, then a positive relationship is possible (i.e., downward manipulation to decrease the acquisition price). Alternatively, if managers act efficiently, signalling private information through the accounting choices, then a negative relationship is possible (i.e., reduction of litigation risks, accruals reversals in the post-acquisition period, cleaning of the balance sheet). Formally, it is posited:

H2: There is an association between the EM of the target firm and the acquisition premium.

.3   Research Design

.3.1   Sample

The initial sample is composed of firms targeted by a takeover during 2005–2015 in European markets from the *FactSet MergerMetrics* database. The sample only considers M&As with a transaction value equal to or bigger than 100 million Euros,[17] transactions in which the bidder sought the majority of the stake and friendly takeovers. After the exclusion of firms without sufficient accounting data, firms that do not report under IAS/IFRS, firms with a Standard Industrial Classification (SIC) code between 6000–6999 (i.e., financial services), firms that were targeted for two subsequent years, firms with negative common equities and firms without enough comparable firms in the same industry, the final sample contains 578 acquisitions or acquisition attempts (see Table 3). Of these acquisitions and acquisition attempts, 495 are completed takeovers, while the remaining 83 are cancelled takeovers.

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[17] A large stake of firms below this threshold do not provide all necessary accounting data. Moreover, deals with a consistent transaction value are more likely to make the effect of EM on the acquisition premium economically valuable.

Table 3: Sample Selection

Initial sample (merger & majority stake, transaction value > 100 MM)	1,575
Accounting standards different from IAS/IFRS	-305
Firms with missing data or incomplete data	-164
Firms with a SIC code within 6000–6999	-321
Firms in industries without sufficient comparables	-167
Firms targeted for two consecutive years or targeted by multiple acquirers	-24
Firms with negative equity	-16
Final sample	**578**

A control sample is also used to compare target firms with non-suspected manipulation firms. First, it considers all European-listed firms with available data and IAS/IFRS accounting standards to have sufficient comparability in each industry (at least 10 firms) to compute abnormal accruals and abnormal real activities. The sample used to compute EM contains 2,820 firms spread over 48 industries. Second, the selection employs a propensity score matching analysis based on the following covariates: the firm's size, debt level, performance and revenue. This generates a control sample of 578 firms with similar characteristics and establishes causality. Table 4 shows that the samples are not statistically different given the size, return on equity, debt level and revenue of the firms.[18]

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[18] Appendices 1, 2 and 3 exhibit the distribution of the samples by year, country and industry. The distribution of the year of suspected manipulation of the target and the control sample appear to be similar. A drop in the number of mergers, starting from the financial crisis of 2008, is observed. Similarly, the distribution of the two samples appears to correspond with regard to the headquarters' countries (except for the United Kingdom). The United Kingdom has around 30% of the firms in the sample of target firms. Of the 578 acquisitions considered, 520 target firms reside within the European Union, 51 reside in a country of the EU single market and the remaining seven firms reside outside the EU market. Finally, the industry distribution across the target and control samples is also comparable. The industries with the most target firms are business services (16.26%); industrial and commercial machinery and computer equipment (6.57%) and electric, gas and sanitary services (5.54%). The M&A information has been collected from the *FactSet MergerMetrics* database; the accounting data have been collected from the *FactSet* database.

Table 4: Sample Comparison

Variables	Mean	Median	Tests	
SIZE	$\mu0 =$ 6.2682	$M0 =$ 6.1822	$t =$ -0.0196	
	$\mu1 =$ 6.2665	$M1=$ 6.1810	$Z =$ 167,180	
OCF	$\mu0 =$ 0.0839	$M0 =$ 0.0804	$t =$ 0.6758	
	$\mu1 =$ 0.0892	$M1=$ 0.0830	$Z =$ 169,660	
ROE	$\mu0 =$ 21.9425	$M0 =$ 10.7826	$t =$ -0.2158	
	$\mu1 =$ 18.8962	$M1=$ 10.3332	$Z =$ 158,880	
DEBT	$\mu0 =$ 105.7025	$M0 =$ 54.0040	$t =$ 0.9316	
	$\mu1 =$ 221.1532	$M1=$ 49.8916	$Z =$ 157,470	†
SALES	$\mu0 =$ 0.0912	$M0 =$ 0.0550	$t =$ 0.0670	
	$\mu1 =$ 0.0923	$M1=$ 0.0404	$Z =$ 162,030	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05 and '†', 0.1. The subscript 0 corresponds to control firms, and the subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. SALES is the total revenue scaled by total assets t-1.

.3.2 Data Definition and Models

This study focuses on earnings for the fiscal year ending immediately before the announcement of the acquisition offer, as it is the period most likely to capture accounting manipulation (Perry and Williams 1994). Abnormal accruals are measured cross-sectionally for firms in the same industry with the Dechow et al. (1995), Kothari et al. (2005) and Larson et al. (2018) models (The industry is defined with the firsts two digit SIC code of the firm). Similar to Subramanyam (1996), total accruals are computed as the difference between net income before extraordinary items and operating cash flows. This indirect calculation of total accruals is preferred, because it allows for a larger sample. Moreover, the economic impact of total accruals on the performance of the firm compared to the current accruals is more important, according to Skaife and Wangerin (2013). Formally, the equations of the Dechow et al. (1995) and Kothari et al. (2005) models are the following, but the Dechow et al. (1995) model only considers the first three coefficient:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta SALES_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \beta_4 ROA_{i,t-1} + \varepsilon_{i,t} \qquad \textbf{(1), (2)}$$

Where:

$TA_{i,t} =$	the total accruals in year t for firm i;
$A_{i,t-1} =$	the total assets at t-1 year-end for firm i;
$\Delta SALES_{i,t} - \Delta AR_{i,t} =$	the change in sales minus the change in accounts receivable for firm i;
$PPE_{i,t} =$	the gross property, plant and equipment for firm i;
$ROA_{i,t-1} =$	the return on assets in year t-1 for firm i;
$\varepsilon_{i,t} =$	the error term in year t for firm i;
$i =$	1, …, N firms; and
$t =$	the year of suspected manipulation.

The residuals from the model are considered abnormal accruals. The abnormal accruals of the modified Jones model are named AEM1 (Equation 1), and the abnormal accruals of the Kothari et al. model are named AEM2 (Equation 2), while the fitted values are considered normal accruals. The last model is based on the model proposed by Larson et al. (2018). This model considers the three main roles of accruals to model comprehensive accruals in a more complete manner. They consider capital investment and growth in operation, timing differences between business events and cash flows and conditional conservatism.[19] Formally, the cross-sectional regression equation proposed by Larson et al. (2018) is as follows:

$$COMPACC_{i,t} = \alpha_0 + \alpha_1 EMPGR_{i,t} + \alpha_2 EMPGR_{i,t} * NCI_{i,t-1} + \alpha_3\, CF_{i,t-1} + \alpha_4\, CF_{i,t} \qquad (3)$$
$$+ \alpha_4\, CF_{i,t+1} + \alpha_5\, PL - MTLB_{i,t} + \varepsilon_{i,t}$$

Where:

$COMPACC_{i,t} =$	the comprehensive accruals in year t for firm i;
$EMPGR_{i,t} =$	the annual percentage of employee growth in year t for firm i;
$NCI_{i,t-1} =$	the net operating assets in year t-1 for firm i;
$CF_{i,t-1\,;\,t\,;\,t+1} =$	the comprehensive cash flows in year t-1, t and $t+1$ for firm i;
$PL - MTLB_{i,t} =$	the piecewise linear transformation of market-to-lagged-book;

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[19] Even if more sophisticated, the model is still likely to consider some 'normal' accruals as 'abnormal'. Still, it is interesting to challenge widely used accrual-detection models with more sophisticated models. The comprehensive accruals (i.e., dependent variable) are computed as the difference in the change of common shareholders equity and the change in the cash and cash equivalents. As an independent variable, employee growth is calculated as the annual percentage of employee growth. The net operating assets, which measure the net capital intensity of a firm, are computed as the difference between current assets and current liabilities. The cash flows of year t-1, t and $t+1$ are computed as the difference between the earnings and the accruals of the firm (the original model considers two years of lags for cash flows; however, in this case, the model is simplified due to data availability). Finally, the piecewise linear transformation of market-to-book is calculated as market-to-lagged-book minus 1 if market-to-book is below 1 and 0 otherwise.

$\varepsilon_{i,t} =$	the error term in year t for firm i;
$i =$	1, …, N firms; and
$t =$	the year of suspected manipulation.

Except for EMPGR and PL-MTLB, all variables are scaled by the lagged total assets. The residuals of Equation 3 are considered abnormal accruals and are named AEM3.

The real earnings manipulation is explored before the deal announcement. Real earnings management is more difficult to detect. On one hand, it requires more time for its implementation, and the reversal may negatively affect the performance of the firm in the long term (e.g., cutting R&D expenses). In the context of target firms of M&As, REM is difficult to execute, because the target firms may not have enough time to anticipate the acquisition early in the year. Nevertheless, AEM may be enforced at the end of the fiscal year. On the other hand, in the specific context of a M&A, scrutiny from acquirers, target shareholders and regulators is high. Hence, it is likely that target managers prefer REM over AEM or a combination of both techniques. The REM proxies are measured as the residuals of the three cross-sectional regression models. Hereunder, the models that allow computation of the abnormal operating cash flows (Equation (4), abnormal production costs (Equation (5) and abnormal discretionary expenses (Equation (6) are presented:

$$\frac{OCF_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{SALES_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (4)$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{SALES_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \beta_4 \frac{\Delta SALES_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (5)$$

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{SALES_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (6)$$

Where:

$OCF_{i,t} =$	the operating cash flow for firm i;
$DISEXP_{i,t} =$	the discretionary expenses for firm i;
$PROD_{i,t} =$	the cost of goods sold plus the change in inventories for firm i;
$SALES_{i,t} =$	the sales for firm i;
$\Delta SALES_{i,t} =$	the change in sales at time t for firm i;

$\Delta SALES_{i,t-1} =$ the change in sales at time *t-1* for firm *i*,

$A_{i,t-1} =$ the total assets at year-end *t-1* for firm *i*;

$\varepsilon_{i,t} =$ the error term for firm *i*;

$i =$ 1, …, N firms; and

$t =$ the year of suspected manipulation.

The residuals of abnormal operating cash flows are named REM1, and the residuals of abnormal production are REM2. Finally, the residuals of the abnormal discretionary expenses are multiplied by minus one so that higher abnormal discretionary expenses decrease the earnings, the same way as with the other two REM proxies (Zang 2012). They are named REM3.

Multivariate cross-sectional regressions are run with EM proxies as the dependent variable, a dummy variable representing the target firms, otherwise a firm of the control sample (Guan et al. 2004; Ben-Amar and Missonier-Piera 2008), and several control variables, such as the leverage of the firm, the performance, the firm size, the firm's diversification, the ownership structure, the type of investors and the country-specific regulations and cultural aspects.

A substantial part of the literature focuses on the determinants of EM. Extant theories predict that managers of troubled firms will choose income-increasing accounting choices to keep their position in the firm and reduce the firm's board and/or regulatory agency intervention (e.g., Weisbach 1988; DeAngelo 1988; Petroni 1992; Pourciau 1993). Moreover, the risk of breaking debt covenants is higher for firms in troubled financial situations; hence, they are additionally motivated to avoid re-contracting. However, managers of firms who expect a single year of poor earnings are more incentivized to take a 'big bath', because they have not reached the necessary amount of earnings to earn a bonus. Hence, they may prefer income-decreasing accounting choices (Healy 1985). Additionally, Fudenberg and Tirole (1995) theorise 'income smoothing', which suggests that managers manipulate to smooth the earnings in function of current and future performance. Hence, firms with current poor performance and expected good future performance are expected to manipulate the earnings upward, and conversely. The results of the empirical studies are heterogeneous. Some studies seem to confirm that poor past performance is related to upward EM (Balsam et al. 1995; DeFond and Park 1997; Keating and Zimmerman 1999; Doyle et al. 2007). Similarly, the results of Kinney and McDaniel (1989) show that past profitability (among other things) is negatively associated with firms' probability to correct their quarterly reports. However, some different results are also observed; Francis et al. (1996) find the opposite relationship than expected by the big bath hypothesis and the

income-smoothing argument. They show that write-offs are decreasing for both poor and good performance firms the year of the write-off. Lee et al. (2006) find that good performance firms manage their earnings upward to amplify the positive market response to accounting data. DeAngelo et al. (1994) exhibit that accounting choices for accruals of persistently poor performance firms reflect the recognition of financial distress more than EM. They suspect that auditors and/or lenders force distressed firms to record write-offs because of their potentially risky situations. Hence, it is difficult for these firms to manipulate earnings over a long period of poor performance.

A second determinant identified by the literature is the debt level of the firm. Existing literature mentions that to avoid debt covenant restrictions, managers may manipulate the earnings upward and avoid debt renegotiation (Watts and Zimmerman 1986; Sweeney 1994; Healy and Palepu 1990; DeFond and Jiambalvo 1994). Empirical studies seem to confirm this hypothesis with multiple constraints and methodologies. Indeed, the results of Sweeney (1994) seem to confirm the hypothesis for firms violating the net worth and working capital covenants constraints, while Healy and Palepu (1990) and DeAngelo et al. (1994) support the covenant-based hypothesis for firms violating the dividend constraint. The debt covenants hypothesis is confirmed by studies that investigate the abnormal accrual methodology (DeAngelo et al. 1994; DeFond and Jiambalvo 1994), studies that examine the timing of asset disposals (Bartov 1993), studies that use the changes in accounting methods (Johnson and Ramanan 1988; Malmquist 1990; Sweeney 1994), studies that examine the earnings announcement corrections of quarterly reports (Kinney and McDaniel 1989) and restatements (Burns and Kedia 2006; Efendi et al. 2007) and a study that examines the number of firms just below and just above the covenant threshold (Dichev and Skinner 2002).

The firm size seems to have an effect on EM, but the direction of the relation is not yet clear. Jensen and Meckling (1976) and Watts and Zimmerman (1986) predict that large firms will manipulate the earnings downward to limit political costs. However, other studies suggest that larger firms may have better EQ because the cost of collecting and disseminate information is marginally lower (Firth 1979; Ball and Foster 1982). More recent empirical studies seem to confirm the latter hypothesis: large firms are less likely to have poor internal control (Ge and McVay 2005; Doyle et al. 2007; Ashbaugh-Skaife et al. 2008) or to correct quarterly earnings reports (Kinney and McDaniel 1989). Furthermore, Moses (1987) exhibits a positive relationship between the size of the firm and accounting method changes to smooth the income. Another determinant is the diversification of the firm. The diversification considered in literature refers to industrial and geographic diversification. Diversification could be considered

as a source of asymmetry. Richardson (2000) suggests the hypothesis that managers take advantage of information asymmetry to engage in EM, because shareholders do not have access to information. A contrasting hypothesis, proposed by Thomas (2002), suggests that the errors of outsider analysts in the forecasting industry segment are imperfectly correlated and that the absolute aggregate value of errors may be smaller for diversified firms. Empirical analyses shows that greater diversification seems associated with a smaller analyst forecast error and a smaller forecast dispersion. Jiraporn et al. (2008) and Vasilescu and Millo (2016) find similar results, showing a negative association between EM and industry diversification. The effect is magnified if firms are also geographically diversified. However, no significant result show that geographical diversification alone mitigates the use of EM.

Dechow and Dichev (2002) suggest that firms with a longer operating cycle have more difficulties in correctly estimating accruals (e.g., high part of account receivable), hence the level of EQ for these firms is lower. Meanwhile, another source of noise for accruals is business complexity, which is associated with foreign currency translation, transfer pricing and elimination of inter-segment sales (Ashbaugh-Skaife et al. 2008).

According to the existing literature, the ownership structure and the ownership composition can also impact the EQ of the firm, but the results do not clearly define the optimal structure. Smith (1976) suggests that a dispersed ownership is less likely to be aware of the existence of EM through changes in accounting methods, thus managers can dispose more easily of their discretion. Fan and Wong (2002) observe that the earnings informativeness is lower for firms with high ownership concentration. Outside investors perceive such firms as less credible in terms of issuing reliable financial statements. Similarly, Kim and Yi (2006) show that an increase in ownership concentration is associated with an increase in EM (measured by discretionary accruals).

Lastly, few authors examine the relationship between EM and institutional investors as a mechanism of control, because they are considered to be sophisticated investors. Dechow and Schrand (2004) advocate that institutional investors have a better understanding of earnings; however, the causality between EQ and institutional investors is not well explained.[20] Bushee (1998) evidences results confirming a relationship between institutional investors and EQ. Firms with higher institutional investor ownership have lower cuts in R&D investments to meet short-term earnings objectives. However, the level of institutional investors engaged in momentum trading, high portfolio turnover and diversification are positively associated with

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[20] Literature does not clearly explain whether the institutional investor prevents low EQ or detects EQ and invests accordingly.

EM. Abdul Jalil and Abdul Rahman (2010) advocate that to be an effective monitor of EM, the institutional investors must be engaged in shareholders' activism.

Country-specific regulations and cultural aspects might have a different impact on the level of EM between countries. La Porta et al. (1999) examine cross-country regulations about corporate protection of creditors and shareholders. It appears that the origin of the rules and their enforcement lead to significant differences in investor protection between countries.[21] The results show that common-law (French civil law) countries provide the strongest (weakest) investor protection. Moreover, German/Scandinavian civil law (French civil law) countries have the best (worst) law enforcement, and common law countries also offer strong law enforcement. More focused on EM, Leuz et al. (2002) observe similar results as La Porta et al. (1999). Indeed, they report that countries with widespread ownership, strong investor protection and large stock markets have lower levels of EM. Moreover, country-specific characteristics also seem to impact the use of EM. In fact, Continental Europe and Asian countries smooth earnings more than Anglo-American firms. This result could be explained by the greater degree of loss avoidance in Continental Europe and Asian countries.

Specifically, the control variables included in the model are the logarithm of total assets (SIZE) representing the size of the firm (Ge and McVay 2005; Doyle et al. 2007; Ashbaugh-Skaife et al. 2008), the return on equity (ROE; Balsam et al. 1995; DeFond and Park 1997; Keating and Zimmerman 1999; Doyle et al. 2007) and the value of the debt divided by the value of the equity of the firm (DEBT; Watts and Zimmerman 1986; Healy and Palepu 1990; DeFond and Jiambalvo 1994; Sweeney 1994). Moreover, determinants related to a firm's innate characteristics are the proportion of losses that the firm had in the previous five years (LOSS.PROP), which controls for its past performance (Dechow and Dichev 2002; Doyle et al. 2007); the standard deviation of sales (SD.SALES) and the standard deviation of operating cash flows (SD.OCF), which control for the firm-generic operating cycle volatility (Doyle et al. 2007; Ashbaugh-Skaife et al. 2008); and international sales (INT.SALES), which control for the complexity of the firm's operations (Ashbaugh-Skaife et al. 2008). A variable related to governance is also added in the model, namely the percentage of institutional ownership held by the top five institutional shareholders (TOP5INSTIT.SH) of the firm (Shleifer and Vishny 1997). The model also contains variables controlling for the firm's country of residence and the year of the suspected manipulation. Equation 7 is as follows:

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[21] The authors consider an estimate of accounting standard quality as a measure of corporate governance quality.

$$EM_i = \alpha_0 + \alpha_1 TARGET_i + \alpha_2 SIZE_i + \alpha_3 ROE_i + \alpha_4 LOSS.PROP_i + \alpha_5 DEBT_i$$
$$+ \alpha_6 SD.SALES_i + \alpha_7 SD.OCF_i + \alpha_8 INT.SALES_i + \alpha_9 TOP5INSTIT.SH_i \quad \textbf{(7)}$$
$$+ \alpha_{10} Country\ FE_i + \alpha_{11} Year\ FE_i + \varepsilon_i$$

Where:

$EM_i =$	the earnings management proxy for firm i;
$TARGET_i =$	a dummy variable indicating firms that are target of M&As;
$SIZE_i =$	the natural logarithm of total assets for firm i;
$ROE_i =$	the return on equity for firm i;
$LOSS.PROP_i =$	the proportion of losses incurred by firm i in the previous five years;
$DEBT_i =$	the ratio of total debt divided by the mean of common equities for firm i;
$SD.SALES_i =$	the standard deviation of the sales in the previous five, four and three years for firm i;
$SD.OCF_i =$	the standard deviation of cash flows from operating activities in the previous five, four and three years for firm i;
$INT.SALES_i =$	the percentage of sales generated from operations in foreign countries for firm i;
$TOP5INSTIT.SH_i =$	the percentage of shares held by the top five institutional shareholders of firm i;
$Country\ FE_i =$	the country-fixed effects;
$Year\ FE_i =$	the year-fixed effects;
$\varepsilon_i =$	the error term for firm i; and
$i =$	1, ..., N firms.

Finally, Equation 8 presents the cross-sectional regression for the premium analysis. The premium considered is the premium offered at the announcement divided by the stock price 30 days before the announcement. The premium offered is considered instead of the premium accepted, because it is deemed that competing bidders, free riders or arbitrageurs could influence the premium accepted. Among the explaining variables, the EM proxies are the variable under focus.[22] Formally, the equation is as follows:

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[22] It is assumed that the reported earnings, which can be manipulated, are a determinant of the stock price, which in turn affects the acquisition premium. The two EM techniques considered (i.e., AEM and REM) can affect the two components of the earnings (accruals and cash flows), which fully covers all valuation models that may be employed by the market to value target firms prior to M&As. Indeed, some valuation models, such as the Discounted Cash Flows model and some multiples, do not consider the bottom line earnings (i.e., are not affected by the accrual manipulation), even if it is unlikely that these models are not combined with other valuation models that consider earnings.

$$
\begin{aligned}
PREM30D_i = {} & \alpha_0 + \alpha_1 EM_i + \alpha_2 SIZE_i + \alpha_3 OCF_i + \alpha_4 ROE_i + \alpha_5\, DEBT_i \\
& + \alpha_6 LOSS.PROP_i + \alpha_7 \%SOUGHT_i + \alpha_8 COMPLETED_i \\
& + \alpha_9 GO.PRIVATE_i + \alpha_{10} TENDER.OFFER_i \\
& + \alpha_{11} CROSS.BOARDER_i + \alpha_{12} STCK.PAY_i + \alpha_{13} SAME.INDUSTRY_i \\
& + \alpha_{14} Country\ FE_i + \alpha_{15} Year\ FE_i + \varepsilon_i
\end{aligned}
\tag{8}
$$

Where:

$PREM30D_i =$	the offered premium divided by the stock price 30 days before the announcement for firm i;
$EM_i =$	the earnings management proxy for firm i;
$SIZE_i =$	the natural logarithm of the total assets for firm i;
$OCF_i =$	the cash flows from operating activities for firm i;
$ROE_i =$	the return on equity for firm i;
$DEBT_i =$	the ratio of total debt divided by the mean of common equities for firm i;
$LOSS.PROP_i =$	the proportion of losses incurred by firm i in the previous five years;
$\%SOUGHT_i =$	the percentage of voting rights sought by the acquiring firm for firm i;
$COMPLETED_i =$	a dummy variable indicating whether the transaction is completed for firm i;
$GO.PRIVATE_i =$	a dummy variable indicating whether target firm i is going private;
$TENDER.OFFER_i =$	a dummy variable indicating whether the bidder made a tender offer for firm i;
$STCK.PAY_i =$	a dummy variable indicating whether the acquirer pays completely or partially in stocks for firm i;
$SAME.INDUSTRY_i =$	a dummy variable indicating whether the acquirer and the target have the same two-digit SIC code;
$CROSS.BOARDER_i =$	a dummy variable indicating whether the acquirer is from another country than firm i;
$Country\ FE_i =$	country-fixed effects;
$Year\ FE_i =$	year-fixed effects;
$\varepsilon_i =$	the error term for firm i; and
$i =$	1, …, N firms.

Similar to prior literature, several control variables are added into the model. Target firms' characteristics are expected to be associated with the premium with mixed outcomes (Walkling and Edmister 1985; Palepu 1986; Dong et al. 2006; Skaife and Wangerin 2013). The percentage sought by the bidders is controlled by the variable labelled %SOUGHT (Barclay and Holderness 1989). According to Bessler and Schneck (2015), the deal completion likelihood of European takeovers is likely to be associated with the premium (COMPLETED). Firms going

private are expected to reduce taxes, which can be associated with the premium paid (Kieschnick 1998; Renneboog et al. 2007). The variable TENDER.OFFER controls for whether the deal is negotiated or made directly to the target firm's stockholders (Skaife and Wangerin 2013; McNichols and Stubben 2015). Stock-for-stock acquisition are associated with higher acquisition premiums (Jensen 1986; Schwert 2000). To control for the effect of the method of payment, the variable STCK.PAY is coded. The model also controls whether the target and the acquirer operate in the same industry (2-digit SIC code; SAME.INDUSTRY), based on the hypothesis that an acquirer of the same industry should be able to bid more effectively (Skaife and Wangerin 2013). Similarly, one variable controls for asymmetry between bidders from a country other than the target's (CROSS BOARDER). Finally, the model contains the year- and country-fixed effects to control for changing economic conditions over time and countries.

.4 Results

.4.1 Descriptive Statistics

Table 5 and Table 6 present the descriptive statistics for the target and control samples. Table 5 provides information about the EM proxies and firm characteristics. Target firms have lower mean and median for abnormal accruals (AEM) than control firms, and the standard deviation is slightly bigger. The abnormal production costs and the abnormal discretionary expenses are lower for target firms (REM2 and REM3). However, the abnormal OCF (REM1) is slightly higher for target firms than for control firms. The firms' characteristics are similar in the two samples, besides slightly higher OCF, ROE and SALES and lower DEBT for the control sample.

Table 6 presents the descriptive statistics of eleven variables that characterise the transactions (and that could influence the deal premium). The percentage sought by the acquirer is, on average, 82.93% (%SOUGHT). The number of days necessary to close the deal (DAYS.TO.CLOSE) has a mean of 83 days from the announcement (while the median is higher: 100 days). The percentage of shares held by the acquirer before the announcement is, on average, 11.68%, while the median is around 0%. Finally, Table 6 also describes the deal premiums; the mean of the premium computed over 90 days is 44%, over 60 days is 40% and over 30 days is 37%. The median shows a similar increasing trend. This may suggest that the stock price increases during at least the 90 days before the announcement, consistent with the pre-bid run-ups observed in the literature (Meulbroek 1992; Schwert 1996).

Table 5: Sample Description – EM and Firm Characteristics

Target	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
AEM1	-0.0033	-0.0010	-0.7042	0.9003	0.1028	578	0
AEM2	-0.0051	-0.0020	-0.7034	0.8967	0.1034	578	0
AEM3	0.0017	-0.0019	-0.3447	0.7571	0.0965	299	0
REM1	0.0156	0.0108	-0.9473	1.1517	0.1220	578	0
REM2	-0.0721	-0.1181	-7.8867	2.5498	0.5952	553	0
REM3	-0.0068	0.0033	-0.6840	0.2982	0.0678	429	0
T.ASSETS	2,167.10	483.47	12.06	122,209.41	8,066.93	578	0
OCF	149.04	35.60	-444.26	6,728.86	543.84	578	0
ROE	18.90	10.33	-225.94	5,676.92	237.42	578	0
DEBT	221.15	49.89	-1,112.87	70,583.94	2,942.26	578	62
SALES	1,302.88	366.03	0.00	41,488.90	3,259.58	578	11
Control							
AEM1	0.0068	0.0040	-0.2210	0.4893	0.0728	578	0
AEM2	0.0049	0.0016	-0.1930	0.4763	0.0750	578	0
AEM3	0.0111	0.0070	-0.8082	0.6489	0.0912	576	2
REM1	0.0133	0.0062	-1.3202	0.6757	0.1206	578	0
REM2	0.0442	-0.0484	-1.6066	3.0047	0.5680	574	0
REM3	0.0016	0.0052	-0.2365	0.1852	0.0353	447	0
T.ASSETS	2,156.03	484.07	12.82	118,310.00	7,771.93	578	0
OCF	214.56	31.15	-131.88	18,669.00	1,028.14	578	0
ROE	21.94	10.78	-174.43	5,790.10	242.45	578	0
DEBT	105.70	54.00	-1,866.08	9,793.66	469.29	578	30
SALES	1,980.29	441.60	-8.95	160,331.00	8,282.48	578	4

Notes: AEM1 is the firm's abnormal accrual calculated from the modified Jones model. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. AEM3 is the firm's abnormal accrual calculated from the Larson et al. model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. T.ASSETS is the total value of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is total debt divided by the mean of common equities. SALES is the total revenue scaled by total assets *t-1*.

Table 6: Sample Description – Transaction Characteristics

	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
SAME.INDUSTRY	0.39	0.00	0.00	1.00	0.49	578	352
COMPLETED	0.86	1.00	0.00	1.00	0.35	578	83
STRATEGIC	0.72	1.00	0.00	1.00	0.45	578	159
GO.PRIVATE	0.15	0.00	0.00	1.00	0.35	578	493
TENDER.OFF	0.51	1.00	0.00	1.00	0.50	578	282
STCK.PAY	0.21	0.00	0.00	1.00	0.40	578	459
MULTIBID	0.17	0.00	0.00	1.00	0.37	578	481
CROSS.BORDER	0.63	1.00	0.00	1.00	0.48	578	212
%SOUGHT	82.93	100.00	3.40	100.00	24.25	578	0
DAYS.TO.CLOSE	260.05	100.00	0.00	876.00	113.67	494	9
TOEHOLD	11.68	0.00	0.00	96.6	21.752	578	403
PREM30D	0.37	0.30	-0.86	4.39	0.45	577	0
PREM60D	0.40	0.31	-0.99	12.13	0.69	578	1
PREM90D	0.44	0.34	-0.89	4.81	0.55	538	0

Notes: SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. COMPLETED indicates whether the transaction is completed. STRATEGIC indicates whether the transaction is strategic or financial. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. MULTIBID indicates whether there are multiple bidders. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. %SOUGHT indicates the share percentage the bidder is seeking to buy. DAYS.TO.CLOSE indicates the number of days between the announcement and the closing/cancellation of the deal. TOEHOLD indicates the percentage held in the target company by the bidder before the announcement. PREM30/60/90D denotes the ratio of the acquirer's initial offer price to the target's share price 30/60/90 days prior to the announcement date (FactSet), minus one.

Panel A of Table 7 presents the Pearson correlation matrix between the main variables for the full sample. Besides the 0.54 positive correlation between abnormal accruals (computed with the modified Jones model, AEM1) and abnormal discretionary expenses (REM3) and the 0.88 positive correlation between abnormal OCF (REM1) and OCF, no other variables seem to exhibit strong correlations. Panel B of Table 7 exhibits the correlation matrix for the six detection models computed in this study. The three abnormal accrual models (AEM1, AEM2, and AEM3) are positively correlated, and as expected, the correlation between the modified Jones and the Kothari et al. models is high (0.95). The abnormal OCF (REM1) is strongly negatively related to the modified Jones model (AEM1) and the Kothari et al. model (AEM2). However, it is positively related to the Larson et al. model (AEM3). The abnormal discretionary expenses (REM3) are strongly positively related to all accrual EM models. The REM models are not correlated to each other.

Table 7: Correlation Matrix

Panel A: Firm Characteristics and EM

		1	2	3	4	5	6	7	8	9	10
1	AEM1	1	**-0.38**	**0.05**	**0.54**	**-0.07**	0.03	0.02	-0.02	**-0.05**	**-0.37**
2	REM1		1	0.01	-0.03	-0.04	**0.13**	**0.07**	0.02	-0.01	**0.88**
3	REM2			1	0.00	-0.04	**0.07**	0.00	**-0.07**	-0.02	0.00
4	REM3				1	**-0.18**	-0.05	0.05	-0.03	0.00	-0.04
5	PREM30D					1	-0.02	-0.02	**-0.16**	**-0.09**	**-0.08**
6	SALES						1	0.02	**-0.09**	-0.05	**0.23**
7	ROE							1	0.03	0.01	**0.08**
8	SIZE								1	0.00	0.03
9	DEBT									1	-0.01
10	OCF										1

Notes: the Pearson correlation coefficients are reported in the upper right portion of the table. Bold text indicates that the correlations are statistically significant at p-value < 0.10. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. SALES is the total revenue scaled by total assets *t-1*. ROE is the return on equity. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. OCF is the cash flow from operating activities.

Panel B: EM Detection Models

	AEM1	AEM2	AEM3	REM1	REM2	REM3
AEM1	1	**0.95**	**0.30**	**-0.38**	**0.05**	**0.54**
AEM2		1	**0.26**	**-0.46**	0.04	**0.52**
AEM3			1	**0.29**	0.02	**0.29**
REM1				1	0.01	-0.03
REM2					1	0.00
REM3						1

Notes: the Pearson correlation coefficients are reported in the upper right portion of the table. Bold text indicates that the correlations are statistically significant at p-value < 0.10. AEM1 denotes the abnormal accrual following the modified Jones model. AEM2 denotes the abnormal accrual following the Kothari et al. model. AEM3 denotes the abnormal accrual following the Larson et al. model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses.

.4.2 Earnings Management of Target Firms

Table 8 compares the AEM and REM measures of the target and control sample with parametric (t-test) and non-parametric tests (Mann-Whitney U-test). The univariate analysis for abnormal accruals (Panel A) shows that target firms select accounting procedures that decrease their earnings compared to control firms (statistically significant at the 10% level for the modified Jones and Kothari models and at the 5% level for the Larson et al. model). Panel B presents the

univariate tests for the three REM scenarios. The abnormal production costs measure (REM2) is significantly lower for target firms than for control firms (at the 1% level). The univariate test shows that the discretionary expenses measure (REM3) is lower for target firms than for control firms (at the 5% level). No statistically significant difference is observed for the OCF measure (REM1) between the target and control firms.

Table 8: EM Detection – Univariate Tests

Panel A: Comparison of Abnormal Accruals

Model	Mean		Median		Tests		
Modified Jones model (AEM1)	$\mu_0 =$	0.0068	$M_0 =$	0.0040	$t =$	-1.9177	†
	$\mu_1 =$	-0.0032	$M_1 =$	-0.0009	$Z =$	156,740	†
Kothari et al. model (AEM2)	$\mu_0 =$	0.0048	$M_0 =$	0.0016	$t =$	-1.8737	†
	$\mu_1 =$	-0.0051	$M_1 =$	-0.0020	$Z =$	159,130	
Larson et al. model (AEM3)	$\mu_0 =$	0.0111	$M_0 =$	0.0070	$t =$	-1.4000	
	$\mu_1 =$	0.0016	$M_1 =$	-0.0018	$Z =$	79,104	*

Notes: the significance levels are denoted as follows: : '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. AEM3 is the firm's abnormal accrual calculated from the Larson et al. model.

Panel B: Comparison of Real Earnings Management

Model	Mean		Median		Tests		
Abnormal OCF (REM1)	$\mu_0 =$	0.0133	$M_0 =$	0.0062	$t =$	0.3223	
	$\mu_1 =$	0.0156	$M_1 =$	0.0108	$Z =$	169,900	
Ab. production costs (REM2)	$\mu_0 =$	0.0442	$M_0 =$	-0.0484	$t =$	-3.3550	***
	$\mu_1 =$	-0.0721	$M_1 =$	-0.1181	$Z =$	141,360	**
Ab. discretionary exp. (REM3)	$\mu_0 =$	0.0016	$M_0 =$	0.0052	$t =$	2.3117	*
	$\mu_1 =$	-0.0068	$M_1 =$	0.0033	$Z =$	99,825	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses.

Table 9 presents the results of the multivariate analysis (Equation (7) for the AEM models. The results for the modified Jones and Kothari et al. (2005) models are quite similar. The coefficient of the TARGET variable is negative and significant at the 5% level for both models. The variable that considers the proportion of loss in the last five years (LOSS.PROP) is positive and significant, suggesting that low past performance motivates managers to manipulate earnings

upward (Doyle et al. 2007; Ashbaugh-Skaife et al. 2008). Moreover, the standard deviation of the operating cash flows (SD.OCF) variable is negative and significant, controlling for the generic volatility of the firm. Additionally, the model of Kothari et al. (2005) shows that the level of institutional ownership (TOP5INSTIT.SH) mitigates the level of abnormal accruals at a significance threshold of 10%. For the Larson et al. model, the variable of interest (TARGET) has the predicted sign, but it is not statistically significant. The only variable that significantly affects abnormal accruals is the volatility of the sales (SD.SALES), at a significance threshold of 10%. The result of this variable is consistent with the expectation and results of Doyle et al. (2007) and Ashbaugh-Skaife et al. (2008), suggesting that firms with high volatility in their sales have more room to manipulate. However, this regression is not statistically significant, and the adjusted R-squared is close to zero.[23] These results suggest that target firms tend to decrease earnings through abnormal accruals (AEM1 and AEM2) the year before the announcement.

Table 10 exhibits the multivariate analysis for REM. All three regressions are statistically significant and exhibit adjusted R-squared values between 5% and 14%. Target firms use abnormal production costs (REM2) and discretionary expenses (REM3) to decrease their earnings. However, the target variable is statistically significant (at the 5% level) for the REM2 model only. Furthermore, the OCF model (REM1) suggests upward manipulation, similar to Campa and Hajbaba (2016), but it is not statistically significant. Control variables, such as the size of the firm, the proportion of losses incurred in the prior five years and the standard deviation of operating cash flows, negatively affect the level of abnormal production costs. Meanwhile, the standard deviation of sales positively influences the level of EM.

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[23] Three other specifications of the models presented in Table 9 are also computed, namely the Jones model, the Kothari et al. model with the ROA of the current year and the Larson et al. model that considers the comprehensive net assets of the firm (computed as common stockholder equity – cash & cash equivalent) instead of the net operating assets. The results are similar to the results presented in Table 9 (not tabulated for parsimony).

Table 9: EM Detection: Multivariate Analysis – AEM

EM Measure	Modified Jones (AEM1)			Kothari et al. (AEM2)			Larson et al. (AEM3)		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.0383	1.4630		0.0376	1.4280		-0.0217	-0.7120	
TARGET	-0.0125	-2.2480	*	-0.0131	-2.3610	*	-0.0058	-0.8180	
SIZE	-0.0002	-0.1170		0.0001	0.0680		0.0013	0.5230	
ROE	0.0000	0.3000		0.0000	0.8320		0.0000	1.4260	
LOSS.PROP	0.0225	2.1720	*	0.0523	5.0240	***	-0.0178	-1.3240	
DEBT	0.0000	-1.5190		0.0000	-1.2540		0.0000	-0.7490	
SD.SALES	0.0170	1.2160		0.0170	1.2060		0.0311	1.7170	†
SD.OCF	-0.1098	-3.1500	**	-0.1252	-3.5780	***	0.0847	1.4950	
INT. SALES	-0.0084	-1.0320		-0.0080	-0.9830		0.0065	0.6330	
TOP5INSTIT.SH	-0.0001	-1.5960		-0.0002	-1.8000	†	-0.0001	-0.9150	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*0.0251*			*0.0439*			*0.0018*		
F-value	*1.572*	**		*2.020*	***		*1.032*		
Sample size	*1,156*			*1,156*			*877*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. AEM3 is the firm's abnormal accrual calculated from the Larson et al. model. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 10: EM Detection: Multivariate Analysis – REM

EM Measure	Abnormal OCF (REM1)		Ab. Production Costs (REM2)		Ab. Discretionary Exp. (REM3)	
Coefficients	**Estimate**	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	-0.0118	-0.3510	0.3001	1.7850 †	0.0504	2.8650 **
TARGET	0.0082	1.1550	-0.0824	-2.3070 *	-0.0054	-1.4310
SIZE	0.0014	0.5620	-0.0261	-2.0150 *	-0.0026	-1.9490 †
ROE	0.0000	1.9610 †	-0.0000	-0.0780	0.0000	1.3190
LOSS.PROP	-0.1308	-9.8360 ***	-0.1473	-2.1670 *	-0.0033	-0.4580
DEBT	0.0000	-0.9440	0.0000	0.2620	-0.0000	-0.0410
SD.SALES	0.0118	0.6560	0.7328	8.1720 ***	-0.0058	-0.5560
SD.OCF	0.4013	8.9690 ***	-0.7443	-3.3360 ***	-0.0869	-3.4340 ***
INT. SALES	0.0180	1.7260 †	-0.0676	-1.2750	-0.0106	-1.8890 †
TOP5INSTIT.SH	-0.0001	-0.9080	-0.0003	-0.4970	-0.0002	-2.6570 **
Country control	Included		Included		Included	
Year control	Included		Included		Included	
Adj. R-squared:	*0.1322*		*0.0787*		*0.0572*	
F-value	*4.38*	***	*2.85*	***	*2.02*	***
Sample size	*1,156*		*1,127*		*876*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Overall, the results suggest that target firms engage in downward EM with both procedures, compared to control firms. In a friendly context, target firms may not always have enough time to anticipate the deal and manipulate the earnings accordingly, especially for REM. The difference in economic magnitude of the downward manipulation through accruals between target and control groups is 20.64 million, on average,[24] which represents a manipulation of around 1% of the total assets of the firm (i.e., using the modified Jones model for calculation). When the three abnormal real activities are combined, the magnitude in economic terms is 5.32 million euros, on average,[25] of the downward manipulation for target firms. The fact that REM has a lower value than AEM may be a consequence of managers having less time to implement real activity manipulation than accrual manipulation.

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[24] This is equal to (0.0068 x 2,081.59) - (0.0032 x 2,027.55), which corresponds to the difference between the control AEM and target AEM.

[25] This is equal to ((0.0133 + 0.0442 + 0.0016) x 2,081.59) + ((0.0156 – 0.0721 – 0.0068) x 2,027.57), which corresponds to the difference between the control REM and target REM.

.4.3 **Premium Analysis**

This section examines whether EM may affect the premium associated with M&A deals (see Table 11 [for AEM] and Table 12 [for REM]). The regressions are statistically significant, and the adjusted R-squared values are between 23% and 10%. For the modified Jones and Kothari et al. models, the acquisition premium measured over 30 days prior to the announcement is negatively associated with the level of abnormal accruals (coefficients are statistically significant at the 0.1% level). This result shows that there is a positive association between downward EM and premiums. Some control variables also seem to affect the deal premium. The size of the firm (SIZE), operating cash flows (OCF) and method of payment (STCK.PAY) negatively affect the premium. Consistent with previous literature, the results exhibit that target firms acquired with a settlement in stocks (partly or completely) receive a lower premium (Schwert 2000; Skaife and Wangerin 2013; McNichols and Stubben 2015). Moreover, the leverage (DEBT) and the percentage of voting rights sought (%SOUGHT) are positively associated with the deal's premium. This latter result is congruous with the idea of a controlling premium (Barclay and Holderness 1989). The Larson et al. model (last column of Table 11) exhibits similar results but with lower levels of significance for AEM, OCF and %SOUGHT (10% and 5%, respectively). Some of the observations of the Larson et al. model must be dropped because of data availability, which means that the sample considered in this model contains only 299 target firms. This may explain the weak significance of the variable of interest compared to the other two models.

Table 12 presents the results of the model for REM. The model considering the abnormal OCF (REM1) positively affects the premium. The abnormal production model (REM2) does not affect the premium. However, the discretionary expenses (REM3) negatively affect the premium, similar to the accruals' models. The other control variables impacting the premium are identical to the control variables observed in Table 11. The three regressions are statistically significant, and the adjusted R-squared values are like those observed previously in Table 11.

Table 11: Premium Analysis – AEM

EM Measure	Modified Jones (AEM1)			Kothari et al. (AEM2)			Larson et al. (AEM3)		
Dependent Var.	PREM30D			PREM30D			PREM30D		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.0035	0.0170		0.0114	0.0570		0.2051	0.7900	
AEM	-0.7769	-4.3410	***	-0.6691	-3.6310	***	-0.4843	-1.8230	†
SIZE	-0.0344	-2.6250	**	-0.0338	-2.5690	*	-0.0288	-1.4410	
OCF	-0.6691	-4.9410	***	-0.6714	-4.7960	***	-0.9008	-3.3250	**
ROE	0.0000	-0.2220		0.0000	-0.3190		0.0000	0.4420	
DEBT	0.0000	5.4120	***	0.0000	5.4420	***	-0.0001	-0.9480	
LOSS.PROP	0.0627	1.0260		0.0731	1.1880		0.0701	0.7190	
%SOUGHT	0.0027	3.1200	**	0.0027	3.0840	**	0.0027	2.1780	*
COMPLETED	0.0601	1.1940		0.0520	1.0300		0.0127	0.1950	
GO.PRIVATE	-0.0636	-1.2610		-0.0594	-1.1740		-0.0035	-0.0470	
TENDER.OFFER	0.0435	1.1120		0.0425	1.0790		0.0150	0.2510	
CROSS.BORDER	0.0054	0.1470		0.0042	0.1140		-0.0790	-1.4380	
STCK.PAY	-0.1190	-2.5490	*	-0.1195	-2.5460	*	-0.0520	-0.6810	
SAME.INDUSTRY	0.0194	0.5290		0.0199	0.5420		0.0480	0.8780	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*23.18%*			*22.37%*			*10.58%*		
F-value	*4.41*	***		*4.25*	***		*1.75*	**	
Sample size	*578*			*578*			*299*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. AEM3 is the firm's abnormal accrual calculated from the Larson et al. model. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 12: Premium Analysis – REM

EM Measure	Abnormal OCF (REM1)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	PREM30D			PREM30D			PREM30D		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.0529	0.2590		0.0003	0.0010		0.0816	0.3510	
REM	0.7715	2.1190	*	-0.0028	-0.0940		-1.3850	-4.3860	***
SIZE	-0.0332	-2.4990	*	-0.0342	-2.3370	*	-0.0342	-2.0370	*
OCF	-1.0910	-3.3580	***	-0.4464	-3.2810	**	-0.5912	-3.5190	***
ROE	0.0000	-0.5150		0.0000	-0.1500		0.0000	0.0660	
DEBT	0.0000	5.6750	***	0.0000	-0.1300		-0.0001	-0.6090	
LOSS.PROP	0.0688	1.1090		0.0783	1.1720		0.0385	0.4980	
%SOUGHT	0.0026	3.0260	**	0.0026	2.8130	**	0.0027	2.5240	*
COMPLETED	0.0428	0.8410		0.0366	0.7000		0.0306	0.4920	
GO.PRIVATE	-0.0483	-0.9440		-0.0619	-1.1640		-0.0718	-1.1370	
TENDER.OFFER	0.0477	1.2030		0.0427	1.0260		0.0647	1.2890	
CROSS.BORDER	0.0020	0.0530		-0.0090	-0.2280		0.0077	0.1670	
STCK.PAY	-0.1256	-2.6540	**	-0.1161	-2.3230	*	-0.0769	-1.2980	
SAME.INDUSTRY	0.0228	0.6130		0.0200	0.5130		-0.0228	-0.4880	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*21.10%*			*15.13%*			*17.63%*		
F-value	*4.02*	***		*2.93*	***		*2.80*	***	
Sample size	*578*			*552*			*429*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Managers employ the two techniques of EM (accruals and real), suggesting that they are complementary in the context of M&As. The time needed to implement real activity manipulation may explain why only one of the three models supports the accruals results (i.e., discretionary expenses compared to production or OCF).[26]

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[26] In an additional test (not tabulated for parsimony), the models are run with the absolute values of the EM measures. The results show a positive relation between the premium and the absolute values of models AEM1, AEM2 and REM3. This means that the negative relationship expressed in previous literature about EQ and the premium may be explained by downward manipulation.

The economic effect of EM on the premium is computed. The difference in premium between the highest EM decile and the lowest decile is tested. Results exhibit a 12.75% difference between the means of the two extreme deciles of the aggregate measure of EM. This result seems to be driven by the abnormal operating cash flow difference. The difference is much lower when the difference of the median is considered, which is 0.83%.

In the main analysis examined above the effect of the magnitude of the downward manipulation is tested. Now, the effect of the sign is tested, that is, what is the effect of negative EM on the premium. In Equation 8, the EM measures are replaced with dummy variables taking the value of 1 if the value of the EM measure is below 0. It is expected that the new dummy variables are positively related to the premium, similar to the EM measures, so the interpretation should be compatible with the results observed in Table 11 and Table 12.

Results are exhibited in Table 13 for the variables considering negative abnormal accruals and abnormal discretionary expenses (the other two REM measures are not expected to affect the premium following the results observed in Table 12. Indeed, untabulated results do not show any statistically significant relation between REM1/REM2 and the premium). The results are consistent with the expectation for AEM. The sign of the variable of interest for the abnormal accruals measure (NegAEM1) is positive, and it is statistically significant. When the second regression is considered, negative REM3 (NegREM3) is positive but not statistically significant. The results suggest that for the discretionary expenses, the negative effect observed in Table 12 seems to be driven by downward but positive EM. Although the abnormal discretionary are positive, they are lower (i.e., less positive) than abnormal discretionary expenses of non-target firms.

The economic significance also seems relevant; if the firms have negative abnormal accruals, keeping anything else constant, the premium is 9.52% higher on average. Although the negative discretionary expenses variable is not statistically significant, the target firms with negative discretionary expenses benefit from 5.62% higher premiums on average.

Finally, an alternative variable for downward EM is tested. The dummy variable for negative EM is substituted with a dummy variable that takes the value of 1 when the EM measure is below the median of the target's EM measures and 0 otherwise. The results (not tabulated for parsimony) support the results observed in Table 11 and Table 12. Both dummy variables are statistically significant and positive, suggesting that firms with the lowest EM levels (i.e., the most aggressive in downward manipulation) benefit from a higher premium.

Table 13: The Effect of the Sign of EM

EM Measure	NegAEM1			NegREM3		
Dependent Var.	PREM30D			PREM30D		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	-0.0520	-0.2580		0.0708	0.2980	
NegEM	0.0952	2.6210	**	0.0520	1.1810	
SIZE	-0.0354	-2.6700	**	-0.0366	-2.1220	*
OCF	-0.5611	-4.1960	***	-0.5617	-3.2670	**
ROE	0.0000	-0.2870		0.0000	-0.0290	
DEBT	0.0000	5.5760	***	-0.0001	-0.5600	
LOSS.PROP	0.0621	1.0050		0.0408	0.5150	
%SOUGHT	0.0027	3.0980	**	0.0028	2.5290	*
COMPLETED	0.0561	1.0980		0.0419	0.6560	
GO.PRIVATE	-0.0519	-1.0180		-0.0669	-1.0350	
TENDER.OFFER	0.0459	1.1580		0.0665	1.2960	
CROSS.BORDER	0.0016	0.0440		0.0009	0.0190	
STCK.PAY	-0.1195	-2.5330	*	-0.0734	-1.2070	
SAME.INDUSTRY	0.0269	0.7280		-0.0160	-0.3350	
Country control	Included			Included		
Year control	Included			Included		
Adj. R-squared:	*21.45%*			*13.75%*		
F-value	*4.08*	***		*2.34*	***	
Sample size	*578*			*429*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. NegAEM1 takes the value of 1 when $AEM1 < 0$. NegREM3 takes the value of 1 when $REM3 < 0$. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of the common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5 Robustness Tests

.5.1 Managers' Anticipation of Acquisition

The manipulation period (year 0) is supposed to be the year before the year of the announcement (year 1). However, it is possible that managers of target firms will not anticipate the deal that early. Hence, they do not engage in EM the year before (year 0), especially when the

announcement is at the end of year 1. To test this possible issue, the dataset is subsampled to consider only the announcements that occur in the first six months of year 1. It is hypothesised that announcements in this sub-sample is more likely to be anticipated by target managers. The results are presented in Table 14 and Table 15.

For the sub-sample of AEM, it is observed that the variable of interest (TARGET) is negative and statistically significant at a threshold level of 5% (see Table 14). [27] The only control variable that seems to influence the abnormal accruals is the debt level.

The results of the regression for the three abnormal real activities for firms, for which the announcement is in the first six months of the year, are reported in Table 15. The only model which does not show statistically significant results in the variable of interest is the model that considers the abnormal OCF (REM1). The two other models (REM2 and REM3) show that the variable TARGET has a significant negative impact on the EM level. For the abnormal production costs (REM2), the result is consistent with the result observed in Table 10, while for the abnormal discretionary expenses (REM3), the result is consistent with the univariate test. These latest results suggest that the main results about EM detection (see tables 8, 9 and 19) do not seem to be driven only by the announcements at the beginning of the year.

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[27] Table 14 reports the results with the modified Jones model only, as results of the Kothari et al. model are similar, while the results of the Larson et al. model are not significant for the variable of interest.

Table 14: EM Detection: Sub-Sample – AEM

EM Measure	Modified Jones (AEM1)	
Sub-Sample	Announcement between months 1 to 6	
Coefficients	**Estimate**	**t-value**
Intercept	0.0107	0.4100
TARGET	-0.0139	-2.3890 *
SIZE	0.0014	0.7440
ROE	0.0000	-0.1990
DEBT	0.0000	-1.8670 †
LOSS.PROP.	0.0072	0.6640
SD.SALES	0.0122	0.7860
SD.OCF	-0.0095	-0.2070
INT. SALES	0.0028	0.3390
TOP5INSTIT.SH	-0.0001	-1.2810
Country control	Included	
Year control	Included	
Adj. R-squared:	*0.0464*	
F-value	*1.802 ****	
Sample size	*857*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 15: EM Detection: Sub-Sample – REM

EM Measure	Abnormal OCF (REM1)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Sub-Sample	Announcement between months 1 to 6								
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.0192	0.5080		0.3653	1.7710	†	0.0482	2.5350	*
TARGET	0.0067	0.7920		-0.0807	-1.7280	†	-0.0073	-1.7530	†
SIZE	-0.0012	-0.4340		-0.0380	-2.4380	*	-0.0033	-2.3580	*
ROE	0.0000	2.5970	**	0.0000	0.0080		0.0000	1.9350	†
LOSS.PROP	-0.1266	-8.0680	***	-0.2114	-2.3940	*	-0.0069	-0.8840	
DEBT	0.0000	-0.9930		0.0000	0.4620		0.0000	0.0970	
SD.SALES	0.0156	0.6920		0.9057	7.3900	***	-0.0249	-2.0590	*
SD.OCF	0.1985	2.9980	**	-0.5139	-1.4170		0.0105	0.1840	
INT. SALES	0.0179	1.4970		-0.1086	-1.6290		0.0022	0.3660	
TOP5INSTIT.SH	-0.0001	-0.6580		-0.0002	-0.2310		-0.0002	-3.5050	***
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*0.0971*			*0.0837*			*0.0301*		
F-value	*2.772*	***		*2.459*	***		*1.391*	*	
Sample size	*857*			*831*			*655*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.2 Time-Frame to Compute the Premium

As a robustness check, the premium is measured over 60 days (Table 16) and 90 days (Table 17). The results for a 60-day premium are similar to those for a 30-day premium (Table 11), although with a lower level of significance for the variable of interest (AEM). Moreover, the coefficient of the control variable COMPLETED (i.e., transaction completed or not) is positive and significant at the 5% level. This may suggest that firms with a high probability of deal completion are associated with higher premiums.[28] Results in Table 17 are consistent with the

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[28] The causality of this relationship is not clear; it depends on the assumptions taken as representative of the premium choice: the substitution hypothesis or the mark-up pricing hypothesis (Schwert 1996). If the substitution hypothesis is assumed, the premium affects the completion of the deal. However, if the mark-up pricing hypothesis is assumed, the ability and will to complete the deal affect the premium.

trend observed over a 30- to 60-day premium, that is, the coefficient of the variable of interest (AEM) becomes not statistically significant for the three models and the COMPLETED control variable appears significant. These results suggest that as more time passes, the bidder seems to consider the M&A announcement more likely and starts to spend more resources to analyse in depth the financial statements of the firm to detect and interpret EM. For the REM measures, none of the proxies seem to affect the premium calculated over 60 or 90 days.[29]

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[29] As an alternative robustness test, the calculation of the premium with the method proposed by Schwert (1996) is computed. The results tabulated in appendices 4 and 5 are strongly significant and consistent with the negative association between EM and premium. The overall results do not change with an alternative method of calculating the premium.

Table 16: Premium Analysis: Premium 60 Days – AEM

EM Measures	Modified Jones (AEM1)		Kothari et al. (AEM2)		Larson et al. (AEM3)	
Dependent Var.	PREM60D		PREM60D		PREM60D	
Coefficients:	**Estimate**	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	-0.0679	-0.2110	-0.0635	-0.1970	0.2462	0.9340
AEM	-0.6398	-2.2160 *	-0.5035	-1.6990 †	-0.4980	-1.8470 †
SIZE	-0.0500	-2.3620 *	-0.0495	-2.3360 *	-0.0419	-2.0630 *
OCF	-0.5634	-2.5740 *	-0.5502	-2.4400 *	-0.9548	-3.4720 ***
ROE	0.0000	0.1220	0.0000	0.0660	0.0001	0.6720
DEBT	0.0000	-2.3400 *	0.0000	-2.2960 *	-0.0001	-1.0180
LOSS.PROP	0.0002	0.0020	0.0083	0.0840	0.1119	1.1300
%SOUGHT	0.0039	2.7950 **	0.0039	2.7810 **	0.0034	2.6300 **
COMPLETED	0.1692	2.0790 *	0.1617	1.9880 *	0.0236	0.3590
GO.PRIVATE	-0.1044	-1.2810	-0.1007	-1.2340	-0.0534	-0.7120
TENDER.OFFER	0.0985	1.5560	0.0983	1.5490	0.0180	0.2950
CROSS.BORDER	0.0150	0.2520	0.0134	0.2250	-0.0762	-1.3660
STCK.PAY	-0.1481	-1.9720 *	-0.1484	-1.9720 *	-0.0615	-0.7940
SAME.INDUSTRY	0.0443	0.7500	0.0452	0.7640	0.0820	1.4790
Country control	Included		Included		Included	
Year control	Included		Included		Included	
Adj. R-squared:	*14.66%*		*14.33%*		*13.13%*	
F-value	*2.94*	***	*2.89*	***	*1.96*	***
Sample size	*578*		*578*		*299*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. PREM60D denotes the ratio of the acquirer's initial offer price to the target's share price 60 days prior to the announcement date (FactSet), minus one. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. AEM3 is the firm's abnormal accrual calculated from the Larson et al. model. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 17: Premium Analysis: Premium 90 Days – AEM

EM Measure	Modified Jones (AEM1)			Kothari et al. (AEM2)			Larson et al. (AEM3)		
Dependent Var.	PREM90D			PREM90D			PREM90D		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	-0.0536	-0.1910		-0.0531	-0.1890		0.2962	0.8360	
AEM	-0.3193	-1.3820		-0.2615	-1.1040		-0.3189	-0.9940	
SIZE	-0.0397	-2.2980	*	-0.0394	-2.2800	*	-0.0415	-1.6740	†
OCF	-0.5602	-3.1990	**	-0.5568	-3.0900	**	-0.9911	-2.9680	**
ROE	0.0000	-0.3760		0.0000	-0.4060		0.0000	-0.3040	
DEBT	0.0000	1.7750	†	0.0000	1.7970	†	0.0000	-0.2570	
LOSS.PROP	0.1567	1.9790	*	0.1609	2.0280	*	0.0240	0.2030	
%SOUGHT	0.0043	3.7150	***	0.0043	3.7100	***	0.0042	2.7410	**
COMPLETED	0.1356	2.0410	*	0.1321	1.9900	*	0.1178	1.4790	
GO.PRIVATE	-0.1186	-1.8210	†	-0.1169	-1.7950	†	-0.1294	-1.4480	
TENDER.OFFER	0.0299	0.5770		0.0298	0.5740		-0.0665	-0.9090	
CROSS.BORDER	0.0940	1.9570	†	0.0938	1.9500	†	-0.0128	-0.1920	
STCK.PAY	-0.1433	-2.3040	*	-0.1436	-2.3080	*	-0.0990	-1.0490	
SAME.INDUSTRY	-0.0052	-0.1080		-0.0050	-0.1040		0.0540	0.7910	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*20.43%*			*20.32%*			*14.03%*		
F-value	*3.70*	***		*3.68*	***		*1.96*	***	
Sample size	*538*			*538*			*277*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1 PREM90D denotes the ratio of the acquirer's initial offer price to the target's share price 90 days prior to the announcement date (FactSet), minus one. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. AEM3 is the firm's abnormal accrual calculated from the Larson et al. model. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.3 Combination of EM Measures

Literature widely advocates the idea that managers select their technique of manipulation sequentially, and they select the technique depending on the constraints they face, the consequences, the difficulty to implement and the detection risk of each one (McVay 2006; Roychowdhury 2006; Cohen et al. 2008; Osma 2008; Ibrahim 2009; Cohen and Zarowin 2010; Chi et al. 2011; Burnett et al. 2012; Zang 2012; Abernathy et al. 2014). The analysis of which techniques, constraints and consequences managers may encounter in the context of a M&A

are exposed previously. Some authors argue that target managers will focus principally on abnormal accruals, because the timing needed to establish REM is longer. This is especially true for target managers that have less time to anticipate the M&A announcement. Second, for target managers that are able to anticipate and start real manipulation, the manipulation will start late in the year with a limited effect on the magnitude of the manipulation. Third, the consequences of downward EM through accruals are more suitable for the acquirer than the consequences of REM. However, accruals manipulation, which is easier to detect (e.g. McVay 2006; Roychowdhury 2006; Cohen et al. 2008; Kothari et al. 2015), is expected to be employed as a last resort in the context of M&As, where the scrutiny is very high (if the underlying hypothesis is that the manipulation can harm one of the parties).

Because the employed EM techniques can be related to each other and can influence the premium, all EM measures are regressed together. The results are presented in Table 18. The first regression exhibits the results with the EM measures, while the second contains the dummy variable for negative EM measures.

The first regression presents results that only partially support those of the main analysis.[30] First, the abnormal accruals measure (AEM1) is negative, as expected, but not statistically significant. The abnormal discretionary expenses (REM3) support the results observed individually; there is a negative relation between the EM measure and the premium, suggesting that downward manipulation increases the premium. Finally, and opposite to the expectation, the measure considering the abnormal operating cash flows (REM1) shows a positive relation with the premium. This result suggests that downward abnormal operating cash flows decrease the premium. This positive relation can be explained by the long-term consequences of the manipulation operating activities. Nevertheless, the results should be taken carefully, because no evidence of manipulation is detected through this measure.

When the dummy variables for negative EM are tested, the evidence is more consistent with the main results. The results support those tabulated in Table 9 and Table 13, the only statistically significant variable of interest being abnormal accruals. Negative REM measures combined seem unrelated to the premium. The results do not completely support the results observed previously for REM but are consistent with the fact that REM is more difficult to detect, hence it is more difficult for the bidder to price it.

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[30] Results may be biased due to possible correlation between EM variables.

Table 18: Combination of EM Measures

EM Measures	AEM1, REM1, REM2 and REM3		NegAEM1, NegREM1, NegREM2 and NegREM3	
Dependent Var.	PREM30D		PREM30D	
Coefficients	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	0.1579	0.6610	0.0310	0.1280
AEM1	-0.3014	-1.1330	0.1012	2.0480 *
REM1	0.9827	1.9950 *	0.0023	0.0450
REM2	0.0071	0.2040	-0.0614	-1.3180
REM3	-1.0500	-2.6060 **	0.0218	0.4640
SIZE	-0.0338	-1.9490 †	-0.0362	-2.0110 *
OCF	-1.4570	-3.3620 ***	-0.6554	-3.3370 ***
ROE	0.0000	0.0530	0.0000	0.2090
DEBT	-0.0001	-0.5450	-0.0001	-0.6680
LOSS.PROP	0.0528	0.6690	0.0468	0.5750
%SOUGHT	0.0027	2.4930 *	0.0029	2.5690 *
COMPLETED	0.0348	0.5520	0.0560	0.8680
GO.PRIVATE	-0.0700	-1.1000	-0.0624	-0.9540
TENDER.OFFER	0.0628	1.2280	0.0598	1.1430
CROSS.BORDER	0.0138	0.2930	0.0062	0.1280
STCK.PAY	-0.0891	-1.4750	-0.0701	-1.1360
SAME.INDUSTRY	-0.0323	-0.6760	-0.0171	-0.3500
Country control	Included		Included	
Year control	Included		Included	
Adj. R-squared:	*17.89%*		*13.91%*	
F-value	*2.70* ***		*2.26* ***	
Sample size	*422*		*422*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. AEM1 is abnormal accruals with the modified Jones model. REM1 is the abnormal OCF. REM2 is the abnormal production costs. REM3 is the abnormal discretionary expenses. NegAEM1 takes the value of 1 when AEM1 < 0. NegREM1 takes the value of 1 when REM1 < 0. NegREM2 takes the value of 1 when REM2 < 0. NegREM3 takes the value of 1 when REM3 < 0. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.4 Bidders' Share Interests Before the Announcement (Toehold)

The fact that some bidders' firms already have an interest in the target shares may affect their influence over the target managers and lead to different results than bidders without a toehold in the target firms. For this reason, it is tested whether the percentage of shares held before the transaction influences the effect EM has on the premium. For this, calculations are run with two

sub-samples. The first contains only firms without a toehold (around 70% of the total sample), and the second sub-sample contains firms with a toehold before the announcement. Generally, having a toehold before the announcement does not seem to affect the relationship between the EM and the premium (results are not tabulated for parsimony). For the AEM measure, both sub-samples show a negative relationship between AEM and the premium, although the second sub-sample is less significant. Similarly, the models containing REM3 and REM2 do not exhibit differences concerning the variable of interest compared to the basic model. Finally, the variable of interest, REM1, for the sub-sample of firms with a toehold is not statistically significant, while the same variable in the sub-sample without a toehold is statistically significant.

Moreover, Equation 8 is run with a control variable containing the percentage of shares held before the announcement (TOEHOLD). The general results do not change compared to the results in Table 11 and Table 12, and the variable (TOEHOLD) is not statistically significant. The combined results suggest that bidders that have a share interest in the firms before the announcement do not influence the negative relationship between EM and the premium.

.5.5 Price Reaction Around the Reporting Date

To clearly interpret the previous results, it is important to examine the reaction to EM around the report publication when the financial statements are issued, when the market assesses the quality of the accounting (Balsam et al. 2002; Baber et al. 2006; Gavious 2007). Two alternative hypotheses could explain the fact that downward manipulating firms receive a higher premium. First, the negative relation between the EM measures and the premium could be a reaction to undo the negative effect of downward manipulation on the stock price around the report day (see Figure 5, Scenario 1). Second, target firms are rewarded when they choose to downward manipulate (see Figure 5, Scenario 2).

To discriminate between the two hypotheses, it is tested whether the EM of target firms affects abnormal returns around the reporting date (the reporting date is defined as the day of the publication of the financial statements in which the information about EM is contained). It is considered a wide event window ([-2;21]) to allow investors to examine the financial statements in depth (Balsam et al. 2002). It is examined whether the variables under focus (EM measures) affect the cumulative abnormal return (CAR). A conventional procedure is used to compute the CAR. The market model is estimated from 110 to 3 days before the reporting date. The estimates of the market model are used to compute the CAR. The model controls for earnings objectives (i.e., positive net income, increase in earnings per share (EPS) compared to EPS of

the past period and the analyst's expectation) and for firm characteristics as proposed by previous literature (DeFond and Park 2001; Balsam et al. 2002; Francis et al. 2005; Baber et al. 2006).

Figure 5: Market Reaction Around Reporting Date

Scenario 1
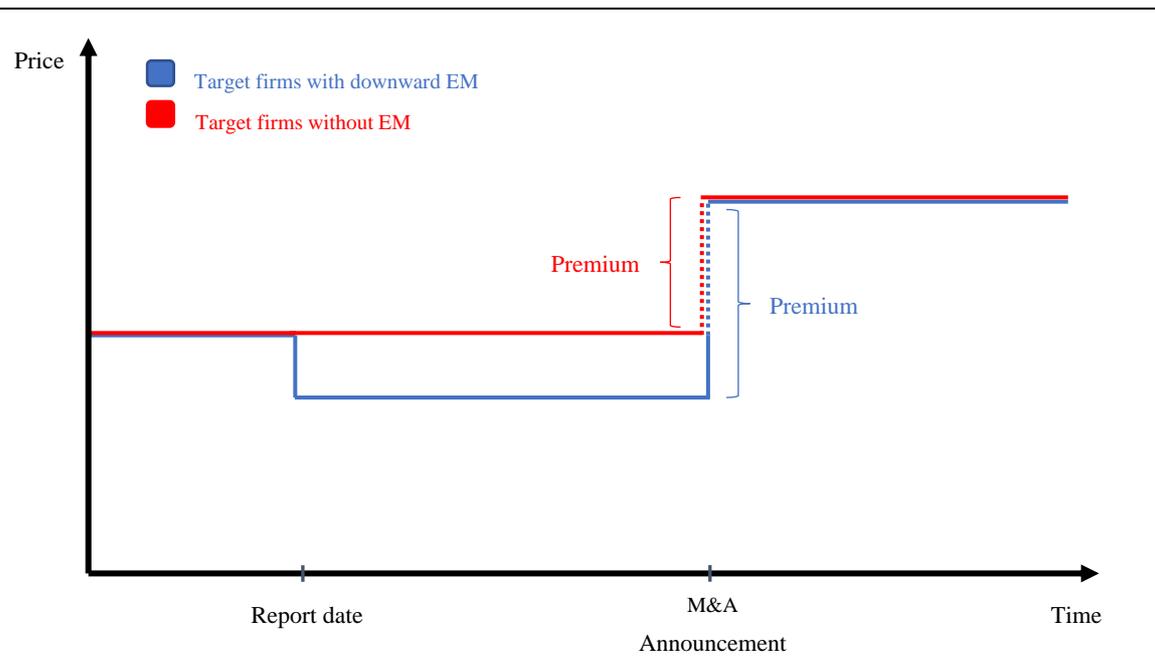
Scenario 2
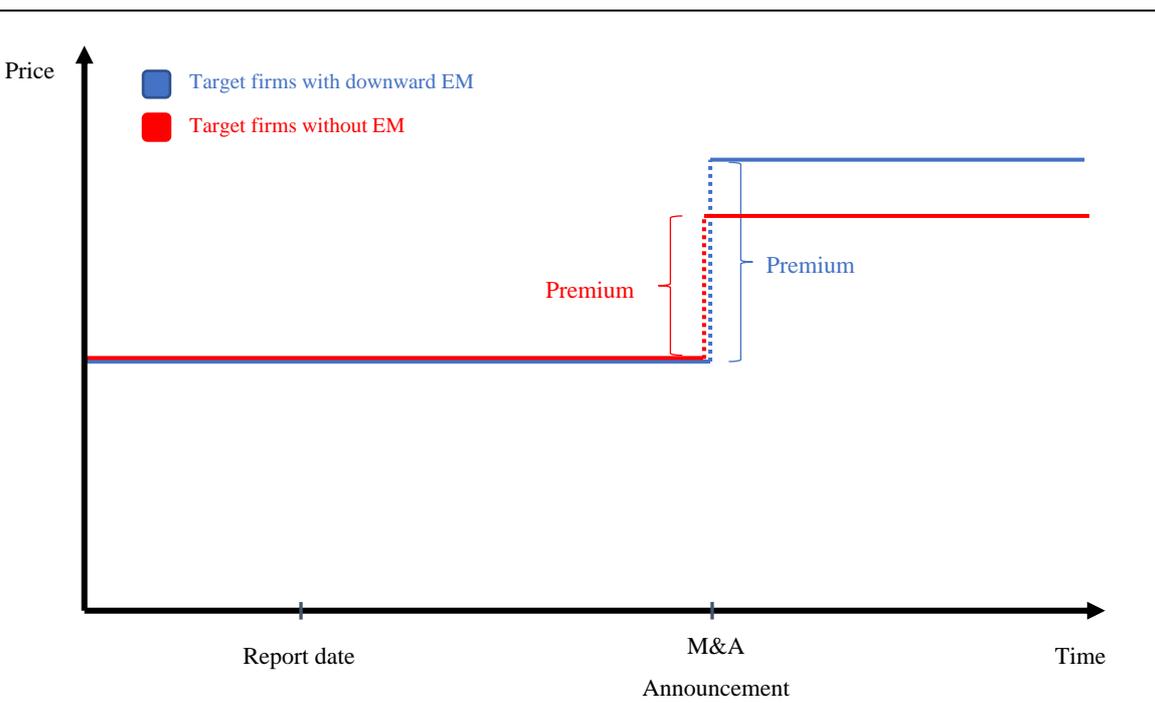
The results are presented in Table 19. The EM measures under examination are the AEM, REM1 and REM2 (the model considering REM3 is not tabulated for parsimony, because it is not statistically significant).[31]

The model considering the abnormal accruals shows that control firms manipulating their earnings upward, positively affect the returns of the firm. Nevertheless, the effect is mitigated, and even opposite, if the target firms are considered. Indeed, the sign of the interaction term is negative, and the magnitude is slightly higher compared to the EM variable. These results indicate that downward manipulation of target firms does not affect, or affects only slightly positively, the returns around the reporting date. The control variables also seem to affect the returns around the reporting date; firms that reach a positive net income are rewarded by the market. Similarly, the market also rewards firms that beat the analyst's forecast. The variable that identifies target firms is positive and statistically significant, suggesting that the information contained in the annual report may suggest the event of a M&A. Last, firms with higher leverage have a higher abnormal return around the reporting date. The model considering the operating cash flows measure shows a weak negative effect between the EM measure and the CAR. Abnormal OCF negatively impacts the return of the firms. It should be remembered that no evidence of EM through abnormal OCF were observed for target firms and that abnormal OCF positively affects the premium. Because of this, it is difficult to infer an effect of abnormal OCF for target firms. Additionally, several control variables explain the CAR around the reporting date. Finally, for the model considering abnormal production costs, the EM measure does not affect the CAR.

Successively, the same model is run for the subset of target firms. The results of the examination are presented in Table 20. They do not exhibit any evidence of the EM measure having an impact on the market reaction. With size as the control variable, the leverage and the fact that the firms beat the last analyst forecast about the EPS are the only explanations for the CAR around the reporting date.

The last sensitivity analysis for this section considers an alternative window for the CAR calculation. The results (see Table 21) are consistent with the expectation that the market participants are not able to identify the EM two days after the reporting date; indeed, none of the measures are statistically significant for control nor target firms. The explanatory power of the control variables over a CAR with a shorter window is significantly higher, suggesting that

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[31] As reminder, the EM measures showing a negative association with the premium were AEM and REM3. Hence, focus is put particularly on AEM, because it is the variable that could be linked to the effect around the M&A announcement.

most of the reaction happens around the reporting date. Indeed, additional control variables seem to affect the market reaction in the shorter event window as the market-to-book ratio and the growth rate.

In conclusion, the EM measures affecting the premium around the M&A announcement do not affect the return around the reporting date. These results suggest that the negative relation between EM and the premium is not a response to a previous market reaction, consistent with the scenario proposed in Figure 5, Scenario 2.

Table 19: Market Reaction to EM Around the Reporting Date

EM Measure	**Modified Jones** (AEM1)			**Abnormal OCF** (REM1)			**Ab. Production Costs** (REM2)		
Dependent Var.	CAR [-2;21]			CAR [-2;21]			CAR [-2;21]		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	2.0780	0.3200		1.9640	0.3000		2.5390	0.3850	
EM	46.0000	3.0640	**	-15.6300	-1.8080	†	2.4710	1.4170	
TARGET	2.4910	1.7310	†	1.8750	1.2840		2.0450	1.4040	
EMxTARGET	-59.9800	-3.3430	***	16.9100	1.4140		-3.8430	-1.6360	
PosNI	4.4810	2.3330	*	5.5590	2.8090	**	4.5220	2.2930	*
ΔEPS	0.0427	1.0370		0.0482	1.1660		0.0451	1.0710	
FB	-0.6696	-2.2960	*	-0.6638	-2.2660	*	-0.6810	-2.3370	*
SIZE	-0.8500	-1.6430		-0.8929	-1.7170	†	-0.7946	-1.4450	
MTB	-0.0918	-1.2690		-0.0818	-1.1220		-0.0469	-0.5490	
BETA	0.3123	0.2250		0.4759	0.3410		-0.1855	-0.1310	
GROWTH	0.0008	0.2080		0.0007	0.1950		0.0009	0.2500	
DEBT	0.0019	6.2780	***	0.0019	6.3960	***	-0.0002	-0.0900	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*6.71%*			*5.87%*			*2.19%*		
F-value	*2.37*	***		*2.19*	***		*1.42*	*	
Sample size	*956*			*956*			*931*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. CAR denotes the cumulative abnormal returns. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. PosNI takes the value of 1 if the firm has reported positive earnings. ΔEPS denotes the difference between the EPS of the current year and the EPS of the previous year. FB denotes the difference between the last forecast provided and the reported EPS. SIZE is the natural logarithm of the assets. MTB denotes the market-to-book ratio. BETA denotes the risk exposure to the market movements. GROWTH denotes the growth rate of the revenue in the past 5 years. DEBT is the total debt divided by the mean of common equities. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 20: Market Reaction to EM Around the Reporting Date – Sub-Sample Target

EM Measure	**Modified Jones** _(AEM1)_			**Abnormal OCF** _(REM1)_			**Ab. Production Costs** _(REM2)_		
Dependent Var.	CAR [-2;21]			CAR [-2;21]			CAR [-2;21]		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	11.2700	1.1070		11.5200	1.1280		10.9893	1.0390	
EM	-14.1200	-1.2790		3.0070	0.3180		-1.4110	-0.8080	
PosNI	-0.1304	-0.9790		-0.1310	-0.9800		-0.2207	-1.2450	
ΔEPS	3.6710	1.3270		2.8630	1.0020		3.5533	1.2210	
FB	-0.6690	-2.1440	*	-0.6557	-2.0990	*	-0.6704	-2.1070	*
SIZE	-1.4040	-1.7830	†	-1.3710	-1.7360	†	-1.2757	-1.4300	
MTB	-0.1014	-0.7380		-0.0955	-0.6920		-0.0106	-0.0600	
BETA	-3.0750	-1.5000		-3.1300	-1.5240		-3.2572	-1.5030	
GROWTH	0.0034	0.7440		0.0031	0.6780		0.0029	0.6180	
DEBT	0.0020	6.0240	***	0.0020	6.0930	***	-0.0020	-0.3700	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	_9.82%_			_9.52%_			_2.98%_		
F-value	_2.24_	_***_		_2.20_	_***_		_1.33_	_†_	
Sample size	_503_			_503_			_481_		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. CAR denotes the cumulative abnormal returns. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. PosNI takes the value of 1 if the firm has reported positive earnings. ΔEPS denotes the difference between the EPS of the current year and the EPS of the previous year. FB denotes the difference between the last forecast provided and the reported EPS. SIZE is the natural logarithm of the assets. MTB denotes the market-to-book ratio. BETA denotes the risk exposure to the market movements. GROWTH denotes the growth rate of the revenue in the past 5 years. DEBT is the total debt divided by the mean of common equities. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 21: Market Reaction to EM Around the Reporting Date – Short-Term CAR

EM Measure	**Modified Jones** (AEM1)			**Abnormal OCF** (REM1)			**Ab. Production Costs** (REM2)		
Dependent Var.	CAR [-2;2]			CAR [-2;2]			CAR [-2;2]		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	4.1040	1.1920		4.0160	1.1650		4.0670	1.1540	
EM	8.8000	1.1070		1.0660	0.2340		-0.1466	-0.1570	
TARGET	1.2490	1.6390		1.3010	1.6900	†	1.0150	1.3050	
EMxTARGET	-6.9110	-0.7270		-6.3660	-1.0100		-0.2924	-0.2330	
PosNI	2.2390	2.2010	*	2.6520	2.5420	*	2.2200	2.1070	*
ΔEPS	-0.0002	-0.0080		0.0000	-0.0010		-0.0021	-0.0930	
FB	0.0477	0.3090		0.0423	0.2740		0.0376	0.2410	
SIZE	-0.2891	-1.0550		-0.3195	-1.1650		-0.2098	-0.7140	
MTB	-0.0939	-2.4520	*	-0.0926	-2.4100	*	-0.0355	-0.7780	
BETA	-0.7447	-1.0150		-0.7514	-1.0210		-0.7508	-0.9910	
GROWTH	0.0032	1.6760	†	0.0032	1.6640	†	0.0032	1.6120	
DEBT	0.0022	13.7930	***	0.0022	13.8010	***	-0.0005	-0.4170	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*17.97%*			*17.98%*			*1.13%*		
F-value	*5.18*	***		*5.19*	***		*1.21*		
Sample size	*956*			*956*			*931*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. CAR denotes the cumulative abnormal returns. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. PosNI takes the value of 1 if the firm has reported positive earnings. ΔEPS denotes the difference between the EPS of the current year and the EPS of the previous year. FB denotes the difference between the last forecast provided and the reported EPS. SIZE is the natural logarithm of the assets. MTB denotes the market-to-book ratio. BETA denotes the risk exposure to the market movements. GROWTH denotes the growth rate of the revenue in the past 5 years. DEBT is total debt divided by the mean of common equities. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.6 Deal Completion and EM

To complete the analysis of the effects of EM around the M&A announcement, the effect of manipulation on the deal outcome is tested. A logit model is run to test whether EM affects the likelihood of completing the deal, following Skaife and Wangerin (2013) and Lim and Chang (2017). Two possible outcomes can relate EM to deal completion. First, it can be hypothesised that if downward EM is negotiated, then it should increase the likelihood of deal completion. Alternatively, Skaife and Wangerin (2013) and Lim and Chang (2017) advocate that, typically, the acquisition agreements contain a warranty against GAAP violation, which allows the bidders to leave the deal. They assume and find that low quality reporting firms are related to deal withdrawals, suggesting that these firms are more likely to breach the accounting

warranties. When it is applied to the EM context, it is hypothesised that similar to low reporting quality, downward EM should decrease the deal completion likelihood.

The link between EM and deal completion is examined for the sample. Similar to Skaife and Wangerin (2013), a model that controls for the firm and transaction characteristics is run for each EM measure. The results are presented in Table 22 for the abnormal accruals measure, and Table 23 presents the results for the REM measures. The only EM measure affecting the deal completion is the AEM, while the other three REM measures are not associated with the likelihood of deal completion, consistent with the idea that real activity manipulation is more difficult to observe (e.g., Cohen et al. 2008; Cohen and Zarowin 2010; Zang 2012). Abnormal accruals seem to positively affect the likelihood of completing the deal. This means that, despite the positive effect on the acquisition premium, downward manipulation of target firms does not help complete the transaction. Some of the control variables are associated with the completion of the deal. First, the premium is positively associated with deal completion. A higher premium is linked to a higher probability of completing the deal. The percentage sought by the bidder is negatively associated with the deal completion, which suggests that the risk of failing the transaction is higher when the bidders seek a higher stake. Tender offers and firms going private are related to a higher likelihood of completing the deal. The results about tender offers are consistent with the results of Skaife and Wangerin (2013), who argue that tender offers have a quicker procedure and require less time for completion. Finally, in terms of firm characteristics, the debt level of the firm decreases the likelihood of deal completion. There may be two reasons for this: first, high leverage increases the risk of debt covenant violation, and second, the high level of debt plus undisclosed (until the due diligence) off-balance sheet liabilities may not be supported by the bidders post-acquisition (Skaife and Wangerin 2013).

In summary, the positive relation between AEM and the likelihood of deal completion does not directly support the hypothesis that managers' choice of downward manipulation eases the transaction. This result opposes the efficient hypotheses; downward manipulation does not seem negotiated between target managers and the acquirer. Indeed, downward manipulation may worry the acquirer about the quality of all the financial data and the risk of bad surprises (e.g., earnings restatements) in the post-acquisition period, consistent with previous literature. Both assumptions make the underlying hypothesis that only the bidder's management has the power to make the deal go bust. Nevertheless, it is argued that in the case of very large transactions, which are normally highly publicized (especially for public firms), third parties

can affect the outcome of the deal, such as financial advisors that run the due diligence.[32] Indeed, third parties may misunderstand the EM strategy (e.g., suspect opportunism or poor EQ) and advise negatively about the deal. This alternative hypothesis could explain the contrasting results between the effect on the deal completion and the effect on the premium.

Table 22: Deal Completion – AEM

EM Measure	Modified Jones (AEM1)			Modified Jones (AEM1)		
Dependent Var.	COMPLETED			COMPLETED		
Coefficients	**Estimate**	**z-value**		**Estimate**	**z-value**	
Intercept	2.1220	3.8780	***	2.1760	2.4400	*
AEM	2.0350	2.6380	**	1.6100	2.0260	*
SIZE	-0.0393	-0.7620		-0.0272	-0.4620	
ROE	0.0004	0.9900		0.0004	0.8500	
DEBT	-0.0007	-2.1770	*	-0.0007	-2.0480	*
SD.OCF	0.4727	0.5800		0.6146	0.6180	
MTB	0.0059	0.5740		0.0074	0.6950	
GROWTH	-0.0001	-0.4290		0.0000	-0.0210	
%.SOUGHT	-0.0129	-3.4570	***	-0.0146	-3.2000	**
GO.PRIVATE	0.4558	1.9050	†	0.4101	1.5800	
TENDER.OFF	0.2810	1.8910	†	0.3739	2.0800	*
CROSS.BORDER	-0.1245	-0.7820		-0.1224	-0.7070	
STCK.PAY	0.2096	1.0890		0.0718	0.3500	
SAME.INDUSTRY	-0.0546	-0.3590		-0.0488	-0.2990	
PREM30D	0.4353	2.4050	*	0.3460	1.7600	†
Country control	Not Included			Included		
Year control	Included			Included		
Adj. Mcfadden R-squared:	*4.47%*			*1.20%*		
Likelihood ratio test	*50.47*	**		*90.91*	***	
Sample size	*558*			*558*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. COMPLETED indicates whether the transaction is completed. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. MTB denotes the market-to-book ratio. GROWTH denotes the growth rate of the revenue in the past 5 years. %SOUGHT indicates the share percentage the bidder is seeking to buy. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

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[32] Financial advisors, among others, such as regulators, political pressure, labour unions, shareholders' activism, etc.

Table 23: Deal Completion – REM

EM Measure	Abnormal OCF (REM1)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	COMPLETED			COMPLETED			COMPLETED		
Coefficients	**Estimate**	**z-value**		**Estimate**	**z-value**		**Estimate**	**z-value**	
Intercept	2.1084	3.8880	***	2.0344	3.7400	***	2.0008	2.7280	**
REM	-0.3288	-0.5020		-0.0725	-0.5450		-0.3485	-0.2300	
SIZE	-0.0396	-0.7740		-0.0393	-0.7440		0.0521	0.7930	
ROE	0.0006	0.5680		0.0007	0.4230		0.0048	1.1380	
DEBT	-0.0007	-2.1540	*	-0.0007	-2.1430	*	-0.0024	-4.0940	***
SD.OCF	0.3720	0.4080		0.1554	0.1850		1.3363	0.6120	
MTB	0.0043	0.4110		0.0045	0.4220		0.0404	2.5160	*
GROWTH	-0.0002	-0.8780		-0.0002	-0.8070		-0.0001	-0.5910	
%.SOUGHT	-0.0125	-3.4040	***	-0.0122	-3.3080	***	-0.0182	-3.6310	***
GO.PRIVATE	0.4317	1.8260	†	0.4285	1.7970	†	0.4317	1.6020	
TENDER.OFF	0.2605	1.7750	†	0.2857	1.9290	†	0.4337	2.3990	*
CROSS.BORDER	-0.0833	-0.5330		-0.0948	-0.5990		-0.0246	-0.1330	
STCK.PAY	0.2210	1.1540		0.2249	1.1570		0.2276	0.9880	
SAME.INDUSTRY	-0.0633	-0.4210		-0.0628	-0.4140		0.0832	0.4500	
PREMIUM	0.3964	2.2040	*	0.4150	2.2700	*	0.3676	1.7730	†
Year control	Included			Included			Included		
Adj. Mcfadden R-squared:	*2.96%*			*4.39%*			*29.06%*		
Likelihood ratio test	*43.27*	**		*38.70*	*		*57.45*	***	
Sample size	*558*			*532*			*410*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. COMPLETED indicates whether the transaction is completed. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. MTB denotes the market-to-book ratio. GROWTH denotes the growth rate of the revenue in the past 5 years. %SOUGHT indicates the share percentage the bidder is seeking to buy. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.7 Working Capital Accruals

As an alternative measure for the AEM measure, an additional specification for the dependent variable is coded. For this additional sensitivity test, the accruals are computed as the working capital accruals only, in a similar way to the one proposed by Healy (1985), Jones (1991) and Dechow et al. (1995). Under this specification, the total accruals (dependent variable) are computed as the change in non-cash working capital less the depreciation expense. The detail of the computation is as follows (Equation 9):

$$
\begin{aligned}
TA_{i,t} = {} & (\Delta Current\ Assets - \Delta Cash) \\
& - (\Delta Current\ Liabilities - \Delta Current\ portion\ of\ Long\ term\ Debt) \quad \textbf{(9)} \\
& - Depreciation\ and\ amortizazion\ expense
\end{aligned}
$$

The model for the sample of friendly target firms presented above is run. Due to the specificity required of the data, a few firms are dropped because of the lack of data availability. The final sample for this test contains 820 firms (target and control).

The results of the AEM detection with this alternative specification are presented in Table 24. The results do not show any evidence supporting downward EM manipulation. Indeed, the variable TARGET is not statistically significant. The only statistically significant variable is the one considering the proportion of losses in the past five years. The variable is positive, suggesting that distressed firms are more likely to manipulate upward, regardless of a M&A announcement.

Previous results exhibit income-decreasing accounting choices for target firms when current and non-current accruals were considered, while the present results do not show any manipulation with the current accruals. The results observed for current and non-current accruals seem to be driven by non-current accruals manipulation, which confirms Larson et al.'s (2018) suggestion. These accounts are usually less suspected of manipulation, because they are more regulated and visible (e.g., firms must disclose the information if they change the estimation method for the depreciation computation or if they make an amortization).

Table 24: EM Detection: Multivariate Analysis – Working Capital Accruals

EM Measure	Kothari et al. (WCA) *(AEM4)*	
Coefficients	**Estimate**	**t-value**
Intercept	0.0323	0.7840
TARGET	0.0073	0.8820
SIZE	-0.0016	-0.5670
ROE	0.0000	0.7360
LOSS.PROP	0.0433	2.8450 **
DEBT	0.0000	-0.4560
SD.SALES	0.0207	0.9900
SD.OCF	-0.0826	-1.5810
INT. SALES	-0.0070	-0.5710
TOP5INSTIT.SH	-0.0002	-1.3790
Country control	included	
Year control	included	

Adj. R-squared:	*3.02%*	
F-value	*1.50* *	
Sample size	*820*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM4 is the firm's abnormal working capital accrual calculated from the modified Kothari et al. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.8 Classification Shifting

An alternative technique of EM is CS. The CS model considers the shift of core expenses to special items. Like the other EM measures employed, this model decomposes the core earnings into normal and abnormal core expenses. Two cross-sectional regressions proposed by McVay (2006) are employed. The abnormal core expenses are the residuals of the regressions clustered by industry. The first model contains the lagged core earnings, because it is likely that a part of them are going to be persistent over time. The author includes the asset turnover ratio, which is inversely related to the profit margin, and controls for firms that change their operating strategy.

Next, the lagged accruals are added to control the accruals persistency. Moreover, the actual accruals are inserted in the model, because they are suspected of being correlated to the performance. Finally, the change in sales and the negative change in sales are included to control for growth. The residuals of the first model are named CS1 (Equation 10). The model is defined as follows:

$$CE_{i,t} = \delta_0 + \delta_1 CE_{i,t-1} + \delta_2 ATO_{i,t} + \delta_3 ACCRUALS_{i,t-1} + \delta_4 \text{ACCRUALS}_{i,t} \quad \textbf{(10)}$$
$$+ \delta_5 \Delta SALES_{i,t} + \delta_6 NEG.\Delta SALES_{i,t} + \varepsilon_i$$

The second model proposed by McVay (2006) considers the change in core earnings. Additionally, to the independent variables exposed for the first model, the author adds the lagged change in core earnings, controlling for the reversion of the prior-year's core earnings. Moreover, the asset turnover ratio is replaced by the change in asset turnover ratio. The residuals of the model are named CS2 (Equation 11). The model is as follows:

$$\Delta CE_{i,t} = \varphi_0 + \varphi_1 CE_{i,t-1} + \varphi_1 \Delta CE_{i,t-1} + \varphi_2 \Delta ATO_{i,t} + \varphi_3 ACCRUALS_{i,t-1} \quad \textbf{(11)}$$
$$+ \varphi_4 \text{ACCRUALS}_{i,t} + \varphi_5 \Delta SALES_{i,t} + \varphi_6 NEG.\Delta SALES_{i,t} + \varepsilon_i$$

Where:

$CE_{i,t} =$	the core earnings, defined as ([Sales - Cost of goods sold - selling, general, and administrative expenses]/Sales);
$CE_{i,t-1} =$	the lagged core earnings;
$\Delta CE_{i,t-1} =$	the change in lagged core earnings;
$ATO_{i,t} =$	the asset turnover ratio;
$ACCRUALS_{i,t-1} =$	the operating accruals of the previous year;
$ACCRUALS_{i,t} =$	the operating accruals;
$\Delta SALES_{i,t} =$	the change in sales, scaled by previous year sales;
$NEG.\Delta SALES_{i,t} =$	the Δsales if Δsales is negative, and 0 otherwise;
$\varepsilon_i =$	the error term for firm i; and
$i =$	1, …, N firms.

Similar to the other EM measures, the abnormal core earnings and abnormal change in core earnings are used as measures to detect EM.

To examine the potential use of CS as a manipulation technique, it is investigated whether target firms downward manipulate their core business compared to a sample of control firms. Identically to the methodology employed above, all the target firms with available data about CS (864 target firms) are selected and matched to the control firms based on the covariates of size, performance, debt level and revenue of the firms.

Table 25 presents the correlation matrix of all EM measures. Classification shifting measures are highly correlated with each other. Moreover, both CS measures are positively correlated with abnormal cash flows but negatively correlated with abnormal accruals and abnormal production costs. Finally, Table 26 exhibits the regressions for the CS detection. The results reveal that the level of CS is not explained by target managers' manipulation but rather by the firm's characteristics. The main variables influencing the level of CS, for both models, is the variability of the sales and the variability of the operating cash flows. Furthermore, the performance and the leverage of the firm seem to also affect the amount of CS. Finally, the abnormal core earnings seem to be positively affected by the complexity of the business (proxied by the proportion of international sales).

Overall, the results suggest that target managers do not employ CS as a method of manipulation before friendly M&As, but they prefer to manipulate though AEM and REM. One possible explanation for these results is that CS is less suitable for efficient EM. Indeed, the voluntary shift of extraordinary expenses to core expenses is more likely to decrease the transparency of the financial statements and bring litigation and restatement risks.

Table 25: Correlation Matrix

	AEM1	REM1	REM2	REM3	CS1	CS2
AEM1	1	**-0.47**	**0.06**	**0.39**	**-0.29**	**-0.30**
REM1		1	**-0.06**	-0.02	**0.58**	**0.63**
REM2			1	-0.01	**-0.10**	**-0.12**
REM3				1	-0.01	-0.01
CS1					1	**0.95**
CS2						1

Notes: the Pearson correlation coefficients are reported in the upper right portion of the table. Bold text indicates that the correlations are statistically significant at p-value < 0.10. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. CS1 denotes the abnormal core earnings. CS2 denotes the abnormal changes in the core earnings.

Table 26: EM Detection: Multivariate Analysis – Classification Shifting

EM Measure	Classification Shifting (CS1)		Classification Shifting Changes (CS2)	
Coefficients	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	-0.0052	-0.1590	-0.0285	-0.9150
TARGET	-0.0025	-0.3390	0.0019	0.2720
SIZE	-0.0004	-0.1510	0.0035	1.3020
ROE	0.0000	1.7630 †	0.0000	3.2830 **
LOSS.PROP.	-0.0055	-0.4140	0.0083	0.6390
DEBT	0.0000	-2.0670 *	-0.0001	-3.6020 ***
SD.SALES	-0.0526	-3.1780 **	-0.0484	-3.0330 **
SD.OCF	0.2173	5.4590 ***	0.2923	7.6720 ***
INT. SALES	0.0210	1.9750 *	0.0130	1.2460
TOP5INSTIT.SH	-0.0001	-0.6760	-0.0001	-0.4750
Country control	Included		Included	
Year control	Included		Included	
Adj. R-squared:	*3.08%*		*6.77%*	
F-value	*1.51* *		*2.09* ***	
Sample size	*864*		*809*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. CS1 denotes the abnormal core earnings. CS2 denotes the abnormal changes in the core earnings. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.9 Hostile Takeover

As exposed in the literature review, the accounting choices of target managers are likely to differ depending on the attitude of the transaction. Since managers can fear replacement, they may choose income-increasing accounting choices and income-increasing real activities as a defence mechanism to increase the stock price and, therefore, raise the cost of the acquisition for the bidder. In this section, EM detection is examined in a sample of hostile takeovers.

The initial sample follows the selection characteristics of the sample of friendly takeovers observed previously, but here, only hostile takeovers are considered. The final sample contains 79 hostile takeovers (see Table 27).

Table 27: Sample Selection of Hostile Takeovers

Initial sample (merger & majority stake, Transaction value > 100 MM)	1,654
Accounting standards different from IAS/IFRS	-305
Firms with missing data or incomplete data	-164
Firms with a SIC code included between 6000–6999	-321
Firms in industries without enough comparable firms	-167
Firms targeted two consecutive years or targeted by multiple acquirers	-24
Firms with negative equity	-16
Friendly takeovers	-578
Final sample	**79**

A control sample of non-target firms is used to compare the level of EM in hostile target firms. The selection of control firms is based on propensity score matching. The matching technique relies on the following covariates: the firm's size, debt level, performance and revenue of the firms.

Table 28 exhibits the descriptive statistics for the sample of hostile targets and for the sample of control firms. The firms exhibit slight characteristic differences; indeed, the control firms seem smaller and less performing. The differences seem to be due to the extreme values. In terms of EM measures, no pattern is observable. Finally, Table 29 shows the deal characteristics of the hostile target firms. The premium computed over 30 days is around 34%, similar to the premium offered to friendly target firms over the same period. As expected for hostile transactions, the deal completion is low (43% on average). The other deal characteristics are similar to those of friendly target firms.

Table 28: Sample Description – EM and Firm Characteristics

Target	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
AEM2	-0.0086	-0.0099	-0.1502	0.2177	0.0559	79.00	0.00
REM1	0.0177	0.0135	-0.1603	0.3052	0.0819	79.00	0.00
REM2	-0.1159	-0.1923	-0.7910	1.3057	0.4000	77.00	0.00
REM3	-0.0049	-0.0012	-0.1136	0.0708	0.0321	67.00	0.00
SIZE	7.3431	7.2396	-0.0051	10.7886	1.8241	79.00	0.00
OCF	0.0839	0.0820	-0.0603	0.2609	0.0664	79.00	0.00
ROE	9.2662	10.3366	-74.3214	89.6425	22.9641	79.00	0.00
DEBT	130.8015	58.8032	0.0000	1,190.9041	209.1305	79.00	1.00
SALES	0.0380	0.0588	-2.6804	2.6758	0.4675	79.00	1.00
Control							
AEM2	-0.0161	-0.0064	-0.6491	0.3198	0.1143	79.00	0.00
REM1	0.0009	-0.0033	-0.5445	0.6893	0.1482	79.00	0.00
REM2	0.0453	-0.0404	-1.1583	2.0406	0.5581	79.00	0.00
REM3	0.0329	0.0013	-0.5128	1.7938	0.2537	55.00	0.00
SIZE	5.1381	5.0041	0.3120	10.8663	2.1888	79.00	0.00
OCF	0.0459	0.0617	-0.6763	0.4061	0.1551	79.00	0.00
ROE	-2.0119	4.9231	-134.1183	61.9430	31.7289	79.00	0.00
DEBT	99.0020	55.4978	0.0000	1,186.8719	164.2349	79.00	8.00
SALES	-0.0060	0.0098	-2.8831	2.6130	0.4894	79.00	3.00

Notes: AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. SALES is the total revenue scaled by total assets $t-1$.

Table 29: Sample Description – Transaction Characteristics

	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
PREM30D	0.3361	0.31	-0.54	1.56	0.3224	79.00	0.00
SAME.INDUSTRY	0.5316	1.00	0.00	1.00	0.5022	79.00	37.00
COMPELTED	0.4304	0.00	0.00	1.00	0.4983	79.00	45.00
STRATEGIC	0.8228	1.00	0.00	1.00	0.3843	79.00	14.00
GO.PRIVATE	0.0506	0.00	0.00	1.00	0.2206	79.00	75.00
AUCTION	0.0127	0.00	0.00	1.00	0.1125	79.00	78.00
TENDER.OFF	0.5696	1.00	0.00	1.00	0.4983	79.00	34.00
STCK.PAY	0.3165	0.00	0.00	1.00	0.4681	79.00	54.00
MULTIBID	0.1266	0.00	0.00	1.00	0.3346	79.00	69.00
CROSS.BOARDER	0.5570	1.00	0.00	1.00	0.4999	79.00	35.00
%.SOUGHT	83.8622	100.00	20.18	100.00	24.2250	79.00	0.00
DAYS.TO.CLOSE	149.7059	113.50	35.00	384.00	427.3408	79.00	0.00
TOEHOLD	11.6281	0.00	0.00	78.02	19.0491	79.00	52.00

Notes: PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. MULTIBID indicates whether there are multiple bidders. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. %SOUGHT indicates the share percentage the bidder is seeking to buy. DAYS.TO.CLOSE indicates the number of days between the announcement and the closing/cancellation of the deal. TOEHOLD indicates the percentage held in the target company by the bidder before the announcement.

Finally, the level of EM is examined. Table 30 exhibits the results for AEM, while Table 31 presents the results for REM measures. The results are consistent throughout the four measures; indeed, no manipulation is observed compared to the control sample. Overall, the results suggest that hostile firms do not manipulate their earnings the year before the M&A announcement.[33] The results are not consistent with Easterwood (1998) and Guan et al. (2004), who find upward manipulation. Nevertheless, these results are consistent with the results of Eddey and Taylor (1999), who do not find any evidence of EM. The lack of significance can be due to the small number of observations in the sample. Alternatively, managers of target firms of hostile M&A attempts are less able to anticipate the transaction announcement, so they do not have enough time to establish an EM strategy as a defence mechanism. This hypothesis is based on previous literature about EM detection, which advocates that target firms do not

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[33] Univariate analyses for EM detection (not tabulated for parsimony) show weak results of downward manipulation for target firms of hostile takeovers (i.e., opposite direction from the one expected) for abnormal production costs and abnormal discretionary expenses, which are not confirmed in the multivariate analyses.

have time to employ EM before an EM announcement (Erickson and Wang 1999; Skaife and Wangerin 2013; Anagnostopoulou and Tsekrekos 2015).

Table 30: EM Detection: Multivariate Analysis – AEM

EM Measure	Kothari et al. (AEM2)	
Coefficients	**Estimate**	**t-value**
Intercept	0.0071	0.0570
TARGET	0.0011	0.0580
SIZE	-0.0002	-0.0310
ROE	0.0008	2.5120 *
LOSS.PROP	0.0047	0.1370
DEBT	0.0000	0.4790
SD.SALES	0.0128	0.3130
SD.OCF	-0.2020	-0.8290
INT. SALES	0.0190	0.7230
TOP5INSTIT.SH	-0.0003	-0.9030
Country control	Included	
Year control	Included	

Adj. R-squared:	*0.09%*	
F-value	*1.00*	
Sample size	*158*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 31: EM Detection: Multivariate Analysis – REM

EM Measure	Abnormal OCF (REM1)		Ab. Production Costs (REM2)		Ab. Discretionary Exp. (REM3)	
Coefficients	**Estimate**	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	-0.2451	-1.8430 †	-0.6277	-1.1140	0.1041	0.4130
TARGET	-0.0097	-0.4750	-0.1045	-1.2000	-0.0002	-0.0050
SIZE	0.0091	1.7530 †	0.0222	1.0080	0.0018	0.1580
ROE	0.0015	4.2460 ***	-0.0028	-1.8370 †	0.0013	1.6510
LOSS.PROP	-0.0514	-1.3820	-0.3227	-2.0480 *	0.1051	1.3120
DEBT	0.0000	0.6110	-0.0002	-0.8470	-0.0001	-0.5190
SD.SALES	0.1072	2.4240 *	1.0720	5.7310 ***	0.0338	0.3770
SD.OCF	1.1870	4.5160 ***	1.9319	1.7380 †	0.3243	0.4600
INT. SALES	0.0029	0.1020	-0.3594	-2.9790 **	-0.0168	-0.2860
TOP5INSTIT.SH	0.0004	1.1620	0.0020	1.4640	-0.0007	-1.0540
Country control	included		included		included	
Year control	included		included		included	

Adj. R-squared:	*34.63%*		*30.70%*		*10.46%*	
F-value	*3.03*	***	*2.72*	***	*1.36*	
Sample size	*158*		*156*		*122*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.6　Conclusion

This study examines EM by friendly takeover targets in Europe during 2005–2015 and its consequences on the acquisition premium. Three detection models are computed for abnormal accruals, and the real activity detection models proposed by Roychowdhury (2006) are also used. The results of the univariate and multivariate analyses appear to confirm (two of the three abnormal accrual detection models and two real activity detection models used for the analysis) that there is downward manipulation in target firms the year prior to a M&A announcement. The results of downward manipulation are consistent with the majority of the previous literature related principally to friendly takeovers and MBOs (Perry and Williams 1994; Wu 1997;

Begley et al. 2003; Fischer and Louis 2008; Ben-Amar and Missonier-Piera 2008; Mao and Renneboog 2015).

Then, this study examines whether the level of EM influences the premium offered by the acquirer. As examined by some authors, the EM strategy can be either informative or opportunistic (e.g., Watts and Zimmerman 1986; Healy and Palepu 1993; Chen et al. 2010; Herbohn et al. 2010).

The results show that downward accrual manipulation and abnormal discretionary expenses positively affect the premium. This evidence suggest that the acquirer positively values this procedure, in accordance with balance-sheet cleaning, accrual-reversal suppositions and accounting conservatism to reduce litigation risk. This seems to reject the managerial opportunism hypothesis. Target managers of friendly takeovers seem to negotiate an EM strategy that pleases the acquirer and benefits the target shareholders.

Results hold for several sensitivity tests. The results on the detection of accounting manipulation do not seem to carry over from companies that have an M&A announcement early in the year. This suggests that executives manage to set up a manipulation strategy in advance. The results associating EM and premium are robust to different methods of calculating the premium and to the combination of EM measures. Moreover, additional analysis shows that EM does not seem to influence the market price at the release of annual reports, suggesting that the effect of EM is only considered around the M&A announcement.

It is also observed that the completion of the transaction is associated with EM. Downward accrual manipulation negatively affects the transaction's completion, consistent with the findings of Skaife and Wangerin (2013) and Lim and Chang (2017). Despite the result not supporting the hypothesis that EM is a strategy to ease the deal, this result could also be explained by external parties who may not fully understand EM strategies.

Finally, analyses of bidders' pre-announcement shareholder interests, alternative EM measures and on hostile takeover firms are conducted.

.7   Appendices

Appendix 1: Year of Suspected Manipulation Distribution

Year	Target	Control	Target %	Control %
2005	54	29	9.34	5.02
2006	89	66	15.40	11.42
2007	74	63	12.80	10.90
2008	36	34	6.23	5.88
2009	40	37	6.92	6.40
2010	48	53	8.30	9.17
2011	54	66	9.34	11.42
2012	38	36	6.57	6.23
2013	44	65	7.61	11.25
2014	57	69	9.86	11.94
2015	44	60	7.61	10.38
Sum	**578**	**578**	**100**	**100**

Notes: Year denotes the year of suspected manipulation of the firm. Target denotes the sample of target firms. Control denotes the sample of firms that are not targets of M&A deals. The columns Target% and Control% express the percentage of firms residing in the country.

Appendix 2: Country Distribution

Country	Target	Control	Target %	Control %
AUSTRIA	8	12	1.38	2.08
BELGIUM	15	14	2.60	2.42
CROATIA	1	6	0.17	1.04
CYPRUS	2	3	0.35	0.52
CZECH REPUBLIC	1	3	0.17	0.52
DENMARK	7	18	1.21	3.11
ESTONIA	0	1	0.00	0.17
FINLAND	15	24	2.60	4.15
FRANCE	57	62	9.86	10.73
GERMANY	53	63	9.17	10.90
GIBRALTAR	1	0	0.17	0.00
GREECE	11	24	1.90	4.15
HUNGARY	3	2	0.52	0.35
ICELAND	1	2	0.17	0.35
IRELAND	11	4	1.90	0.69
ITALY	34	35	5.88	6.06
LITHUANIA	1	2	0.17	0.35
LUXEMBOURG	5	4	0.87	0.69
MALTA	2	0	0.35	0.00
NETHERLANDS	42	13	7.27	2.25
NORWAY	32	21	5.54	3.63
POLAND	16	21	2.77	3.63
PORTUGAL	4	9	0.69	1.56
ROMANIA	0	4	0.00	0.69
RUSSIAN FED.	6	6	1.04	1.04
SERBIA	0	1	0.00	0.17
SLOVAKIA	0	1	0.00	0.17
SLOVENIA	6	4	1.04	0.69
SPAIN	12	19	2.08	3.29
SWEDEN	34	33	5.88	5.71
SWITZERLAND	18	29	3.11	5.02
TURKEY	1	31	0.17	5.36
UKRAINE	0	4	0.00	0.69
UNITED KINGDOM	179	103	30.97	17.82
Sum	**578**	**578**	**100**	**100**

Notes: Target denotes the sample of target firms. Control denotes the sample of firms that are not targets of M&A deals. The columns Target% and Control% express the percentage of firms residing in the country.

Appendix 3: Industry Distribution

Two-Digit SIC	INDUSTRY	Target	Control	Target %	Control %
01	Agricultural Production Crops	3	4	0.52	0.69
02	Agriculture Production Livestock and Animal Specialties	2	2	0.35	0.35
10	Metal Mining	13	7	2.25	1.21
12	Coal Mining	3	4	0.52	0.69
13	Oil and Gas Extraction	29	15	5.02	2.60
14	Mining and Quarrying of Non-Metallic Minerals, Except Fuels	1	1	0.17	0.17
15	Building Construction, General Contractors and Operative Builders	8	13	1.38	2.25
16	Heavy Construction Other Than Building Construction Contractors	5	8	0.87	1.38
17	Construction Special Trade Contractors	3	0	0.52	0.00
20	Food and Kindred Products	22	36	3.81	6.23
22	Textile Mill Products	5	3	0.87	0.52
23	Apparel and Other Finished Products Made from Fabrics and Similar Materials	2	4	0.35	0.69
24	Lumber and Wood Products, Except Furniture	2	5	0.35	0.87
26	Paper and Allied Products	7	12	1.21	2.08
27	Printing, Publishing and Allied Industries	11	13	1.90	2.25
28	Chemicals and Allied Products	42	47	7.27	8.13
29	Petroleum Refining and Related Industries	0	6	0.00	1.04
30	Rubber and Miscellaneous Plastics Products	2	9	0.35	1.56
32	Stone, Clay, Glass and Concrete Products	11	12	1.90	2.08
33	Primary Metal Industries	8	23	1.38	3.98
34	Fabricated Metal Products, Except Machinery and Transportation Equipment	9	9	1.56	1.56
35	Industrial and Commercial Machinery and Computer Equipment	38	40	6.57	6.92
36	Electronic and Other Electrical Equipment and Components, Except Computer Equipment	24	20	4.15	3.46
37	Transportation Equipment	8	13	1.38	2.25
38	Measuring, Analysing and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks	19	15	3.29	2.60
39	Miscellaneous Manufacturing Industries	4	5	0.69	0.87
42	Motor Freight Transportation and Warehousing	2	4	0.35	0.69
44	Water Transportation	18	10	3.11	1.73
45	Transportation by Air	5	9	0.87	1.56
47	Transportation Services	10	10	1.73	1.73
48	Communications	28	21	4.84	3.63
49	Electric, Gas and Sanitary Services	32	27	5.54	4.67
50	Wholesale Trade-Durable Goods	16	25	2.77	4.33
51	Wholesale Trade-Non-Durable Goods	10	21	1.73	3.63
53	General Merchandise Stores	3	4	0.52	0.69
54	Food Stores	6	6	1.04	1.04
55	Automotive Dealers and Gasoline Service Stations	2	5	0.35	0.87
56	Apparel and Accessory Stores	4	6	0.69	1.04
57	Home Furniture, Furnishings and Equipment Stores	2	7	0.35	1.21
58	Eating and Drinking Places	4	5	0.69	0.87
59	Miscellaneous Retail	7	6	1.21	1.04
70	Hotels, Rooming Houses, Camps and Other Lodging Places	4	5	0.69	0.87
73	Business Services	94	50	16.26	8.65
75	Automotive Repair, Services and Parking	3	1	0.52	0.17
78	Motion Pictures	6	1	1.04	0.17
79	Amusement and Recreation Services	6	5	1.04	0.87
80	Health Services	7	2	1.21	0.35
87	Engineering, Accounting, Research, Management and Related Services	28	22	4.84	3.81
Sum		**578**	**578**	**100**	**100**

Notes: Target denotes the sample of target firms. Control denotes the sample of firms that are not targets of a M&A deal. The columns Target% and Control% express the percentage of firms in each two-digit SIC code.

Appendix 4: Premium Analysis: Schwert (1996) – AEM

EM Measure	Modified Jones (AEM1)			Kothari et al. (AEM2)			Larson et al. (AEM3)		
Dependent Var.	SCHWERT.PREM			SCHWERT.PREM			SCHWERT.PREM		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	-0.3098	-1.4360		-0.2986	-1.3810		-0.1096	-0.4230	
AEM	-0.6181	-3.3120	***	-0.5896	-3.0830	**	-0.2876	-1.1280	
SIZE	-0.0118	-0.8570		-0.0114	-0.8220		0.0047	0.2420	
OCF	-0.6059	-4.2870	***	-0.6255	-4.2970	***	-0.9418	-3.6090	***
ROE	0.0000	-0.1860		0.0000	-0.2490		0.0000	0.2130	
DEBT	0.0000	5.8960	***	0.0000	5.9120	***	-0.0001	-0.6870	
LOSS.PROP	-0.0972	-1.5240		-0.0876	-1.3700		-0.0165	-0.1730	
%SOUGHT	0.0025	2.8180	**	0.0025	2.7860	**	0.0017	1.4140	
COMPLETED	0.0918	1.7210	†	0.0860	1.6130		0.0876	1.4040	
GO.PRIVATE	-0.0468	-0.8830		-0.0437	-0.8230		0.0444	0.6210	
TENDER.OFFER	0.0842	2.0410	*	0.0829	2.0060	*	0.0367	0.6310	
CROSS.BORDER	0.0053	0.1380		0.0047	0.1220		-0.0951	-1.7990	†
STCK.PAY	-0.1388	-2.8530	**	-0.1389	-2.8510	**	-0.0872	-1.2000	
SAME.INDUSTRY	0.0697	1.8250	.	0.0695	1.8170	†	0.0347	0.6620	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*24.76%*			*24.55%*			*18.34%*		
F-value	*4.59*	***		*4.55*	***		*2.37*	***	
Sample size	*558*			*558*			*287*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. SCHWERT.PREM denotes the premium calculated from the Schwert model. AEM1 is the firm's abnormal accrual calculated from the modified Jones model. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. AEM3 is the firm's abnormal accrual calculated from the Larson et al. model. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Appendix 5: Premium Analysis: Schwert (1996) – REM

EM Measure	Abnormal OCF (REM1)			Ab. Production Costs (REM2)			Ab Discretionary Exp. (REM3)		
Dependent Var.	SCHWERT.PREM			SCHWERT.PREM			SCHWERT.PREM		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	-0.3305	-1.4920		-0.3474	-1.5850		-0.1766	-0.7370	
REM	-0.0379	-0.0990		-0.0056	-0.1830		-1.2520	-3.8780	***
SIZE	-0.0113	-0.8120		-0.0053	-0.3560		-0.0138	-0.8120	
OCF	-0.4036	-1.1830		-0.3973	-2.8950	**	-0.5091	-3.0400	**
ROE	0.0000	-0.3500		0.0000	-0.3990		0.0000	-0.4510	
DEBT	0.0000	6.0680	***	0.0000	0.6130		0.0000	0.4410	
LOSS.PROP	-0.0961	-1.4880		-0.0845	-1.2470		-0.1167	-1.5100	
%SOUGHT	0.0025	2.7870	**	0.0021	2.2400	*	0.0025	2.3270	*
COMPLETED	0.0750	1.3960		0.0813	1.5110		0.0597	0.9370	
GO.PRIVATE	-0.0399	-0.7440		-0.0442	-0.8160		-0.0488	-0.7680	
TENDER.OFFER	0.0919	2.2080	*	0.0620	1.4570		0.0688	1.3610	
CROSS.BORDER	-0.0030	-0.0780		0.0081	0.2020		0.0211	0.4510	
STCK.PAY	-0.1383	-2.8110	**	-0.1301	-2.5750	*	-0.0938	-1.5790	
SAME.INDUSTRY	0.0757	1.9600	†	0.0522	1.3240		0.0173	0.3690	
Country control	Included			Included			Included		
Year control	Included			Included			Included		
Adj. R-squared:	*23.13%*			*18.24%*			*15.25%*		
F-value	*4.28*	***		*3.32*	***		*2.44*	***	
Sample size	*558*			*532*			*410*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. SCHWERT.PREM denotes the premium calculated from the Schwert model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

- # Chapter 2: CEOs' Retention and EM Before Friendly Takeovers[34]

.1   Introduction

Several studies have investigated managers' incentives for managing earnings before M&A transactions. Previous literature suggests that the type of acquisition (hostile vs. friendly) mainly drives EM policy. In the case of hostile takeovers, as managers do not agree with the acquisition, they may strive to convince the current shareholders that the firm's performance is sufficient. In doing so, they may then opt for income-increasing accounting procedures (DeAngelo 1986; Easterwood 1998; Erickson and Wang 1999). The earnings policy choice raises more debate in the case of friendly takeovers. The literature observes that managers of target firms may act opportunistically and decide to trade shareholders' wealth with private benefits (Hartzell et al. 2004; Wulf 2004; Moeller 2005; Fich et al. 2011; Fich et al. 2013; Qiu et al. 2014). Some authors advocate that target managers strive to decrease the premium for the acquirers. They are, therefore, more likely to choose an income-decreasing procedure (Perry and Williams 1994; Ben-Amar and Missonier-Piera 2008). Alternatively, some authors argue that target managers may choose to downward manipulate to establish fictitious performance in the post-acquisition period (Ben-Amar and Missonier-Piera 2008; Chen et al. 2016). These motivations to manage the earnings downward ease the transaction and increase the likelihood of their retention in the combined firm. Other articles consider that management may try to maximise the wealth of the target shareholders and select an income-increasing accounting procedure so as to increase the acquisition premium (Erickson and Wang 1999; Campa and Hajbaba 2016; Vasilescu and Millo 2016). Moreover, few authors find results that do not support the opportunism of target management when they analyse the trade-off between management retention rate and target shareholders' wealth (Agrawal and Walkling 1994; Bargeron et al. 2010; Bargeron et al. 2017). Finally, another stream of literature outside the M&A context finds that aggressive accounting choices and EM are likely to increase the turnover of CEOs and top managers.

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[34] This chapter is based on a working paper co-authored with Prof. Dr. F. Missonier-Piera.

Because previous literature does not completely agree and the consequences of EM are not clear in the context of friendly M&As, this study aims to investigate the impact of EM practices on CEO retention rate in the case of friendly takeovers.

The study is based on a sample of 174 European firms that have been subject to an acquisition or an acquisition attempt during 2005–2015. Earnings management is identified with abnormal accruals and real earnings management in the annual report immediately preceding the acquisition announcement. The model of Kothari et al. (2005) is employed for abnormal accruals detection, and the three Roychowdhury's (2006) models are employed for the REM detection. First, the empirical results indicate that European target firms select income-decreasing accounting choices before the M&A announcement. Second, for completed transactions only, downward EM is associated with higher CEO retention. Moreover, there is no evidence of a trade-off between CEO retention and the acquisition premium, even for firms that manipulate the earnings. This latter result seems to suggest that managers of target firms select accounting procedures that increase earnings in the post-acquisition period through the accruals reversal effect, for example, and these accounting choices seem to be rewarded by the acquirer with a higher retention rate but do not harm the target shareholders' wealth. Lastly, it is a contribution to the literature about the differential effect of the techniques of manipulation. While AEM are rewarded for completed deals, REM is punished because of the negative long-term effect on the performance.

The study's findings suggest that CEOs of completed (cancelled) deals who manipulate earnings downward are more (less) likely to retain their positions. Additionally, CEOs of firms that manage the earnings do not bargain their position with target shareholders' wealth. This latter result seems consistent with the hypothesis that managers of target firms do not seem to manipulate the earnings opportunistically.

The remainder of this chapter is organised as follows. Section 2 summarises previous literature dealing with EM in a M&A context and exposes the hypotheses. Section 3 presents the study's research design. The empirical results are discussed in sections 4 and 5, followed by the conclusion.

.2   Literature Review

.2.1   The Effect of EM on Labour Market Outcomes

Earnings management may influence the labour market for managers. This can be distinguished between managerial turnover after EM and managers' compensation. Compensation corresponds to every side payment granted to the management in relation to M&As.

.2.1.1   Managers' Turnover

Many studies document the relationship between top management turnover and firm performance as being the key determinant (Warner et al. 1988; Denis et al. 1997; Mian 2001; Engel et al. 2003; Fee and Hadlock 2004). Because manipulate the earnings can be the last chance to cover up poor performance, the existing literature also examines manager turnover after a fraud, GAAP violation or restatement (e.g., Agrawal et al. 1999; Beneish 1999; Desai et al. 2006; Arthaud-Day et al. 2006; Collins et al. 2009; Land 2010; Agrawal and Cooper 2017) but gives less attention to EM as such. Desai et al. (2006) show that top manager turnover for this category of firms is 25% higher than non-restated firms within 24 months of the restatements. Similarly, Arthaud-Day et al. (2006) find that CEOs and CFOs of companies that have done a restatement are twice as likely to lose their position as CEOs and CFOs of comparable firms that have not restated their earnings. Collins et al. (2009) focus only on CFOs. They observe a higher involuntary turnover rate and long-term labour market penalties (i.e., lower likelihood of finding employment in a public firm, lower likelihood of finding another job with the same position) for former restatement-firm CFOs. In addition, they observe that the introduction of the SOX increased market labour penalties for these CFOs. Land (2010) and Agrawal and Cooper (2017) confirm the results of higher turnover rate. Moreover, they observe that the likelihood of CEO and CFO turnover is related to the severity of the restatement (i.e., length of time the restatement period covers, restatement revenue related). Finally, Land (2010) also shows that there is a relationship between the CEOs who are replaced because of the later enforcement of the security commission in case of fraud. Alternatively, Agrawal et al. (1999) and Beneish (1999) find no evidence of higher turnover for managers of firms charged with fraud or firms that have made GAAP violations.

Menon and Williams (2008) consider another indirect aspect of firm accounting practice. They observe an association between auditor resignations and manager turnover. After an auditor resignation, the turnover of the CEO and, particularly, the CFO seems to be higher. The authors

suggest that the response of the board might be due to managerial incompetence and/or to signal to market participants the will to restore firm credibility.

Finally, a few authors consider the effect on the managers' labour market within non-violating GAAP manipulation (Murphy and Zimmerman 1993; Guan et al. 2005; Hazarika et al. 2012). Murphy and Zimmerman (1993) document that CEO turnover is mostly due to poor performance, not earnings manipulation choices (the authors control for both accruals-based and real activities earnings variables). Nevertheless, Guan et al. (2005) and Hazarika et al. (2012) report that EM is positively related to forced CEO departure. The results are robust to firm performance checks and for both directions of manipulation (Hazarika et al. 2012). The authors suggest that boards dismiss CEOs who engage in aggressive accounting choices before the cost related to these choices becomes too costly for the firm (e.g., restatement).

.2.1.2   Managers' Wealth Around Corporate Events

Earnings management may impact the stock price around a corporate event. Managers with an important stake in the firm can profit directly from manipulation to increase their own wealth. Some authors find that managers act opportunistically before corporate events, manipulating the earnings to profit from the misevaluation (Rodriguez and Yue 2008; Gong et al. 2008). Gong et al. (2008) observe that CEO ownership increases the downward manipulation before stock repurchases. Hence, it allows the CEO to increase their stake. Similarly, Rodriguez and Yue (2008) observe the same results with all managers and directors of the firm. However, Erickson and Wang (1999) do not find evidence of a relationship between the managerial ownership and the EM magnitude for acquiring firms in the context of stock-for-stock mergers. In this case, the managers' interest would be to inflate the stock price to reduce the stock dilution with the stock-for-stock acquisition.

.2.2   **Managerial Opportunism During M&As**

Outside the EM context, some authors investigate the motivations of managers who collude with the acquirer to receive a higher compensation or maintain power inside the combined entity.

Due to the existence of agency relations, transaction costs and incomplete contracts, managers have a degree of discretion that allows them to not respect their fiduciary duty to shareholders. Some authors investigate the managers' opportunistic behaviour in the specific context of target firms. Motivations to collude with the acquirer may be future compensation or the will to

maintain power inside the combined firm (Shleifer and Vishny 2003; Hartzell et al. 2004; Wulf 2004; Moeller 2005; Fich et al. 2011; Fich et al. 2013; Qiu et al. 2014). If target managers are motivated to behave opportunistically to trade shareholder wealth with power or compensation, then it is also likely that the accounting numbers are manipulated consistently.

Literature widely examines the relationship between M&As and target manager turnover; most authors explain the higher turnover by poor performance and problems of social integration. Specifically, the results of previous literature suggest that managerial turnover is higher for managers of target firms than for non-target firms' managers (Walsh 1988; Walsh 1989; Martin and McConnell 1991; Hambrick and Cannella 1993; Kennedy and Limmack 1996; Denis et al. 1997; Dahya and Powell 1998), and the turnover rate is even higher when only hostile transactions are considered (Walsh 1989; Dahya and Powell 1998). Walsh (1988) examines the turnover rate of target managers after M&As during 1975–1979. He observes that managers of target firms experience 26% more turnovers within five years than non-target managers. Walsh (1989) deepens the results of Walsh (1988) and observes that in the first year after the M&A, the attitude of the transaction is a determinant of target manager turnover. After the first year, the correlation between the turnover and the premium is negative, suggesting that acquirers pay a higher premium for managers that they want to retain. Moreover, manager turnover seems to be related to pre-takeover performance (Martin and McConnell 1991; Hambrick and Cannella 1993). Martin and McConnell (1991) document that underperformance of the target firm prior to the M&A explains the higher managerial turnover rate in target firms. They observe that during the 5 years before the transaction, the turnover rate is around 10% and it raises to more than 40% in the year following the deal. They conclude that M&A activity has a disciplinary role for non-value maximising managers between 1958 and 1984. Kennedy and Limmack (1996) test whether the target manager replacement following the acquisition is related to disciplinary characteristics. Their investigation shows results about disciplinary takeover in the United Kingdom from 1980 to 1989. Indeed, they find negative excess return prior to the bid for target firms and positive excess return for acquiring companies. Moreover, they find that firms with replaced managers obtain a higher premium around the bid; they suggest that this is due to the higher potential gains that the undervalued target represents. Denis and Serrano (1996) observe a doubled turnover rate, within two years, for target managers of unsuccessful control contests from 1983 to 1989. They explain the difference in the turnover rate by the poor pre-acquisition performance combined with the acquisition of stakes from outside blockholders. Moreover, their findings exhibit that poor performing managers without new outside investors are less likely to be removed from their position, which suggests that the

dismissal is principally due to active investors instead of board control. Furthermore, they observe that CEOs who are replaced after a M&A have more difficulty finding another CEO position afterwards. Dahya and Powell (1998) analyse the differences between the turnover of hostile takeovers versus friendly takeovers in the United Kingdom between 1989 and 1992. They show that managers targeted by a hostile takeover suffer a higher turnover rate than managers targeted by a friendly takeover. The attitude of the transaction also implies that hostile target firms have lower performance in the pre-acquisition period, higher leverage, lower managerial stake and a larger blockholder. These results support the assumption that hostile takeover is more disciplining than friendly takeover.

As suggested by Hayes (1979), non-value maximising may not be the only motive for higher managerial turnover around M&A transactions; the human element may also play a role. In his study, he finds that the departure rate is around 60% within five years. Of the departed managers, around 80% regret the decision to sell, mainly due to the loss of autonomy. Hambrick and Cannella (1993) examine the motivation for managerial turnover from another perspective. They hypothesise that target manager turnover is due to their relative standing (as named by Frank [1985]). Independently of whether it is a voluntary or involuntary departure, some target managers leave the new entity because of their new social status. The authors examine some characteristics that may amplify the perception of inferiority of the target manager: poor pre-acquisition performance (also relative to the acquiring firm), relative size between target firm and acquiring firm, attitude of the transaction, loss of autonomy and status bestowal. Results of the 200 largest transactions during 1980–1984 reveal that the social variables have an impact on the departure rate. The literature about the determinants of target CEO retention is wide (e.g., Buchholtz et al. 2003; Wulf and Singh 2011).

Overall, these results suggest that target managers are likely to have a drop in their wealth because of the dismissal; hence, they may act opportunistically to avoid it (i.e., maintain their position) or to compensate it (e.g., bargain for a higher bonus). Moreover, consistent with the horizon problem (Butler and Newman 1989; Dechow and Sloan 1991; Davidson et al. 2007; Kalyta 2009), managers that anticipate the termination of their contract may be more likely to act opportunistically, because they know that monitoring mechanisms are not perfect and sanctions are lagged.

This concern interests both academicians and the press, which also raises the argument of target managers' opportunistic behaviour with some anecdotal evidences (Sorkin 2002; Maremont

2009).[35] For what concerns academicians, Ghosh and Ruland (1998) find a strong positive relation between stock payment and target managerial ownership. They find that managers with a high percentage of voting rights are more likely to prefer M&As settled with stocks and that those managers are also more likely to be retained in the acquired firm. Hadlock et al. (1999) investigate the specific context of bank acquisition. According to the authors, the management of acquired banks experiences a high rate of turnover. Moreover, they show that managers with ownership are more opposed to deals which may lead to turnover, suggesting the entrenchment of management. Wulf (2004) observes the trade-off between target manager power in the post-merger entity and the wealth gain of the target shareholders. CEOs seem to lower the acquisition price to the detriment of shareholders to maintain a power position in the post-merger. The author specifically investigates the merger of equals, because the CEOs represent all shareholders in the decision to accept the deal (i.e., it is not the case for tender offers), and the likelihood of the trade power-premium is higher because the deal is between equals (lower likelihood of feeling of inferiority). The combination of results shown by Wulf (2004) seems to suggest that target managers act opportunistically. Indeed, target shareholders' abnormal returns are lower than the acquirers, the correlation between CEOs control right in the combined firm and the abnormal returns is negative and shared management is more likely for young CEOs and CEOs with low stock ownership. All together, these results suggest that some CEOs may trade power at the expense of their shareholders. Similarly, Hartzell et al. (2004) find results suggesting that some CEOs trade large side payments or bonuses with the position in the new company. The CEOs that are likely to commit such opportunistic behaviour are those who have the highest abnormal compensation during the pre-acquisition period. Following the result of the authors, CEOs are likely to gain, on average, 5 million dollars more in cash when they are not involved in merged management. Moreover, the evidence shows a positive association between a positive abnormal compensation during the pre-merger period and the cash payment to target managers. Moeller (2005) analyses the CEO power related to the acquisition premium during the 1990s. He observes that high power for the CEO (proxied by a large stake of voting rights, small outside blockholders and a high number of insiders in management) is related to a lower acquisition premium. This result suggests that CEOs with less control are more likely not to maximise the target shareholder wealth, consistent with the hypothesis of opportunistic behaviour. With a more recent sample (1999–2007), few authors

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[35] The target CEO of J.P. Morgan received a special bonus of $20 million for the deal completion with Chase Manhattan Corporation (the regular salary bonus included was $6 million). The target CEO of Compaq was offered $14.4 million for the deal completion with Hewlett-Packard.

observe a trade-off between the premium and unscheduled stock options with golden parachutes (Fich et al. 2011; Fich et al. 2013). First, Fich et al. (2011) exhibit that the percentage of unscheduled option grants is higher for target firms than for non-target firms. Moreover, they show that stock options are negatively related to golden parachutes, which means that during M&As negotiation, stock options may be a substitute for golden parachutes. Unscheduled options during M&As negotiation are more likely to be issued without restriction on vesting periods, which allows the managers to cash in the options at the announcement. More interestingly, they show that stock options grants increase the likelihood of completing the deal by 12%. Furthermore, the wealth of target shareholders is impacted negatively by 4.4% by the issue of stock options. These results are consistent with the results of Hartzell et al. (2004). Another study focuses on the trade-off between golden parachutes and the premium with similar conclusions (Fich et al. 2013). However, the authors may not exclude the alternative explanation that even if target managers act opportunistically, the target shareholders' wealth is also maximized (i.e., target shareholders obtain the completion of the deal [with a lower premium], because the golden parachutes have an increased likelihood of completion). Qiu et al. (2014), on a large sample of US transactions between 1994 and 2010, observe that the retention of target CEOs is related to a 6% lower premium. Moreover, they demonstrate that when the target CEO is not retained, the side payments are negatively related to the premium. Both results suggest an opportunistic behaviour by target CEOs. Finally, Broughman (2017) analyses the golden parachutes (i.e., part of a manager employment agreement negotiated at the time of the hiring) and the side payments (i.e., merger bonuses, post-acquisitions employment, augmented parachutes, unscheduled stock options) from a legal prospective. He proposes a new theory to explain opportunism by managers: managers bundle a side payment with the acquisition that is likely to be accepted by target shareholders. Hence, the target shareholders may not deny the side payment to not cancel the transaction and lose the related premium. For this theory, the author supposes that even if it is not legally necessary that the managers support the transaction, it is likely for both parties (acquiring and target) that the management cooperates.

An alternative hypothesis, which partly matches with these results, may be driven by endogeneity (Fich et al. 2013; Qiu et al. 2014; Broughman 2017). High synergistic acquisitions are related to a higher premium; however, for low-synergy acquisitions, managers must be incentivized to compensate the lower premium extracted by personal ownership to support the merger.

Some authors find results that do not support the managerial opportunism hypothesis. Agrawal and Walkling (1994) observe that CEOs who remain in place after a deal do not have a significantly higher salary than non-target peer firms' CEOs. Moreover, the completion of the deal and the attitude of the transaction also do not influence it. More importantly, Bargeron et al. (2010) investigate the relationship between the premium and the private benefits of the CEOs. In terms of turnover, results show no association with the premium; however, they find an association with the skills and knowledge of the CEOs (proxied by performance in the pre-acquisition period, specialized firm, diversified acquisition). They also observe that older CEOs negotiate lower acquisition premiums than younger CEOs, but these results do not seem explained by opportunism. Indeed, older CEOs have the same likelihood of being retained in the new entity as the younger CEOs. They also find results contrary to the opportunistic hypothesis concerning the abnormal compensation in the pre-merger period. CEOs with abnormally high compensation before the deal are less likely to be retained in the firm after the deal (managers with abnormally high compensation have more to lose if they are dismissed, because it is more difficult for them to find another position with the same abnormally high compensation). However, they also observe a result that is consistent with the opportunistic hypothesis. Actually, the authors find that the likelihood of retaining the job is lower when there are multiple bidders; hence, there is more competition for the firm and CEOs more likely to bargain the retention. Heitzman (2011) observes that CEOs are more likely to receive equity grants during the negotiation process to maximise the shareholder value and finds limited evidence about opportunistic compensation. The study focuses only on CEOs and the three key determinants of efficient behaviour of managers. The three elements are CEO involvement in the negotiation, the bargaining power of the target firms and the monitoring role of the board. The findings show that, on average, one-third of CEOs receives stock grants during negotiations. The compensation benefits (i.e., higher premium) of equity grants work exclusively for firms with a small fraction of outside board members and when the CEO is involved in the negotiation. Alternatively, the study finds little evidence consistent with opportunistic behaviour relating to equity compensation. CEOs close to retirement do not receive golden parachutes, negotiation grants or other bonuses. The combined results of this study suggest that there is no negative wealth implication for target shareholders. Finally, Bargeron et al. (2017) examine the private equity deals. The authors observe that the retention rate is higher when it is a private equity acquisitions. More importantly, they find that private equity acquisitions that retain the CEO gain an additional 10–18% in pre-acquisition value. They motivate their findings by the facts that private equity does not have managers already in

place that can replace target managers and that the CEO is valuable to continuing the strategy of the firm. This hypothesis seems to be confirmed by their results and explains the positive relationship between the retention rate and the control premium in the context of private equity deals.

The results about managerial opportunism in the context of M&As are mixed. On one hand, some empirical evidence suggests that some target managers may be incentivized to opportunistically trade shareholders' wealth to increase their own wealth. It is assumed that if target managers are motivated to behave opportunistically to trade shareholder wealth with power or compensation, then it may be that the accounting numbers are manipulated accordingly, and it would positively affect the CEO retention rate and negatively affect the target shareholders' wealth. Moreover, the literature also suggests that target managers manage the earnings downward to please the acquirer without harming the target shareholders with a lower acquisition premium, for example, reducing the litigation risks, creating a fictitious performance in the post-acquisition period through accrual reversals or influencing other stakeholders that could be against the M&A (i.e., employees, government, etc.). This win-win situation would respect the fiduciary duty of the CEO and lead to an increase in the retention rate of the CEO after the deal because they please the acquirer.

On the other hand, managers who aggressively manage their earnings are penalized by the acquirer (or by the target board for non-completed deals) independently of the direction of the manipulation before it leads to negative external consequences for the firm (i.e., restatement, litigation).

Formally, the hypothesis is posed as follows:

H3: There is an association between the EM of the target firm and CEO retention.

In this study, it is assumed that managers, on average, want to retain their position, because the loss of the CEO position has a negative effect on their wealth (salary) and on their social status (power). CEOs that voluntarily sell the firm (e.g., founder CEO) may explicitly want to stop their activity as manager of the firm and can manipulate for a purpose other than job retention. Moreover, it is assumed that target managers are sufficiently able to anticipate the deal and manipulate the earnings accordingly.

.3   Research Design

.3.1   Sample Selection

The sample is composed of takeover target firms in 2005–2015 on the European market. Only M&A with a transaction value equal to or bigger than 100 millions Euros, friendly transactions and transactions where the bidder sought the majority of the voting rights are retained. All firms without enough accounting data, firms active in financial services (i.e., SIC code 6000–6999), firms targeted for two subsequent years, firms with negative common equity value and firms without comparable firms in the same industry to compute EM measures are excluded. The final sample contains 174 acquisitions or acquisition attempts (see Table 32).[36] The financial data are extracted from *Factset MergerMetrics* and *Factset* databases. The retention rates and CEO characteristics are hand-collected through annual reports, employers' websites, press and the online employment-oriented social network LinkedIn.

Table 32: Sample Selection

Initial sample (merger & majority stake, Transaction value > 100 MM)	1,575
Accounting standards different from IAS/IFRS	-305
Firms with missing or incomplete data	-353
Firms with missing data on analysts' data	-124
Firms with a SIC code included between 6000–6999	-321
Firms in industries without enough comparables	-167
Firms targeted for two consecutive years or by multiple acquirers	-24
Firms with negative equity	-16
Hostile takeovers	-66
Firms with missing or incomplete data about CEO characteristics	-23
Matching sample	-2
Final sample	**174**

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[36] Appendix 6 provides information about the year, industry and country distribution of the target sample.

A control sample based on firms' not targeted by M&As is created. First, all European-listed firms with sufficient available data to compare in each industry (at least 10) to compute abnormal accruals, abnormal operating cash flows, abnormal production costs and abnormal discretionary expenses are considered. The sample used to compute EM contains 2,820 firms. Then, it is matched to the closest firms in term of size, debt level, performance and industry with the target firms, which allows for a sample of 174 control firms matched with the propensity score matching technique.

.3.2 **Data Definition and Models**

The methodology for the detection of EM is defined in Chapter 1. The four EM models considered are the Kothari et al. model (2005) and the REM models proposed by Roychowdhury (2006).

Equation (12) presents the binary regression for the retention rate examination. The retention rate considered is for the year after the suspected manipulation, that is, the year of the M&A announcement for target firms. Among the explaining variables, the EM proxies and the combination of the latter with the premium are the variables under focus. The probit model takes the following form:

$$
\begin{aligned}
RETENTION1y_{i,t+1} \\
= \alpha_0 + \alpha_1 EM_{i,t} + \alpha_2 PREM30D_{i,t} + \alpha_3 EM \ x \ PREM30D_{i,t} \\
+ \alpha_4 Firm's \ characteristics_{i,t} + \alpha_5 Deal's \ characteristics_{i,t} \\
+ \alpha_6 CEO's \ characteristics_{i,t} + \alpha_9 Industry \ FE_{i,t} + \alpha_{10} Country \ FE_{i,t} \\
+ \alpha_{11} Year \ FE_{i,t} + \varepsilon_{i,t}
\end{aligned}
\tag{12}
$$

Where:

$RETENTION \ 1y_{i,t+1} =$ a dummy variable indicating whether the CEO still holds the position the year after the suspected manipulation;

$EM_{i,t} =$ the earnings management proxy for firm i;

$PREM30D_{i,t} =$ the ratio of the acquirer's initial offer price to the target share price 30 days prior to the announcement date, minus one;

$Firm's \ characteristics_{i,t} =$ a set of variables controlling for firms' characteristics;

$Deal's \ characteristics_{i,t} =$ a set of variables controlling for deals' characteristics;

$CEO's \ characteristics_{i,t} =$ a set of variables controlling for CEOs' characteristics;

$INDUSTRY \ FE_{i,t} =$ the industry-fixed effects;

$COUNTRY\ FE_{i,t} =$ the country-fixed effects;

$YEAR\ FE_{i,t} =$ the year-fixed effects;

$\varepsilon_{i,t} =$ the error term for firm i;

$t =$ the year of the suspected manipulation;

$i =$ 1, …, N firms.

A set of control variables controls for characteristics of the target firm (size, performance, etc.), for the deal's characteristics (cross boarder bid, stock payment, percentage sought by the bidder, toehold, etc.) and for the CEO's characteristics (tenure, age and dual position). Moreover, the model also controls for the industry in which the target firm operates, the country of residence and the year of the supposed EM. Deal characteristics that can influence the CEO retention are inserted (Fich et al. 2016; Bargeron et al. 2017). Among these, the acquisition premium offered by the bidder the day of the announcement, scaled by the stock price 30 days before the announcement, minus one, is considered. This is consistent with the suggestion of a possible trade-off between CEO retention and premium, observed by Hartzell et al. (2004) and Wulf (2004). An interaction between the variable and the EM measure is computed to examine whether the premium of manipulating firms is related to the CEOs' retention rate. Consistent with prior literature, a negative relation is expected between CEO age and retention rate (Murphy 1999; Desai et al. 2006). Moreover, CEOs with the double position are more difficult to remove; hence, a positive relation is expected with the retention rate (Jensen, 1993; Desai et al., 2006; Hazarika et al., 2012). Similarly, for CEO tenure, it is expected that higher tenure is linked to higher CEO power, because tenure could proxy entrenchment. The alternative outcome is also likely; tenure could be negatively related to CEO retention, because for highly tenured CEOs, retirement is preferable to staying as a subordinated manager (Hadlock et al. 1999). Because age and tenure are likely correlated, it could be difficult to distinguish the two effects (Hadlock et al. 1999).

.4   Results

.4.1   Descriptive Statistics

Descriptive statistics are provided in Table 33 and Table 34. Table 33 provides information about the EM proxies and retention rates. First, it seems that there are no significant differences between the EM proxies from the target sample and the control sample. Second, as expected, the retention rate of the control sample is higher than the target sample's. The retention rate for

CEOs of target firms in the year of the M&A announcement is around 62%, while the retention rate of control firms is 89%. The second year after the announcement, it decreases to 50% (81% for the control), and the third year, it decreases again to 43% (70% for the control). Table 34 presents the descriptive statistics of the CEO characteristics. The tenure of targets' CEOs seems to be lower than that of non-target CEOs. Similarly, for CEO ownership, on average, target CEOs have only 3% of the voting rights, while non-target CEOs have around 10%. Nevertheless, the medians are much closer to each other. The age and percentage of dual position (CEO-chairman) is similar in both samples. Finally, Table 35 presents the transaction characteristics concerning the target sample only.

Table 33: Sample Description – EM and Retention Rate

Target	*Mean*	*Median*	*Minimum*	*Maximum*	*Std. Dev.*	*Count*	*Count Null*
AEM2	-0.0142	-0.0077	-0.4771	0.7227	0.1003	174.00	0.00
REM1	0.0235	0.0134	-0.2822	0.6541	0.1097	174.00	0.00
REM2	-0.0659	-0.1491	-1.0917	1.4823	0.4495	169.00	0.00
REM3	-0.0063	0.0056	-0.4881	0.1161	0.0648	154.00	0.00
RETENTION 1y	0.6264	1.0000	0.0000	1.0000	0.4851	174.00	65.00
RETENTION 2y	0.5057	1.0000	0.0000	1.0000	0.5014	174.00	86.00
RETENTION 3y	0.4310	0.0000	0.0000	1.0000	0.4967	174.00	99.00
Control							
AEM2	-0.0212	0.0028	-2.0427	0.3080	0.2002	174.00	0.00
REM1	0.0185	0.0020	-0.9080	1.4060	0.1721	174.00	0.00
REM2	0.0116	-0.1202	-1.2079	2.6988	0.5565	172.00	0.00
REM3	-0.0001	0.0049	-0.4170	0.2880	0.0659	141.00	0.00
RETENTION 1y	0.8908	1.0000	0.0000	1.0000	0.3128	174.00	19.00
RETENTION 2y	0.8103	1.0000	0.0000	1.0000	0.3932	174.00	33.00
RETENTION 3y	0.7011	1.0000	0.0000	1.0000	0.4591	174.00	52.00

Notes: AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. RETENTION 1y denotes a dummy variable indicating whether the CEO still holds the position the year after the suspected manipulation. RETENTION 2y denotes a dummy variable indicating whether the CEO still holds the position two years after the suspected manipulation. RETENTION 3y denotes a dummy variable indicating whether the CEO still holds the position three years after the suspected manipulation.

Table 34: Sample Description – CEO Characteristics

Target	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
TENURE	5.8046	4.0000	0.0000	36.0000	6.3643	174.00	17.00
AGE	52.4540	53.0000	34.0000	72.0000	6.7074	174.00	0.00
CHAIRMAN	0.0920	0.0000	0.0000	1.0000	0.2898	174.00	158.00
CEOown	0.0361	0.0022	0.0000	0.5785	0.0977	121.00	13.00
Control	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
TENURE	7.0471	5.0000	0.0000	42.0000	6.8645	170.00	14.00
AGE	52.0833	51.0000	35.0000	77.0000	7.7896	144.00	0.00
CHAIRMAN	0.1284	0.0000	0.0000	1.0000	0.3356	148.00	129.00
CEOown	0.1002	0.0049	0.0000	0.7440	0.1947	110.00	7.00

Notes: TENURE denotes the number of years of tenure of the CEO in the firm as CEO. AGE denotes the age of the CEO. CHAIRMAN denotes a dummy variable that takes the value 1 if the CEO is also the chairman of the board. CEOown denotes the percentage of voting rights that the CEO holds the year of the suspected manipulation.

Table 35: Sample Description – Transaction Characteristics

Target	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
PREM30D	0.3414	0.2930	-0.2541	2.3333	0.3380	174.00	0.00
COMPLETED	0.7931	1.0000	0.0000	1.0000	0.4062	174.00	36.00
SAME.INDUSTRY	0.4138	0.0000	0.0000	1.0000	0.4939	174.00	102.00
MULTIBID	0.1552	0.0000	0.0000	1.0000	0.3631	174.00	147.00
TENDER.OFF	0.4943	0.0000	0.0000	1.0000	0.5014	174.00	88.00
GO.PRIVATE	0.1264	0.0000	0.0000	1.0000	0.3333	174.00	152.00
STRATEGIC	0.7989	1.0000	0.0000	1.0000	0.4020	174.00	35.00
%SOUGHT	84.6873	100.0000	3.9400	100.0000	24.0728	174.00	0.00
STCK.PAY	0.2299	0.0000	0.0000	1.0000	0.4220	174.00	134.00
CROSS.BOARDER	0.6724	1.0000	0.0000	1.0000	0.4707	174.00	57.00

Notes: PREM30D denotes the ratio of the acquirer's initial offer price to the target share price 30 days prior to the announcement date (FactSet), minus one. COMPLETED indicates whether the transaction is completed. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. MULTIBID indicates whether there are multiple bidders. TENDER.OFFER indicates whether the type of bid is a tender offer. GO.PRIVATE indicates whether the firm is delisted after the transaction. STRATEGIC indicates whether the transaction is strategic or financial. %SOUGHT indicates the share percentage the bidder is seeking to buy. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target.

Table 36 presents the Pearson correlation matrix between the main variables in the target sample. Concerning the EM proxies, the abnormal accruals are negatively associated with the abnormal OCF but positively associated with the abnormal discretionary expenses. The only correlation between an EM proxy and the retention rate is observed between the abnormal

discretionary expenses and the retention rate after one year (positive correlation). Concerning the retention rates with different time frames, a high positive correlation is observed between the three variables. Finally, the premium is negatively related to the retention rates after two and three years, and it is only negatively associated with the abnormal OCF and the abnormal discretionary expenses.

Table 36: Correlation Matrix

	AEM2	REM1	REM2	REM3	RET. 1y	RET. 2y	RET. 3y	PREM30D
AEM2	1	**-0.47**	-0.02	**0.59**	0.03	-0.02	-0.03	-0.12
REM1		1	-0.01	0.07	0.04	0.06	0.06	**-0.13**
REM2			1	-0.02	0.01	-0.02	0.02	0.04
REM3				1	**0.15**	0.12	0.07	**-0.31**
RETENTION 1y					1	**0.78**	**0.67**	-0.06
RETENTION 2y						1	**0.86**	**-0.13**
RETENTION 3y							1	**-0.13**
PREM30D								1

Notes: the Pearson correlation coefficients are reported in the upper right portion of the table. Bold text indicates correlations are statistically significant at p-value < 0.10. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. RETENTION 1y denotes a dummy variable indicating whether the CEO still holds the position the year after the suspected manipulation. RETENTION 2y denotes a dummy variable indicating whether the CEO still holds the position two years after the suspected manipulation. RETENTION 3y denotes a dummy variable indicating whether the CEO still holds the position three years after the suspected manipulation. PREM30D denotes the ratio of the acquirer's initial offer price to the target share price 30 days prior to the announcement date (FactSet), minus one.

.4.2 Earnings Management of Target Firm

Table 37 compares the AEM and REM measures of the target and control sample with parametric (t-test) and non-parametric (Mann-Whitney U-test) tests. Despite the small sample, results consistent with downward manipulation are still observed. The univariate analysis for abnormal accruals (Panel A) shows that target firms select accounting procedures that decrease their earnings, compared with control firms (statistically significant at the 10% level). Panel B presents the univariate tests for the REM models. The only model showing downward manipulation is the abnormal production costs model (statistically significant at the 10% level). The others two models do not show any statistically significant difference between the accounting choices of target and control firms. This lack of results for the real activity models may be explained by the fact that REM takes more time to be implemented than accruals manipulation. The results are consistent with literature about MBOs and friendly takeovers

(Perry and Williams 1994; Wu 1997; Fischer and Louis 2008; Ben-Amar and Missonier-Piera 2008; Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015).

Table 37: EM Detection – Univariate Tests

Panel A: AEM Comparison

Model	Mean	Median	Tests	
Kothari et al. (AEM2)	$\mu0 =$ -0.0212	$M0 =$ 0.0028	$t =$ 0.4136	
	$\mu1 =$ -0.0142	$M1 =$ -0.0077	$Z =$ 13'610	†

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model.

Panel B: REM Comparison

Model	Mean	Median	Tests	
Abnormal OCF (REM1)	$\mu0 =$ 0.0185	$M0 =$ 0.0020	$t =$ 0.3192	
	$\mu1 =$ 0.0235	$M1 =$ 0.0134	$Z =$ 15'891	
Ab. Production Costs (REM2)	$\mu0 =$ 0.0116	$M0 =$ -0.1202	$t =$ -1.4149	†
	$\mu1 =$ -0.0659	$M1 =$ -0.1491	$Z =$ 13'486	
Ab. Discretionary Exp. (REM3)	$\mu0 =$ -0.0001	$M0 =$ 0.0049	$t =$ -0.8054	
	$\mu1 =$ -0.0063	$M1 =$ 0.0056	$Z =$ 10'742	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses.

.4.3 Earnings Management, Premium and Retention Rate

In this section, Equation (12) is examined, focusing only on target firms to test whether EM measures and the premium affect CEOs' retention rate. Results are presented in Table 38. The EM measures considered are only the abnormal accruals and abnormal production costs (see Table 37).

The first regression considers AEM as a proxy for EM. It shows that the AEM measure is positive and statistically significant, confirming that downward EM of non-completed deals is linked to a higher turnover rate. Meanwhile, the sum of the variables EM and the interaction term for completed deals (14.70 + [-17.37]) suggest a small negative relationship between EM of completed deals and CEO turnover rate. This latter result suggests that CEOs are rewarded

for downward manipulation that pleases the acquirer with a higher retention rate only if the transaction is completed. The variables considering the premium seem not to affect the retention rate of the CEO. The results of a trade-off between premium and retention rate observed by Wulf (2004) and Qiu et al. (2014) are not confirmed. Independently of the EM level, CEOs seem not to bargain their retention with target shareholders' wealth.[37]

Firm characteristics such as performance and size seem to be important determinants of CEO retention. Past and actual performance seem to positively affect retention, while size seems to be negatively associated with retention rate, suggesting that more visible CEOs are less likely to be retained. CEOs' characteristics also seem to affect retention rate. A negative relation is observed between tenure and retention rate. In this case, it may be assumed that high tenured CEOs are close to retirement or are entrenched CEOs that the acquirer does not want to retain. Furthermore, the age of the CEO is positively related to retention. It may be assumed that age may represent experience, a CEO quality that bidders want to retain. Overall, after controlling for the characteristics of the firm, the deal and the CEO, results suggest that accounting choices made prior to the M&A announcement affect CEO retention, depending on whether the transaction is completed or not.

The second regression, which considers REM as a proxy for EM, shows different results. The abnormal production costs measure is negative but not statistically significant. However, the variable considering deal completion and the interaction term between deal completion and the EM measure is both statistically significant and positive, suggesting that downward real activity manipulation for completed deals decreases CEO retention rate. This result differs from the AEM measure observed. It can be explained by the fact that REM can have a negative effect on the long-term performance of the firm (Cohen et al. 2008; Cohen and Zarowin 2010; Zang 2012). For example, a decrease in the production level can delay the delivery of the products and, consequently, decrease the client satisfaction in the long-term. Furthermore, in the second regression, the acquisition premium and the premium of firms that manipulate do not affect the retention rate.

Overall, the results observed seem to confirm an effect of downward EM on the retention rate of CEOs of completed transactions, but they do not suggest a trade-off between the premium and the retention rate. The CEOs seem to downward manipulate though AEM without negatively affecting the target shareholders' wealth. However, REM seems unrewarded by the acquirer, maybe because of the negative long-term effect of real manipulation. Finally, it seems

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[37] The results are qualitatively the same when AEM is used with the model of Dechow et al. (1995). (Not tabulated for parsimony).

crucial to distinguish the deal completeness to correctly understand the consequences related to EM.

In Chapter 1, for a bigger sample, it is observed that target firms also manage their earnings downward through abnormal discretionary expense, while Table 37 does not show any downward manipulation for this measure. For completeness, Equation (12) is also run with the abnormal discretionary expenses as the EM measure (not tabulated for parsimony). Both variables of interests are not statistically significant.

Table 38: EM, Premium and CEO Retention

EM Measure	Kothari et al. (AEM2)		Ab. Production Costs (REM2)	
Dependent Var.	RETENTION 1y		RETENTION 1y	
Coefficients	**Estimate**	**z-value**	**Estimate**	**z-value**
Intercept	17.0600	0.0090	19.6100	0.0060
EM	14.7000	2.3090 *	-3.1330	-1.5240
COMPLETED	0.5865	0.7300	2.6650	2.7170 **
EM x COMPLETED	-17.3700	-2.3990 *	3.9680	2.3420 *
PREMIUM	1.4610	1.2120	1.6440	0.9020
EM x PREMIUM	-4.4690	-0.4110	0.0407	0.0100
DEBT	-0.0024	-0.9380	-0.0009	-0.3440
SIZE	-0.4530	-2.1870 *	-0.3530	-1.3710
LOSS.PROP	-1.8190	-1.8800 †	-2.0480	-1.6960 †
ROE	0.0303	1.6590 †	0.0246	1.4020
STCK.PAY	-0.0226	-0.0340	0.0251	0.0300
CROSS.BORDER	-0.4368	-0.8060	-0.5116	-0.8600
GO.PRIVATE	-0.2289	-0.3130	-1.0290	-1.1710
TOEHOLD	0.0136	0.6090	0.0311	1.1000
SAME.INDUSTRY	-0.7032	-1.3660	-0.5816	-0.8770
%SOUGHT	0.0348	1.5300	0.0263	1.0450
TENDER.OFF	-0.5183	-0.6480	-1.6290	-1.5590
TENURE	-0.1049	-2.1630 *	-0.0958	-1.7840 †
AGE	0.1025	2.0110 *	0.0961	1.6140
CHAIRMAN	-0.8331	-0.8910	-1.2020	-0.9970
Industry control	Included		Included	
Country control	Included		Included	
Year control	Included		Included	

McFadden R-squared:	*62.92%*		*70.53%*	
Likelihood ratio test	*144.69*	***	*153.28*	***
Sample size	*174*		*169*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. RETENTION 1y denotes a dummy variable indicating whether the CEO still holds the position the year after the suspected manipulation. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. PREM30D denotes the ratio of the acquirer's initial offer price to the target share price 30 days prior the announcement date (FactSet), minus one. DEBT is the total debt divided by the mean of common equities. SIZE is the natural logarithm of the assets the year of the announcement. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. ROE is the return on equity. COMPLETED indicates whether the transaction is completed. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. GO.PRIVATE indicates whether the firm is delisted after the transaction. TOEHOLD indicates the percentage held in the target company by the bidder before the announcement. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. %SOUGHT indicates the share percentage the bidder is seeking to buy. TENDER.OFFER indicates whether the type of bid is a tender offer. TENURE denotes the number of years of tenure of the CEO in the firm as CEO. AGE denotes the age of the CEO. CHAIRMAN denotes a dummy variable that takes the value 1 if the CEO is also the chairman of the board. Industry control is a set of dummy variables indicating the industry (2-digit SIC code) of the firm. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5 Robustness Tests

.5.1 Longer Time-Frame for Retention Rate Calculation

This additional analysis investigates the results based on Equation 12, with the retention rate calculated over two and three years after the suspected year of manipulation. Table 39 presents the results with the retention rate of two years after the suspected year of manipulation. The first result is that the EM measures are not statistically significant anymore, suggesting that the effect of the manipulation on the retention rate lasts one year. Second, the variable PREMIUM is negative and statistically significant, suggesting a trade-off between the retention rate and the premium. CEOs that last more than one year after the deal are likely to bargain their position in the combined firm with target shareholders' wealth. Nevertheless, the interaction term between EM and the premium is not statistically significant, suggesting that the EM strategy is not related to this trade-off. The EM strategy seems to be independent of CEOs' opportunism to retain their positions. The results are qualitatively the same when the retention rate of CEOs three years after the suspected manipulation is considered (not tabulated for parsimony).

Table 39: EM, Premium and CEO Retention – Longer Time-Frame

EM Measure	Kothari et al. (AEM2)		Ab. Production Costs (REM2)	
Dependent Var.	RETENTION 2y		RETENTION 2y	
Coefficients	**Estimate**	**z-value**	**Estimate**	**z-value**
Intercept	20.1700	0.0140	21.2900	0.0160
EM	-0.0188	-0.0070	-1.4230	-1.6050
COMPLETED	0.2054	0.5870	0.5807	1.4830
EM x COMPLETED	-2.3270	-0.8110	1.2460	1.5420
PREM30D	-0.9064	-1.8350 †	-1.4010	-2.3580 *
EM x PREM30D	1.5890	0.4320	0.6517	0.3580
DEBT	0.0003	0.1790	-0.0006	-0.3460
SIZE	-0.1754	-1.6460 †	-0.1292	-1.1350
LOSS.PROP	-0.6771	-1.2250	-0.9535	-1.5730
ROE	-0.0077	-0.9620	-0.0084	-1.0780
STCK.PAY	-0.8506	-2.1660 *	-1.1390	-2.6720 **
CROSS.BOARDER	0.0756	0.2570	-0.0468	-0.1480
GO.PRIVATE	-0.4586	-1.0060	-1.0340	-2.0150 *
TOEHOLD	0.0186	1.3340	0.0300	1.8880 †
SAME.INDUSTRY	0.0842	0.2860	0.0553	0.1830
%SOUGHT	0.0110	0.8420	0.0190	1.3640
TENDER.OFF	0.2051	0.7270	0.1905	0.6220
TENURE	-0.0314	-1.1720	-0.0389	-1.3680
AGE	0.0064	0.2810	0.0184	0.7780
CHAIRMAN	0.1039	0.1840	-0.0515	-0.0860
Industry control	Included		Included	
Country control	Included		Included	
Year control	Included		Included	

McFadden R-squared:	*35.92%*		*44.36%*	
Likelihood ratio test	*86.65* *		*99.94* **	
Sample size	*174*		*169*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. RETENTION 2y denotes a dummy variable indicating whether the CEO still holds the position two years after the suspected manipulation. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. COMPLETED indicates whether the transaction is completed. PREM30D denotes the ratio of the acquirer's initial offer price to the target share price 30 days prior the announcement date (FactSet), minus one. DEBT is the total debt divided by the mean of common equities. SIZE is the natural logarithm of the assets the year of the announcement. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. ROE is the return on equity. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. GO.PRIVATE indicates whether the firm is delisted after the transaction. TOEHOLD indicates the percentage held in the target company by the bidder before the announcement. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. %SOUGHT indicates the share percentage the bidder is seeking to buy. TENDER.OFFER indicates whether the type of bid is a tender offer. TENURE denotes the number of years of tenure of the CEO in the firm as CEO. AGE denotes the age of the CEO. CHAIRMAN denotes a dummy variable that takes the value 1 if the CEO is also the chairman of the board. Industry control is a set of dummy variables indicating the industry (2-digit SIC code) of the firm. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.2   CEO Entrenchment and Opportunism Around M&As

Further focus is put on the investigation of CEOs suspected to be the most likely to act opportunistically. In this subsection, it is examined, first, whether CEO entrenchment can influence the EM magnitude and, second, whether it can influence the premium. Entrenched CEOs are the most likely to act opportunistically, because they are powerful in the firm and are usually in place for a long time. The literature suggests that they are less efficient in their choices and are more likely to abuse perquisites (e.g., Weisbach 1988; Jensen 1993; Finkelstein and D'Aveni 1994). Because entrenched CEOs have more to lose, it is assumed that they are also more likely to bargain around the M&A. It is expected that, first, entrenched CEOs will manipulate downward more compared to non-entrenched CEOs. Second, entrenched CEOs will obtain a lower premium, because they bargain shareholders' wealth with their own wealth.

The CEO entrenchment is proxied with two variables, namely the dual position CEO-Chairman and CEO tenure (e.g., Hadlock et al. 1999; Desai et al. 2006; Hazarika et al. 2012). CEOs most likely to be entrenched should be CEOs highly tenured and holding the dual position.

Table 40 shows results about the hypothesis that entrenched CEOs are more likely to manipulate the earnings. The only variables affecting the level of EM are the firm characteristics. ROE is positively associated with EM. DEBT negatively affects EM, consistent with the monitoring effect of lenders. Finally, the proportion of international sales (INT. SALES), which is a proxy of the complexity of the firm's operations, positively affects the EM proxy. The results of the REM measure show a weak effect from the CEO duality on EM, but the regression is not statistically significant.

Even though previous results show no evidence that entrenched CEOs manipulate more, they can use their power to bargain for private benefits more than non-entrenched CEOs. For this reason, the effect of entrenchment on the premium is analysed (see Table 41). In both regressions, the interaction term between CEO duality and tenure is negatively associated with the premium, suggesting that entrenched CEOs negotiate lower premiums. Moreover, it seems that downward accruals manipulation of firms where the CEO is also the chairman negatively affects the premium, consistent with the hypothesis that entrenched CEOs bargain their position for a lower premium using AEM. Finally, downward AEM of non-entrenched CEOs seems to positively affect the premium, suggesting an efficient employment of EM by non-entrenched CEOs.

Overall, weak evidence suggests that downward manipulation through AEM can be used to decrease the premium in exchange for a higher retention, but only for entrenched CEOs.

Table 40: CEO Entrenchment and EM

Dependent Var.	Kothari et al. (AEM2)			Ab. Production Costs (REM2)		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	-0.0142	-0.1440		0.4809	1.0000	
TENURE	-0.0008	-0.5780		-0.0055	-0.7720	
CHAIRMAN	0.0171	0.4490		0.3357	1.8170	†
TENURE x CHAIRMAN	0.0008	0.2790		-0.0009	-0.0700	
SIZE	0.0013	0.2130		-0.0042	-0.1360	
ROE	0.0016	4.5910	***	-0.0011	-0.6560	
LOSS.PROP	0.0364	1.1960		-0.0517	-0.3490	
DEBT	-0.0001	-2.7830	**	0.0004	2.4510	*
SD.SALES	-0.0245	-0.5590		-0.0089	-0.0420	
SD.OCF	0.0587	0.2780		-1.0587	-1.0380	
INT. SALES	0.0524	2.2270	*	-0.0381	-0.3210	
TOP5INSTIT.SH	0.0001	0.4540		-0.0003	-0.1760	
Country control	Included			Included		
Year control	Included			Included		
Adj. R-squared:	*16.94%*			*4.19%*		
F-value	*1.88*	**		*1.19*		
Sample size	*174*			*169*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. TENURE denotes the number of years of tenure the CEO has in the firm as CEO. CHAIRMAN denotes a dummy variable that takes the value 1 if the CEO is also the chairman of the board. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 41: CEO Entrenchment and Acquisition Premium

EM Measure	Kothari et al. (AEM2)		Ab. Production Costs (REM2)	
Dependent Var.	Premium		Premium	
Coefficients	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	-0.1171	-0.3130	-0.0893	-0.2300
EM	-0.9070	-1.7730 †	-0.0652	-0.6620
CHAIRMAN	0.1132	0.8510	0.0766	0.5350
TENURE	0.0064	1.2440	0.0080	1.4240
CHAIRMAN x TENURE	-0.0162	-1.6830 †	-0.0169	-1.6600 †
EM x CHAIRMAN	8.2840	1.7020 †	0.1770	0.6360
EM x TENURE	0.0607	0.9110	0.0181	1.1900
EM x TENURE x CHAIRMAN	-0.3685	-1.2240	-0.0174	-0.7280
SIZE	-0.0261	-1.2610	-0.0354	-1.6020
OCF	-0.7670	-1.8270 †	-0.3950	-1.3320
ROE	-0.0006	-0.3250	-0.0027	-1.9080 †
DEBT	-0.0001	-0.4990	0.0000	0.2930
LOSS.PROP	0.0666	0.6590	0.0615	0.5960
%SOUGHT	0.0030	2.2620 *	0.0026	1.7860 †
COMPLETED	0.0880	1.2330	0.0861	1.1830
GO.PRIVATE	-0.0795	-0.9520	-0.0795	-0.9260
TENDER.OFF	0.0750	1.0670	0.0539	0.7030
CROSS.BORDER	0.0618	1.0250	0.0347	0.5700
STCK.PAY	-0.1243	-1.6900 †	-0.1124	-1.4790
SAME.INDUSTRY	0.0378	0.6540	0.0332	0.5490
Country control	Included		Included	
Year control	Included		Included	
Adj. R-squared:	*16.24%*		*13.00%*	
F-value	*1.70* *		*1.53* *	
Sample size	*174*		*169*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. TENURE denotes the number of years of tenure the CEO has in the firm as CEO. CHAIRMAN denotes a dummy variable that takes the value 1 if the CEO is also the chairman of the board. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. GO.PRIVATE indicates whether the firm is delisted after the transaction. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.3   CEO Ownership to Mitigate Opportunistic EM

With this additional analysis, it is examined whether the CEO ownership the year of the suspected manipulation has an impact on the level of EM. If downward EM is supposed to be opportunistic to mislead target shareholders and please the acquirer, then the managerial ownership should mitigate this opportunistic behaviour. Indeed, the higher the CEO ownership, the lower the likelihood they will opportunistically manipulate and penalise themselves. Table 42 exhibits the analysis of the supposed mitigating effect of CEO ownership on EM. The variable of interest is not statistically significant, suggesting that EM is not affected by CEO ownership. The mitigating effect of managerial ownership on opportunistic downward EM is not supported by this investigation, either because there is no opportunistic downward manipulation or because the regression specification is not adapted (i.e., sample size). The regression when the EM proxy is REM is not statistically significant, hence not interpretable.

The analysis is re-run with the variable of interest replaced by a dummy variable that takes the value of 1 if the CEO holds shares in the firm, respectively more than 5% and 10%, and 0 otherwise. For these additional tests, the variables of interest are never statistically significant (not tabulated for parsimony).

Table 42: CEO Ownership and EM

Dependent Var.	Kothari et al. (AEM2)		Ab. Production Costs (REM2)	
Coefficients	Estimate	t-value	Estimate	t-value
Intercept	-0.0180	-0.2420	0.1338	0.2900
CEOown	-0.0130	-0.1510	-0.2031	-0.3850
SIZE	0.0006	0.0890	0.0040	0.1040
ROE	0.0013	4.0760 ***	-0.0018	-0.8980
LOSS.PROP	0.0302	1.0040	-0.0135	-0.0720
DEBT	-0.0001	-3.0250 **	0.0005	2.5640 *
SD.SALES	0.0087	0.2230	0.0602	0.2480
SD.OCF	-0.0712	-0.3630	-1.5456	-1.2690
INT. SALES	0.0231	0.9480	-0.0779	-0.5110
TOP5INSTIT.SH	0.0001	0.2760	-0.0021	-1.0220
Country control	Included		Included	
Year control	Included		Included	
Adj. R-squared:	*14.35%*		*-0.09%*	
F-value	*1.63* *		*0.71*	
Sample size	*130*		*117*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. CEOown denotes the percentage of voting rights that the CEO holds the year of the suspected manipulation. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.6 Conclusions

This study examines EM by friendly takeover targets in Europe during 2005–2015 and its consequences on the retention rate of targets' CEOs. Four EM detection models controlling for both accrual and REM are computed. The results of the univariate analyses appear to confirm (two of the four detection models) the downward manipulation of target firms the year prior the M&A announcement compared to non-target firms. The results of downward manipulation are consistent with most of the previous literature related principally to friendly takeovers and MBOs (Perry and Williams 1994; Wu 1997; Begley et al. 2003; Fischer and Louis 2008; Ben-Amar and Missonier-Piera 2008; Mao and Renneboog 2015).

Successively, this study investigates whether the level of EM influences the CEOs' retention rate and whether the manipulation seems to harm target shareholders. First, it is observed that

downward AEM of completed deals is associated with a higher retention rate. However, when the REM measure is considered, the results change. Downward REM of completed deals is punished by the acquirer with a lower retention rate. The differences can be explained by the different consequences of two techniques of manipulation. While downward AEM can create a fictitious performance in the post-acquisition period, REM can have negative effects on the long-term performance of the firm. Second, no evidence of an opportunistic trade-off between CEO retention and the premium are observed for firms that do not manipulate or for firms that manage their earnings. These results do not support the results of Wulf (2004) and Qiu et al. (2014). The main results suggest that downward EM of target firms affects the retention rate of CEOs without negatively affecting the target shareholders' wealth. Otherwise, downward REM seems to be punished by a lower retention rate because of its possible negative consequences on the performance or reputation of the firm.

In additional analyses, weak evidence of entrenched CEOs negotiating lower premiums for their shareholders using EM is observed. These latter results may suggest that entrenched CEOs are likely to negotiate some private benefits with the acquirers in exchange for a lower premium.

Overall, the non-results relating EM practices and the trade-off CEO retention-premium seem to suggest an interpretation different to the hypothesis of managerial opportunism. The CEOs that manipulate downward through accruals before the M&A announcement are able to obtain a higher premium for the target shareholders and, in case of deal completion, a higher retention. One possible interpretation could be that CEOs are afraid of litigation around the M&A process and select conservative accounting choices before the deal announcement (Abbott et al. 2006). When the transaction is completed, the acquirer profits from both the accrual reversals and the reduced risk of litigation related to the M&A. However, CEOs that select downward REM do not seem rewarded to be by a higher retention rate because of the possible long-term effects of real activity manipulation on the performance of the firm.

The limit of this paper is that the only proxy for CEOs' wealth is the retention rate. Nevertheless, CEO compensation could also determine their accounting choices. Moreover, it could also be interesting to control for CFOs wealth around M&A, because they are directly responsible for the accounting choices. Nevertheless, difficulty collecting data limits the number of analyses and allows for examination of only a small sample.

.7   Appendix

Appendix 6: Year of Suspected Manipulation, Country and Industry Distribution

COUNTRY	Count	%		(SIC) INDUSTRY	Count	%
AUSTRIA	4	2.30	1	Agricultural Production Crops	2	1.15
BELGIUM	4	2.30	10	Metal Mining	4	2.30
CROATIA	1	0.57	13	Oil and Gas Extraction	8	4.60
CZECH REP.	1	0.57	20	Food and Kindred Products	5	2.87
DENMARK	2	1.15	24	Lumber and Wood Products…	1	0.57
FINLAND	5	2.87	26	Paper and Allied Products	2	1.15
FRANCE	25	14.37	27	Printing, Publishing, …	1	0.57
GERMANY	18	10.34	28	Chemicals and Allied Products	13	7.47
IRELAND	6	3.45	30	Rubber and Miscellaneous Plastics, …	1	0.57
ITALY	7	4.02	32	Stone, Clay, Glass, …	6	3.45
LUXEMBOURG	1	0.57	33	Primary Metal Industries	5	2.87
NETHERLANDS	17	9.77	34	Fabricated Metal Products, …	1	0.57
NORWAY	4	2.30	35	Industrial and Commercial Machinery	13	7.47
POLAND	2	1.15	36	Electronic and Other Electrical Equip.	11	6.32
PORTUGAL	2	1.15	38	Measuring, Analysing Instruments…	6	3.45
RUSSIAN FED.	3	1.72	39	Miscellaneous Manufacturing Industries	1	0.57
SLOVENIA	3	1.72	42	Motor Freight Transportation…	1	0.57
SPAIN	1	0.57	44	Water Transportation	3	1.72
SWEDEN	10	5.75	45	Transportation by Air	1	0.57
SWITZERLAND	7	4.02	47	Transportation Services	4	2.30
U. K.	51	29.31	48	Communications	9	5.17
Sum	**174**	**100**	49	Electric, Gas and Sanitary Services	7	4.02
			50	Wholesale Trade-Durable Goods	3	1.72
			51	Wholesale Trade-Non-Durable Goods	2	1.15
			53	General Merchandise Stores	2	1.15

YEAR	Count	%		(SIC) INDUSTRY	Count	%
			54	Food Stores	2	1.15
2005	2	1.15	56	Apparel and Accessory Stores	1	0.57
2006	2	1.15	57	Home Furniture, Furnishings, …	1	0.57
2007	0	0.00	58	Eating and Drinking Places	1	0.57
2008	10	5.75	59	Miscellaneous Retail	2	1.15
2009	10	5.75	70	Hotels, Rooming Houses, Camps, …	1	0.57
2010	18	10.34	73	Business Services	33	18.97
2011	19	10.92	75	Automotive Repair, Services, …	1	0.57
2012	23	13.22	78	Motion Pictures	3	1.72
2013	23	13.22	79	Amusement and Recreation Services	2	1.15
2014	34	19.54	80	Health Services	3	1.72
2015	33	18.97	87	Engineering, Accounting, Research,…	12	6.90
Sum	**174**	**100**	**Sum**		**174**	**100**

Notes: Year denotes the year of suspected manipulation of the target firm. Country denotes the country of the target firm. Industry denotes the industry of the target firm.

- # **Chapter 3: EM Before Friendly Takeovers and Analysts' Forecast Accuracy**

.1   Introduction

Analysts are useful to market participants in providing earnings forecasts and analysts' target price. They may represent a benchmark of market expectations (Clatworthy and Lee 2018). When preparing their earnings forecasts, analysts may exclude some items from GAAP earnings or adjust for accounting method changes (Peek 2005; Herrmann et al. 2007). However, a debate still exists relative to what extent analysts are able to correctly predict or anticipate the impact of EM (Abarbanell and Lehavy 2003; Liu 2005; Courteau et al. 2015). Indeed, although analysts may strive to incorporate EM in their forecasts (Liu 2005), they may not have the ability to completely do so (e.g., Bradshaw et al. 2001; Abarbanell and Lehavy 2003), and they cannot discern between discretionary and non-discretionary accruals (Bannister and Newman 1998; Ahmed et al. 2005). Previous research disagrees about whether analysts' forecasts integrate EM before some corporate events. Some authors find that EM and its reversals are not fully integrated in analysts' forecasts around corporate events (Teoh and Wong 2002; Louis 2004; Rodriguez and Yue 2008). On the other side, Zheng and Stangeland (2007) observe that EM before an IPO does not affect the analysts' forecast accuracy in the post-IPO period. Alternatively, analysts' ability to forecast accurately can be influenced by the disclosure policy of firms, especially around a corporate event. Indeed, managers can choose different channels to inform their stakeholders, which could be either informative or misleading. Among the range of information channels available to managers, the accounting choices can also be informative or misleading (Watts and Zimmerman 1986). The disclosure policy of a firm can be employed to reduce information asymmetry and convey trustworthy information or, alternatively, provide misleading information (Lang and Lundholm 2000; Healy and Palepu 2001; Schrand and Verrecchia 2002). Analysts are regarded as sophisticated users of financial statements (Loh and Mian 2006; Ertimur et al. 2007), but in some cases, they may be affected by the disclosure policy chosen by the firm. This paper aims to empirically investigate the information disclosure quality related to the EM strategy before a friendly M&A.

Target managers may manipulate downward to attract new bidders, please the bidder by creating fictitious post-acquisition performance through accrual reversal and/or decrease the

political pressure around a corporate restructuring transaction (Eddey and Taylor 1999; Ben-Amar and Missonier-Piera 2008; Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015; Chen et al. 2016). Moreover, because of the high scrutiny before M&As, target managers may want to reduce the risk of failure of the deal or the risk of a lawsuit from target shareholders (Abbott et al. 2006). For these reasons (which are non-mutually exclusive), target managers may decide to select conservative and trustworthy accounting choices. Nevertheless, if target managers act opportunistically around the M&A transaction (e.g., Wulf 2004; Hartzell et al. 2004; Qiu et al. 2014) – they manipulate the earnings downward to decrease the stock price and mislead the target shareholders in exchange for private benefits from the acquirer – then they are likely to choose misleading accounting choices to affect the market participants' perceptions.

The sample contains 387 European firms that have been subject to an acquisition or an acquisition attempt during 2005–2015. Earnings management is identified with abnormal accruals and abnormal real activities the year before the acquisition or the acquisition attempt. First, it is tested and observed whether target firms manipulate their earnings through accruals and real earnings manipulation the year before the announcement. Second, it is tested whether and how the EM measures impact forecast accuracy measures and whether the impact affects target and non-target (hereafter control) firms differently. The forecast accuracy is measured as the forecast bias (i.e., difference between the analysts' target price and the stock price prior to the announcement) and the forecast error (i.e., the absolute value of the forecast bias). The main results suggest that the EM of target firms is not related to the analysts' accuracy, but EM of control firms is negatively related to forecast accuracy. The results are robust to alternative measures of forecast accuracy, to an alternative measure for abnormal accruals, to a sub-sample of a minimum of five estimations per firm and to an alternative pseudo-event date for the control sample. Furthermore, the bidders show no information uncertainty due to EM of the target firm. Indeed, none of the EM measures are related to the likelihood of a stock payment, while weak evidence suggests that information asymmetry (proxied by the analysts' forecast error) is positively related to the choice to settle with stocks. Finally, it is observed that target firms provide an amount of information in the financial statements that is positively related to the downward abnormal production costs. That is, target firms provide additional explanation (proxied by the number of pages in the financial statements) to their stakeholders before the announcement when they manipulate. Furthermore, the amount of press releases of target firms is independent of the EM level, while a negative relation for control firms is observed. This

result suggests that target firms increase their disclosure, or at least do not change their disclosure policy, with downward manipulation. Overall, the results suggest that EM is part of an informative disclosure policy.

The remainder of the chapter is organized as follows. Section 2 summarises the prior literature relative to EM and analysts' accuracy and EM motivations around M&As. Section 3 presents the research design used in this paper. The empirical results are discussed in the fourth and fifth sections and are followed by a conclusion in the final section.

.2   Literature Review

.2.1   The Effect of Firms' Disclosure on Analysts' Forecasts

Financial analysts offer important information to the market, providing earnings forecasts, price targets and recommendations and by choosing firms that are valuable to be covered.[38] Graham et al. (2005) observe that managers perceive analysts as one group of market participants that most influence the market price. Thanks to analysts, the market increases the informational efficiency through a faster diffusion of information and a conveyance of new information (Frankel et al. 2006). Analysts gather information from internal and external sources and play a prominent role as information intermediaries (Lang et al. 2004). Moreover, they act as a monitor for firms that manage their earnings (Yu 2008) and fraud discovery (Dyck et al. 2010).

Target firms can be motivated to increase or decrease the quality of the accounting information provided before the M&A announcement to impact the likelihood of success and/or influence the price. If analysts are considered sophisticated market participants and primary users of all information provided by the firm,[39] then the change in the information's quality provided through the manipulation of the earnings could affect the analysts' accuracy (Lang and Lundholm 1996). Therefore, analysts' accuracy determines how market participants perceive abnormal changes in financial reporting, real operations and accounting choices. In terms of

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[38] Analysts' forecasts can be related to EM as determinant or as consequence. In the literature, the analyst forecast is widely considered as a determinant of EM, because firms trying to avoid negative reaction from the market due to market expectation, where the consensus of analysts' forecast is the target earnings to meet or beat for firms to satisfy the market expectation and have positive returns (Degeorge et al. 1999; Kasznik 1999; Ayers et al. 2006; Hribar et al. 2006; McVay 2006; Roychowdhury 2006). Nonetheless, in this section, only the impact of EM on the analysts' forecast ability is reviewed.

[39] Previous literature makes the underlying hypothesis that analysts are able to understand and are motivated to integrate information about EM into their forecasts. Nevertheless, some studies struggle to support this hypothesis (see next paragraphs).

disclosure policy,[40] the existing literature observes that accounting choices and the non-financial information provided by the firm can influence the analysts' opinion and their ability to provide accurate forecasts. Indeed, Lang and Lundholm (1996) exhibit that the analysts' accuracy can be explained by the disclosure policies of the firms. The authors find that, within an industry, a higher disclosure score increases the forecast accuracy, which increases the analysts' following and decreases the analysts' dispersion. Similarly, Hope (2003a) documents a positive relationship between the level of the accounting disclosure policy and the forecast accuracy. Dhaliwal et al. (2012) also confirm the relationship for non-financial disclosure. Indeed, the issuance of a standalone corporate social responsibility (CSR) report seems related to a higher forecast accuracy by the analysts. Their results cover an international sample. Moreover, Muslu et al. (2019) support the results of Dhaliwal et al. with a disclosure score of CSR reports. Lehavy et al. (2011) observe a negative relation between the readability of annual reports and the dispersion of analysts' forecasts as well as the forecast error, meaning that less readable financial statements lead to uncertainty among market participants. Bowen et al. (2002) exhibit similar results considering the conference calls of the firms. They observe a negative relation between the number of earnings-related conference calls and forecast errors, suggesting that conference calls increase the analysts' ability to forecast accurately.

Environment and regulation also seem to affect the analysts' ability to integrate the information. Hopkins et al. (2000) observe that the complexity of the method of consolidation for subsidiaries negatively influences the analysts' ability. Plumlee (2003) exhibits analysts' difficulty in correctly integrating complex information into their forecasts, which leads to higher forecasting errors. Similarly, Bradshaw et al. (2009) exhibit how atypical accounting methods negatively affect the analysts' forecast accuracy. They observe that analysts are not able to integrate the information relative to complex accounting methods or that they choose to ignore it. Hope (2003b) shows that a strong enforcement of firms' disclosure increases the analysts' forecast accuracy. Ashbaugh and Pincus (2001) and Hodgdon et al. (2008) find the same results between the adoption of IAS, respectively the level of IFRS compliance and the analysts' forecast accuracy.

The disclosure policy, similar to EM, can be used to either decrease the transparency and mislead the investors about the true value of the firm (e.g., Lang and Lundholm 1996) or improve transparency and provide accurate information to consequently reduce information

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[40] First, the literature about the effect of the information provided by the firm on the analysts' forecast ability is reviewed, and then, the focus is put on the effect of EM on the analysts' forecast ability.

asymmetry (e.g., Healy and Palepu 2001; Schrand and Verrecchia 2002). On one hand, EM can add noise and complexity to the information disclosed, and this may reduce the ability of the analyst to correctly forecast future earnings (e.g., Lang and Lundholm 1996; Hopkins et al. 2000; Plumlee 2003; Bradshaw et al. 2009; Lehavy et al. 2011; Eiler et al. 2016). Contrarily, in the case of efficient EM (e.g., income smoothing), it can increase the information provided to the market by managers concerning their assessment of the firm's future earnings, which should ease the predictability of future earnings (e.g., Graham et al. 2005; Lambert et al. 2007; Chen 2013).

Little empirical work has been done on the relation between EM and the firm's disclosure. Some studies observe a negative relationship between the disclosure provided by the firm and EM (Lobo and Zhou 2001; Lapointe-Antunes et al. 2006; Jo and Kim 2007; Iatridis and Kadorinis 2009; Cassell et al. 2015; Katmon and Farooque 2017). Most of these studies suggest that lower disclosure (amount and/or quality) decreases the risk of being detected. However, a few authors observe a positive relation between AEM and disclosure (Aerts and Cheng 2011; Aerts and Zhang 2014). The latter authors argue that managers increase the quality of the management commentary to reduce the potential concerns of investors about the use of EM. The direction of this relation seems to be based on the management's desire to mislead or inform the market.

.2.2 The Effect of EM on Analysts' Forecasts

A vast literature investigates the analyst's ability and will to integrate EM information into their forecasts, with mixed results. Chen and Cheng (2002) observe that analysts' forecasts do not fully include the information contained in abnormal accruals. Indeed, they find that the analysts' future forecast accuracy is positively related with abnormal accruals for the firms suspected of opportunistic EM. Their analysis suggests that the market participants (and analysts) are unable to distinguish the motivations behind abnormal accrual entries. Bannister and Newman (1998) examine whether analysts decompose the discretionary part of the accruals for their future valuations. The authors do not find evidence suggesting that analysts integrate past abnormal accruals into their forecasts. Indeed, they observe that analysts do not adapt their forecasts for the next period with actual information about abnormal accruals. Abarbanell and Lehavy (2003) observe results consistent with the hypothesis that analysts are not able to fully integrate EM into their forecasts or are not motivated to integrate this additional information. This is because analysts are not able (or do not want) to integrate ex-ante equity-market based variables (i.e., analyst recommendation) to predict the sign and magnitude of EM. In a similar way, Bradshaw

et al. (2001) observe how high levels of accruals (i.e., firms with low earnings quality) are not integrated in analysts' forecasts. Indeed, they find no results supporting the hypothesis that analysts incorporate accrual reversals into their forecasts, even for firms with GAAP violations. Their study reports that forecast accuracy is lower and negative for firms with unusually high accrual levels. Courteau et al. (2015) examine valuation models (using analysts' earnings and cash flow forecast) that can better assess the intrinsic value of a firm in a sample containing firms suspected of manipulating upward (firms suspected of avoiding small earnings declines or small losses) and comparable firms not suspected of manipulation. They observe that the residual income model (RIM) is more accurate for control firms in the pre-SOX period than for the Discounted Cash Flow model (DCF), but the presence of accruals manipulation decreases the ability of the model to outperform the DCF model. In the post-SOX period, the accuracy advantage of RIM disappears. These results suggest that abnormal accruals affect the valuation models and create market consequences. Ahmed et al. (2005) observe that analysts are not able to distinguish between discretionary and non-discretionary accruals. In fact, analysts attach the same value to non-discretionary and discretionary accruals, despite the non-discretionary accruals being lower the following year. Salerno's (2014) results exhibit a negative relation between forecast error and abnormal accruals, despite the fact that investors need the skills of analysts, especially for low-quality firms. Eiler et al. (2016) focus on another EM technique, the real activity EM. The findings suggest that analysts' forecast accuracy is negatively related to the REM measure (calculated by abnormal CFO, abnormal production and abnormal SG&A expenditure).

Alternatively, Burgstahler and Eames (2003) report that analysts correctly anticipate (only late in the year) that firms trying to avoid small losses are likely to engage in EM and to what extent, but analysts are unable to correctly predict its occurrence. Eames and Kim (2012) find results confirming those of Burgstahler and Eames (2003), observing that analysts do not anticipate long horizon EM correctly for firms avoiding small losses, but only at the short horizon. Furthermore, they examine whether investors also fail (as the analysts) to anticipate firms trying to avoid small losses through EM early in the year. Their results exhibit that investors show less optimism in earnings forecasts, when the firms have a zero earnings forecast, suggesting that the market is not misled by analysts' forecasts early in the year. Keung et al. (2010) examine how the analysts (and the investors) react to zero and small positive earnings surprises. Their results suggest that analysts suspect EM when firms show zero or small positive earnings surprises. Peng et al. (2016) examine how high levels of accruals lead to a higher dispersion in the analysts' forecasts, meaning that high level of accruals create heterogeneous beliefs about

the firm's future value. Liu (2005) considers the analysts' strategic response to firms suspected of managing their earnings. She finds that analysts are more likely to forecast below the non-strategic value for firms suspected of taking a big bath (because they cannot reach the non-strategic value). The results show that analysts are able to integrate EM suspicion into their forecasts. Finally, Hirst and Hopkins (1998), in their experiment, observe that buy-side analysts are able to extrapolate EM in available-for-sale for marketable securities (after the adoption of Statement of Financial Accounting Standards No. 130, which requires more detailed reporting of the comprehensive income).

Overall, the results suggest that analysts are not systematically able (or do not want) to integrate the information relative to EM. It seems that EM information is integrated into their forecasts only late in the year and that it is more likely that EM is taken into account by the analysts when there is a clear suspicion of manipulation. Otherwise, EM seems to reduce the analysts' ability to forecast accurately.

Corporate events such as IPOs or SEOs may motivate analysts and investors to examine the financial statements of the firm more accurately to detect potential opportunistic EM. In these contexts, Teoh and Wong (2002) observe that abnormal accruals can predict analysts' forecast errors for firms issuing equities. They observe that issuing firms are associated with analysts' forecast errors a few years after the issues.[41] Hence, analysts fail to detect abnormal accruals and discount their forecast for accrual reversal. Rodriguez and Yue (2008) examine the analysts' accuracy in the context of stock repurchase (i.e., suspicion of stock price deflation). They detect that analysts are misled by downward AEM. Indeed, the results show that analysts are more pessimistic with firms that manipulate their earnings downward. Louis (2004) finds that, generally, forecasts made for acquiring firms of stock-for-stock (i.e., suspected of manipulating their earnings upward) before the announcements are pessimistic, while the quarters after the announcement, the analysts are overoptimistic. The author argues that managers of stock-for-stock acquiring firms mislead analysts using abnormal accruals to show better future perspectives, while cash-only acquirers' tests exhibit weak evidence of statistically significant differences in analysts' forecast errors before and after the announcement. By contrast, Zheng and Stangeland (2007) observe that IPOs are undervalued also because of the reversal in the post-IPO period of the upward manipulation during the pre-IPO period.

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[41] They observe the same result for non-issuers with high abnormal accruals.

However, it seems that analysts are not fooled by EM and correctly value firms with greater under-pricing.

The disclosure policy of a firm is likely to be affected by a corporate event such as a M&A. Indeed, firms must retain relevant stock price information until the day of the announcement, they must ensure that the bidders do not cancel the transaction due to unexpected bad news that was not correctly reported and managers may want to affect the M&A outcome and price. Nevertheless, EM is not the only channel through which managers may develop their disclosure policy, and it is likely that all the channels provide information in the same direction and are consistent with each other.

The disclosure policy, like EM, can be employed to signal information and reduce information asymmetry (Healy and Palepu 2001; Schrand and Verrecchia 2002) or decrease transparency and mislead investors about the true value of the firm (Lang and Lundholm 1996). It appears that analysts' ability to integrate EM information into their forecasts depends on the transparency of financial statements and their ability to understand the company's earnings target. Therefore, it is hypothesised that EM may be associated with the analysts' forecast accuracy. Formally, the hypothesis is posed as follows:

H4: There is an association between the EM of the target firm and the analysts' forecasts accuracy before the M&A announcement.

.3   Research Design

.3.1   Sample Selection

The sample is composed of target firms of takeovers during 2005–2015 in the European market. Only M&As with a transaction value equal to or bigger than 100 million Euros, friendly transactions and transactions with the bidder seeking the majority of the voting rights are retained. All firms without enough accounting or analyst data, firms which have an accounting standard different from IAS/IFRS, firms active in financial services (i.e., SIC code 6000–6999), firms which were targeted for two subsequent years, firms with negative common equity value and firms without comparable firms in the same industry to compute EM measures are excluded. The final sample contains 388 acquisitions or acquisition attempts (see Table 43). The data are extracted from *Factset MergerMetrics* and *Factset* databases.

Table 43: Sample Selection

Initial sample (merger & majority stake, Transaction value > 100 MM)	1,575
Accounting standards different from IAS/IFRS	-305
Firms with missing or incomplete data	-164
Firms with missing analyst data	-124
Firms with a SIC code included between 6000–6999	-321
Firms in industries without enough comparable firms	-167
Firms targeted for two consecutive years or by multiple acquirers	-24
Firms with negative equity	-16
Hostile takeovers	-66
Matching sample	-1
Final sample	**387**

A control sample based on firms' not targeted by M&As is constructed. First, all European-listed firms with available data and IAS/IFRS accounting standards are considered to have enough comparable in each industry (at least 10) to compute abnormal accruals, abnormal operating cash flows, abnormal production costs and abnormal discretionary expenses. The sample used to compute EM contains 2,820 firms. Then, the closest firms are matched in term of size, debt level, performance and industry with the target firms. Because of the matching technique employed that requires an exact match of the industry, one target firm is dropped by the sample. This allows for a target and paired control sample of 387 firms. To value the quality of the control sample, it is tested whether the two samples are comparable. Results are shown in Table 44. The two samples do not exhibit any statistically significant difference in terms of firm characteristics except for the parametric test about the debt level, which is statistically significant at the 5% threshold. [42]

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[42] Appendix 7 and Appendix 8 show the distribution of the sample given the year of the suspected manipulation and the country of the firm. The distribution of the year of suspected manipulation, the countries (except for the United Kingdom, which has around 30% of the target firms in the whole sample of target firms) do not show any noticeable difference between the target and control samples.

Table 44: Sample Comparison

Variables	Mean	Median	Tests	
SIZE	$\mu0 =$ 6.4503	$M0 =$ 6.3061	$t =$ 0.1259	
	$\mu1 =$ 6.4663	$M1=$ 6.3783	$Z =$ 76,577	
OCF	$\mu0 =$ 0.0831	$M0 =$ 0.07903	$t =$ 1.0519	
	$\mu1 =$ 0.0925	$M1=$ 0.0840	$Z =$ 75,744	
ROA	$\mu0 =$ 4.2017	$M0 =$ 4.5709	$t =$ -0.6817	
	$\mu1 =$ 3.7223	$M1=$ 3.8706	$Z =$ 69,926	
DEBT	$\mu0 =$ 70.7904	$M0 =$ 45.5401	$t =$ 2.0983	*
	$\mu1 =$ 100.7668	$M1=$ 48.9760	$Z =$ 76,937	
SALES	$\mu0 =$ 0.0904	$M0 =$ 0.0559	$t =$ 0.5685	
	$\mu1 =$ 0.1012	$M1=$ 0.0437	$Z =$ 71,038	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between the target and control firms. SIZE is the natural logarithm of the assets. OCF is the cash flow from operating activities scaled by total assets of *t-1*. ROA is the return on assets. DEBT is the ratio of total debt divided by the mean of common equities. SALES is the total revenue scaled by total assets *t-1*.

.3.2 Data Definition and Models

The methodology for the detection of EM is already defined in Chapter 1. The four EM models considered are the Kothari et al. (2005)[43] and the REM models proposed by Roychowdhury (2006). Moreover, to detect EM in the sample of target firms, the model presented in Equation 7 is employed.

To measure forecast accuracy, focus is put on analysts' target price.[44] The forecast accuracy (i.e., forecast error and bias) is examined around the announcement date. At the announcement

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[43] The model considered is a variation of the model expressed in Equation 1 and 2. The fourth variable (which considers the performance of the firm) is measured with the ROA of the current year instead of the previous year.
[44] It is assumed that the reported earnings, which can be manipulated, are a determinant of the target price forecasted by analysts, which in turn affects the forecast error. It is deemed that the two EM techniques considered (i.e., AEM and REM) can affect the two components of the earnings (i.e., accruals and cash flows), which allows full coverage of all valuation models that may be employed by the market to value target firms prior to M&As. Indeed, some valuation models, such as the DCF model and some multiples, do not consider the bottom line earnings (i.e., are less affected by the accruals manipulation), even if it is unlikely that these models are not combined with other valuation models that consider earnings, such as the Residual Income Model (Ohlson 1995). The association between EM and stock price is already extensively shown in the existing literature (e.g., Sloan 1996; Subramanyam 1996; DeFond and Park 1997; Teoh, Welch, et al. 1998a; Teoh, Welch, et al. 1998b; Balsam et al. 2002; Baber et al. 2006).

date, the share price contains the premium, which is not considered in the analysts' forecasts.[45] Hence, the share price is selected the day before the announcement date. Forecast bias refers to the percentage difference between the forecast and the realized target value of the firm at the announcement, which measures analysts' optimism or pessimism. The forecast error is the absolute value of the percentage difference between the forecast and the realized target value of the firm.[46]

The potential association between EM and the forecast accuracy is examined with a cross-sectional multivariate regression. Several control variables are considered. The size of the firm should positively impact the accuracy of the analysts (Bhushan 1989; Lang and Lundholm 1996; Barth et al. 2001). Bigger firms receive greater scrutiny from stakeholders that pressures them for higher quality reporting. Moreover, there is a positive relation between firm size and analysts following. The number of analysts covering the firm increases the accuracy because of higher scrutiny (Alford and Berger 1999) and because any additional analysts add new information to the consensus measure.[47] This variable is proxied by the number of estimates provided during the consensus period. The firm's growth opportunities are controlled with the market-to-book ratio, because high-growth firms may have a greater visibility and, consequently, a greater following. Nevertheless, high-growth firms are also more difficult to precisely forecast; thus, there are no expectations about the sign (Frankel and Lee 1998; Barth et al. 2001; Hutton et al. 2012). Leverage is also considered to affect the accuracy. Firms with a high level of debt are under more scrutiny and are more monitored by debtholders, which may positively affect the disclosure quality of the firm and consequently the quality of the forecast (Hutton et al. 2012). The regression also controls for complexity and variability in the previous year, which is expected to be negatively related to forecast accuracy (Lehavy et al. 2011; Hutton et al. 2012). Because the surprise dates are spread over the year, the number of days since the last financial statement issued are different between firms, which may impact the analysts' accuracy. For this reason, the variable DaysELAPSED is computed, which accounts for the number of days elapsed since the last financial statement issued. Finally, country-, industry- and year-fixed effects are coded. The variables of interest are the EM measures and the

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[45] The deal's premium represents the price that the acquirer should pay to control a large stake of voting rights; hence, it is not forecasted by the analysts.

[46] Appendix 9 describes in detail the two measures, and Appendix 10 provides a scheme that outlines the timing of the EM and the forecast consensus window.

[47] Assuming that the analysts' forecasts are not correlated.

interaction terms between EM measures and the dummy variable that represents target firms. Formally, Equation 13 is the following:

$$
\begin{aligned}
FA_i = {}& \alpha_0 + \alpha_1 TARGET_i + \alpha_2 EM_i + \alpha_3 TARGETxEM_i + \alpha_4 SIZE_i \\
& + \alpha_5 LEVERAGE_i + \alpha_6 MTB_i + \alpha_7 SD.SALES_i + \alpha_8 NbANALYSTS_i \\
& + \alpha_9 DaysELAPSED_i + \alpha_{10} Industry\ FE_i + \alpha_{11} Country\ FE_i \\
& + \alpha_{12} Year\ FE_i + \varepsilon_i
\end{aligned}
\tag{13}
$$

Where:

$FA_i =$	the forecast accuracy measured as forecast error or forecast bias;
$EM_i =$	the earnings management proxy for firm i;
$TARGET_i =$	a dummy variable indicating firms that are targets of M&A;
$SIZE_i =$	the natural logarithm of total assets for firm i;
$LEVERAGE_i =$	the ratio of total debt divided by the mean of common equities for firm i;
$MTB_i =$	the market-to-book ratio for firm i;
$SD.SALES_i =$	the standard deviation of the sales in the previous 5, 4 and 3 years for firm i;
$NbANALYSTS_i =$	the number of analysts for firm i;
$DaysELAPSED_i =$	the number of days elapsed since the last financial statement issued for firm i;
$Industry\ FE_i =$	the industry-fixed effects;
$Country\ FE_i =$	the country-fixed effects;
$Year\ FE_i =$	the year-fixed effects;
$\varepsilon_i =$	the error term for firm i;
$i =$	1, …, N firms.

.4 Results

.4.1 Descriptive Statistics

Descriptive statistics are provided in Table 45 and Table 46 for the target and control samples. Table 45 provides information about the EM proxies and the firm characteristics. First, it is observed that target firms have a lower mean and median for abnormal accruals than control firms. Similarly, the REM measures are also lower for target firms. Table 46 presents the descriptive statistics related to the analysts' accuracy variables. Analysts' forecast bias (AFB) of both samples are optimistic, and it seems that the target sample has a lower bias. When the error in analysts' forecast error is considered (AFE), it is observed that the mean and median of the error are lower for target than for control firms. Altogether, the results seem to suggest that

the forecasts of analysts for target firms are more accurate. The number of analysts following the firm is slightly higher in the control sample. Finally, the number of days elapsed between the surprise date and the last financial statement issued is slightly higher for target firms by construction.

Table 45: Sample Description – EM

Target	Mean	Median	Minimum	Maximum	Std. Dev.	Count	Count Null
AEM2	-0.0069	-0.0088	-0.3488	0.6318	0.0836	387.00	0.00
REM1	0.0155	0.0102	-0.5188	1.1517	0.1175	387.00	0.00
REM2	-0.0825	-0.1181	-7.8867	2.5498	0.6404	372.00	0.00
REM3	-0.0039	0.0045	-0.4881	0.1531	0.0545	303.00	0.00
Control							
AEM2	0.0024	-0.0020	-0.2321	0.7302	0.0740	387.00	0.00
REM1	0.0100	0.0102	-0.7237	0.3468	0.1050	387.00	0.00
REM2	-0.0088	-0.0875	-1.2171	2.1999	0.4871	375.00	0.00
REM3	0.0077	0.0074	-0.1227	0.5046	0.0445	307.00	0.00

Notes: AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses.

Table 46: Sample Description – Analysts' Forecast Characteristics

Target	Mean	Median	Minimum	Max.	Std. Dev.	Count	Count Null
AFB	0.17	0.10	-0.68	3.07	0.34	387.00	0.00
AFE	0.23	0.14	0.00	3.07	0.30	387.00	0.00
NbANALYSTS	6.44	5.00	1.00	28.00	5.43	387.00	0.00
DaysELAPSED	195.91	197.00	45.00	421.00	93.73	387.00	0.00
Control							
AFB	0.30	0.15	-0.79	8.36	0.70	387.00	0.00
AFE	0.33	0.17	0.00	8.36	0.68	387.00	0.00
NbANALYSTS	7.63	5.00	1.00	33.00	7.36	387.00	0.00
DaysELAPSED	180.00	180.00	180.00	180.00	0.00	387.00	0.00

Notes: AFB is the analysts' forecast bias. AFE is the analysts' forecast error. NbANALYSTS is the number of analysts following the firm. DaysELAPSED is the number of days elapsed since the last financial statement issued.

Table 47 presents the Pearson correlation matrix between the main variables of interests. The proxies for EM show three correlations between them. Abnormal accruals (AEM2) are negatively correlated to abnormal operating cash flows (REM1) and positively correlated with abnormal discretionary expenses (REM3). Moreover, the abnormal operating cash flows are negatively correlated with the abnormal discretionary expenses. The variables for analysts'

accuracy show a high positive correlation between them. Finally, more interesting for the investigation, the abnormal accruals (AEM2) are weakly and positively correlated with two measures of forecast accuracy, the abnormal discretionary expenses (REM3) are weakly and positively correlated to the forecast bias and the abnormal operating cash-flows (REM1) are negatively correlated with the forecasting error (AFE) and bias (AFB).

Table 47: Correlation Matrix

	AEM2	REM1	REM2	REM3	AFB	AFE
AEM2	1	**-0.68**	0.04	**0.25**	**0.28**	**0.27**
REM1		1	-0.05	**-0.16**	**-0.21**	**-0.21**
REM2			1	-0.04	0.03	0.02
REM3				1	**0.08**	0.06
AFB					1	**0.97**
AFE						1

Notes: the Pearson correlation coefficients are reported in the upper right portion of the table. Bold text indicates correlations are statistically significant at p-value < 0.10. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. AFB is the analysts' forecast bias. AFE is the analysts' forecast error.

.4.2   Earnings Management of Target Firms

First, Table 48 compares the AEM and REM measures of the target and control samples with univariate parametric (t-test) and non-parametric tests (Mann-Whitney U-test). The univariate analysis for abnormal accruals shows statistically lower AEM, with a significance threshold of 5% (see Panel A), using the non-parametric model for the target sample. Panel B presents the univariate tests for the three REM. The univariate tests show that the abnormal production costs measure is statistically significantly lower for the target sample (threshold 10%). Similarly, discretionary expenses are lower for target firms than control firms (threshold 1% and 5%).

Table 48: EM Detection – Univariate Tests

Panel A: AEM Comparison

Model	Mean	Median	Tests	
Kothari et al. (AEM2)	$\mu0 =$ 0.0024	$M0 =$ -0.0020	$t =$ -1.6327	
	$\mu1 =$ -0.0069	$M1 =$ -0.0088	$Z =$ 68,478	*

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model.

Panel B: REM Comparison

Model	Mean	Median	Tests	
Abnormal OCF (REM1)	$\mu0 =$ 0.0100	$M0 =$ 0.0102	$t =$ 0.68311	
	$\mu1 =$ 0.01552	$M1 =$ 0.0102	$Z =$ 74,844	
Ab. Production Costs (REM2)	$\mu0 =$ -0.0087	$M0 =$ -0.0875	$t =$ -1.7707	†
	$\mu1 =$ -0.0825	$M1 =$ -0.1181	$Z =$ 64,663	†
Ab. Discretionary Exp. (REM3)	$\mu0 =$ 0.0077	$M0 =$ 0.0074	$t =$ -2.8622	**
	$\mu1 =$ -0.0039	$M1 =$ 0.0045	$Z =$ 41,673	*

Notes: The significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses.

Following Equation 13, it is tested whether the results of the manipulation of target firms are confirmed after controlling for other possible determinants of EM. The results of the multivariate analysis are presented in Table 49 for the AEM and in Table 50 for the REM. For the abnormal accruals model, the variable of interest (TARGET) has the predicted sign and is statistically significant. Moreover, the variable considering the past profitability (LOSS.PROP) is positive and statistically significant. The result of this variable is consistent with the expectation and with the results of Doyle et al. (2007) and Ashbaugh-Skaife et al. (2008). Second, the volatility of the operating cash-flows (SD.OCF) is also positive and significantly affects AEM, controlling for the generic volatility of the firm. The regression is statistically significant, and the adjusted R-squared is around 6%.

The univariate outcomes observed for REM are supported by the multivariate analysis (see Table 50), the models showing downward manipulation are those with the abnormal production costs and the abnormal discretionary expense model. The size of the firm, standard deviation of sales, standard deviation of operating cash flows and percentage of institutional shareholders

seem to affect the level of REM. The adjusted R-squared of the abnormal production costs model is around 4%, and for the abnormal discretionary expenses model, it is around 2% and statistically significant. The first detection model (with REM1) shows a positive manipulation, but the variable TARGET is not statistically significant. Overall, the results show that target firms engage in weak downward EM with both techniques compared to control firms.

Table 49: EM Detection: Multivariate Analysis – AEM

EM Measure	Kothari et al. (AEM2)		
Coefficients	**Estimate**	**t-value**	
Intercept	0.0224	0.7740	
TARGET	-0.0120	-2.0840	*
SIZE	-0.0026	-1.4210	
ROE	0.0000	0.0070	
LOSS.PROP	0.0643	6.0020	***
DEBT	0.0000	-0.1710	
SD.SALES	-0.0004	-0.0260	
SD.OCF	-0.1998	-5.1760	***
INT. SALES	-0.0011	-0.1260	
TOP5INSTIT.SH	0.0000	-0.1820	
Country control	Included		
Year control	Included		

Adj. R-squared:	*6.27%*		
F-value	*2.18*	***	
Sample size	*774*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

Table 50: EM Detection: Multivariate Analysis – REM

EM Measure	Abnormal OCF (REM1)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	-0.0215	-0.5870		0.5752	2.7050	**	0.0380	1.8340	†
TARGET	0.0056	0.7680		-0.0782	-1.8200	†	-0.0108	-2.5890	**
SIZE	0.0061	2.6050	**	-0.0304	-2.1930	*	-0.0042	-3.1390	**
ROE	0.0000	1.0820		0.0000	-0.3950		0.0000	0.4130	
LOSS.PROP	-0.1406	-10.3380	***	0.0308	0.3780		0.0085	1.0530	
DEBT	0.0000	-1.4290		0.0001	1.0350		0.0000	-0.9260	
SD.SALES	-0.0072	-0.3640		0.5168	4.4800	***	-0.0170	-1.3100	
SD.OCF	0.5853	11.9510	***	-0.8219	-2.9070	**	-0.0854	-3.3130	***
INT. SALES	0.0037	0.3430		-0.0731	-1.1570		-0.0031	-0.5090	
TOP5INSTIT.SH	-0.0002	-1.1720		-0.0021	-2.5780	*	-0.0001	-0.6520	
Country control	Included			Included			Included		
Year control	Included			Included			Included		

Adj. R-squared:	*24.08%*			*3.94%*			*2.54%*		
F-value	*6.57*	***		*1.69*	***		*1.36*	†	
Sample size	*774*			*747*			*610*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. REM1 denotes the abnormal operating cash flows. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. ROE is the return on equity. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.4.3   Earnings Management and Analysts' Accuracy

Table 51 exhibits the univariate analysis of the forecast accuracy between target and control firms. Target firms have a statistically significant lower bias and a statistically significant lower error compared to control firms. Moreover, the results suggest that analysts' forecasts are optimistic for all firms. Overall, these preliminary results may suggest that downward EM could influence the analysts' forecast accuracy for target firms.

Table 51: Analysts' Accuracy: Univariate Tests

Model	Mean	Median	Tests	
AFB	$\mu 0 = 0.2971$	$M0 = 0.1502$	$t = -3.1677$	**
	$\mu 1 = 0.1721$	$M1 = 0.1013$	$Z = 62,569$	***
AFE	$\mu 0 = 0.3284$	$M0 = 0.1664$	$t = -2.6435$	**
	$\mu 1 = 0.2277$	$M1 = 0.1389$	$Z = 67,176$	*

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Subscript 0 corresponds to control firms, and subscript 1 corresponds to target firms. The t-values and Z-values are those resulting from the tests (i.e., the Student's t-test and Mann-Whitney U-test) of the hypothesis that there is no difference between target and control firms. AFB is the analysts' forecast bias. AFE is the analysts' forecast error.

Nevertheless, these preliminary results may be due to some confounding variables. For this reason, the regression model expressed in Equation (13) is run. Table 52 exhibits the multivariate models that relate the forecast accuracy measure and the EM proxies; it considers the abnormal accruals, abnormal production costs and abnormal discretionary expenses as EM measures (see Table 48, Table 49 and Table 50). The first model considers the forecast error (AFE) as the dependent variable and the abnormal accruals as the EM measure. It is observed that the variable TARGET is significant and negative, suggesting that analysts are more precise for target firms after controlling for EM. The variable for abnormal accruals is positive and significant, advocating that AEM of non-target firms is positively associated to the forecast error of analysts, as suggested by previous literature (e.g., Bradshaw et al. 2001; Chen and Cheng 2002). Nevertheless, for target firms, the interaction term is negative and has a similar magnitude, suggesting that the relation between AEM and AFE is null. That is, AEM of target firms does not affect the forecast error for target firms.[48] Finally, the only control variable that seems to affect the AFE is the size of the firm.[49] The second model considers the abnormal production costs (REM2) as the EM measure. The variable indicating target firms is still statistically significant and negative. However, the results show that there is no relation for EM or the interaction term. These results suggest that abnormal production costs do not influence the analysts' ability to forecast target prices, independently of whether the firm is a target or not. Finally, the last regression considers the abnormal discretionary expenses (REM3) as the measure for EM. All the variables of interest are statistically significant, the variable indicating target firms and the interaction term are negative and the variable about EM of control firms is positive. The results indicate that the EM of target firms does not affect the analysts' forecasts

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[48] Appendix 11 shows the relation between the EM measure and the forecast accuracy proxies graphically.
[49] The tests are re-run with an alternative measure for the AEM measure based on the modified Jones model (Dechow et al. 1995). The results are qualitatively similar to those exposed (not tabulated for parsimony).

about target prices but do for non-target firms. Abnormal discretionary expenses act similarly to abnormal accruals. Overall, the two regression models are statistically significant and have an R-squared between 12% and 20%, consistent with the literature (Lang and Lundholm 1996; Coën et al. 2009).

The results, with the analysts' forecast bias as dependent variable, are considered qualitatively the same (not tabulated for parsimony). For the model containing the AEM2 and the REM3 measures, the results indicate that analysts' accuracy of target firms is not affected by EM, while a positive relation is observed between the forecast bias of control firms and EM measures. Finally, for the model containing REM2 as the EM measure, EM does not affect the forecast bias for control or target firms.

The multivariate analyses exhibit that the effect of EM as a differential impact on forecast accuracy depending on whether the firm is targeted by a takeover or not. For non-target firms, positive EM decreases forecast accuracy. However, it seems that for downward manipulation of target firms, this relationship does not hold. Earnings management of target firms seems not to affect the analysts' accuracy, suggesting a transparent and accurate disclosure policy on the managers' side.

The techniques employed to manage the earnings seem to have different effects on the analysts' accuracy. Outside the M&A context (i.e., control firms), it seems that analysts are able to understand (or they put more effort into understanding) abnormal core business related activity, such as production costs. However, for business activities less related to the core business of the firm and those that are more subject to discretion, they are less able to understand (or they put less effort into understanding) the management accounting choices, because they may believe that they are non-recurrent events.

Table 52: Analysts Accuracy: Multivariate Analysis

EM Measure	Abnormal Accruals (AEM2)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	AFE			AFE			AFE		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.4130	1.4690		0.4537	1.4540		0.4452	1.3680	
TARGET	-0.0857	-2.6730	**	-0.1149	-3.1820	**	-0.0800	-1.9820	*
EM	2.1860	7.3140	***	-0.0070	-0.1300		1.7510	2.7150	**
TARGET x EM	-1.9700	-4.8850	***	0.0213	0.3200		-1.3830	-1.6840	†
SIZE	-0.0493	-3.1180	**	-0.0590	-3.2170	**	-0.0517	-2.5560	*
DEBT	0.0000	0.1340		0.0000	-0.0590		0.0001	0.6330	
MTB	0.0012	0.3520		0.0004	0.1070		-0.0018	-0.3640	
SD.SALES	-0.0183	-0.2080		-0.0075	-0.0740		-0.0287	-0.2330	
NbANALYSTS	0.0000	-0.0040		0.0016	0.3590		-0.0020	-0.4260	
DaysELAPSED	-0.0001	-0.3320		-0.0002	-0.7140		0.0000	0.0280	
Industry control	Included			Included			Included		
Country control	Included			Included			Included		
Year control	Included			Included			Included		

Adj. R-squared:	*20.52%*			*12.22%*			*15.83%*		
F-value	*3.20*	***		*2.15*	***		*2.26*	***	
Sample size	*774*			*747*			*610*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AFE is the analysts' forecast error. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. MTB denotes the market-to-book ratio. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. NbANALYSTS is the number of analysts following the firm. DaysELAPSED is the number of days elapsed since the last financial statement issued. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

The results are similar to Zheng and Stangeland's (2007), who observe that analysts untangle EM for IPO firms with greater under-pricing, suggesting that analysts can see through abnormal accruals before corporate events.

Finally, the economic effect of EM on the analysts' forecast error is computed (see Table 53). Within the target sample, firms in the first quantile of AEM2 (i.e., firms that most aggressively manipulate downward) have a median forecast error of 1.74% lower compared to firms in the last quantile of AEM2 (i.e., firms that do not manipulate or manipulate upward), and the difference is not statistically significant. However, within control firms, firms in the first

quantile of AEM have a median forecast error of 5.12% lower compared to firms in the last quantile, and the difference is statistically significant. Similarly, for the abnormal discretionary expenses (REM3), the difference of medians between target firms in the first and last quantiles is 3.68% but not statistically significant, while the difference in medians between control firms in the first compared to firms in the last quantile is 7.83% and is statistically significant. For both EM measures, there is no statistical difference between target firms that aggressively manage the earnings and target firms that do not manipulate in term of analysts' forecast errors. Alternatively, there is a statistical difference in the forecast error of more than 5% within aggressive and non-aggressive EM for control firms.

Overall, the results observed seem to suggest that target firms employ informative EM.

Table 53: Quantile Analysis

Sample	EM Measure	Q1	Q5	Q5 - Q1	U-Test
Target	Kothari et al. (AEM2)	0.1601	0.1775	1.74%	2,833
	Ab. Discretionary Exp. (REM3)	0.1363	0.1726	3.63%	1,601
Control	Kothari et al. (AEM2)	0.1705	0.2217	5.12%	2,437 *
	Ab. Discretionary Exp. (REM3)	0.1263	0.2046	7.83%	1,505 *

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. Z-values are those resulting from the Mann-Whitney U-test of the hypothesis that there is no difference between the first quantile (Q1) and the last quantile (Q5). AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM3 denotes the abnormal discretionary expenses.

.5 Robustness Tests

.5.1 Alternative Analysts' Accuracy Measures

To test the robustness of the results, an alternative measure of the forecast bias and the forecast error is examined, namely the mean of the analysts' target price forecast to compute the analysts' consensus.

The results for the mean of the analysts' forecasts over the same consensus window (180 days before the announcement; 100, 75 or 45 when the announcement date is before 180 days to be sure that financial statements are issued) give results similar to those observed with the consensus' mean (results are presented in Table 54). The only notable difference is that, for the third model, which contains REM3 as the EM measure, results suggest that analysts are not able to see through the real activity manipulation of target firms. The positive relation seems to

hold but is flatter compared to control firms. The general interpretation of the models when the dependent variable is the mean of the consensus is the same as previously described. Analysts of target firms seem not to be affected in their forecast accuracy even in presence of EM (at least AEM).

Still, the results with the forecast bias as dependent variable are qualitatively the same as those presented in Table 54 (not tabulated for parsimony).

Table 54: Alternative Measure of Analysts' Accuracy – Mean Consensus

EM Measure	Kothari et al. (AEM2)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	AFE			AFE			AFE		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.4159	1.3280		0.4279	1.2390		0.4576	1.1810	
TARGET	-0.0956	-2.6770	**	-0.1198	-2.9970	**	-0.0998	-2.0760	*
EM	3.7320	11.2080	***	0.0419	0.7020		1.5330	1.9960	*
TARGET x EM	-3.5100	-7.8130	***	-0.0436	-0.5930		-1.3130	-1.3420	
SIZE	-0.0527	-2.9890	**	-0.0560	-2.7580	**	-0.0554	-2.3010	*
DEBT	0.0000	-0.2470		0.0001	0.5730		0.0001	0.4020	
MTB	0.0024	0.6310		-0.0015	-0.3640		-0.0016	-0.2680	
SD.SALES	0.0000	0.0000		-0.0189	-0.1690		0.0039	0.0270	
NbANALYSTS	0.0009	0.2030		0.0003	0.0620		-0.0021	-0.3770	
DaysELAPSED	-0.0001	-0.1970		0.0001	0.1820		0.0001	0.2310	
Industry control	Included			Included			Included		
Country control	Included			Included			Included		
Year control	Included			Included			Included		

Adj. R-squared:	*25.02%*			*10.53%*			*11.44%*		
F-value	*3.84*	***		*1.97*	***		*1.87*	***	
Sample size	*774*			*747*			*610*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AFE is the analysts' forecast error. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. MTB denotes the market-to-book ratio. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. NbANALYSTS is the number of analysts following the firm. DaysELAPSED is the number of days elapsed since the last financial statement issued. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.2   Alternative Accuracy Measure: Premium Anticipation

In the main setting, the forecast accuracy measure was computed with the stock price the day before the announcement to avoid account for the premium offered the day of the announcement. Nevertheless, it is possible that the market anticipates the M&A and starts to incorporate the information a few days before the announcement (Schwert 1996). For this reason, as an alternative measure for the accuracy forecast, the difference between the consensus forecast and the stock price five days before the announcement (instead of one day) is taken. The descriptive statistics observed for the forecast bias computed five days (one day) before the announcement are the following: the mean is 0.19 (0.17) and the median is 0.13 (0.10) for target firms. This suggests a slight increase in stock price before the announcement. For the control firms, no changes or a small decrease is observed between forecast bias computed over different pseudo-announcements.

The results about the multivariate models are tabulated in Table 55. The results observed are qualitatively similar to those observed in the main analysis (see Table 52). The measures for abnormal accruals and abnormal discretionary expenses are statistically significant and positive, while the interaction terms are negative and statistically significant for both models. Finally, in all models, the variable TARGET is still significant, suggesting that outside EM, analysts are able to make more accurate forecasts for target firms than non-target firms. This can align with the overall strategy of the target firms to provide more transparent and accurate information through channels other than EM.

Table 55: Alternative Accuracy Measure – Premium Anticipation

EM Measure	Kothari et al. (AEM2)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	AFE			AFE			AFE		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.4525	1.5520		0.4664	1.4710		0.4890	1.3780	
TARGET	-0.0731	-2.2000	*	-0.0929	-2.5320	*	-0.0748	-1.7010	†
EM	3.1810	10.2600	***	0.0273	0.4990		1.5580	2.2160	*
TARGET x EM	-2.9400	-7.0280	***	-0.0223	-0.3310		-1.5380	-1.7170	†
SIZE	-0.0523	-3.1860	**	-0.0558	-2.9920	**	-0.0534	-2.4200	*
DEBT	0.0000	-0.1140		0.0001	0.6390		0.0001	0.4220	
MTB	0.0017	0.4780		-0.0017	-0.4460		-0.0014	-0.2610	
SD.SALES	-0.0154	-0.1690		-0.0270	-0.2640		-0.0069	-0.0510	
NbANALYSTS	0.0009	0.2280		0.0006	0.1260		-0.0022	-0.4170	
DaysELAPSED	0.0000	-0.0860		0.0001	0.2480		0.0001	0.2170	
Industry control	Included			Included			Included		
Country control	Included			Included			Included		
Year control	Included			Included			Included		

Adj. R-squared:	*24.72%*			*12.40%*			*13.35%*		
F-value	*3.80*	***		*2.17*	***		*2.03*	***	
Sample size	*768*			*742*			*605*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AFE is the analysts' forecast error. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. MTB denotes the market-to-book ratio. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. NbANALYSTS is the number of analysts following the firm. DaysELAPSED is the number of days elapsed since the last financial statement issued. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.3 Subset of Firms with at Least Five Analysts

The main test is run with a sub-sample of firms that have at least five estimates per firm. Indeed, some authors suggest that mean consensus may be biased for firms with less than a given number of analysts (e.g., Chang et al. 2000; Kolasinski and Kothari 2008; Coën et al. 2009). Considering this additional condition, the sample is reduced to 334 observations.

Table 56 exhibits consistent results for the model containing the AEM measure. The variable AEM is positive and statistically significant, and the interaction term between target firms and

the accrual EM is negative and statistically significant, confirming previous results. The other two models, containing REM2 and REM3, show that the only variable of interest that is statistically significant is the variable denoting target firms, which is negative, consistent with the main test. The weak results observed in this last model may be due to the reduced number of data.

Table 56: Minimum Number of Estimates Per Firm

EM Measure	Kothari et al. (AEM2)		Ab. Production Costs (REM2)		Ab. Discretionary Exp. (REM3)	
Dependent Var.	AFE		AFE		AFE	
Coefficients	**Estimate**	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	0.3420	1.2060	0.2974	0.9180	0.2980	0.8890
TARGET	-0.0713	-2.1270 *	-0.0892	-2.2400 *	-0.0717	-1.7440 †
EM	2.6800	9.6620 ***	0.0486	0.7670	0.6321	0.6820
TARGET x EM	-2.3650	-6.2700 ***	-0.0432	-0.5890	-0.3048	-0.2570
SIZE	-0.0457	-2.5960 **	-0.0402	-1.9580 †	-0.0361	-1.6070
DEBT	0.0001	0.5140	0.0001	0.9020	0.0001	0.5080
MTB	-0.0014	-0.4780	-0.0035	-1.0280	-0.0026	-0.5900
SD.SALES	-0.0991	-1.0200	-0.0416	-0.3680	-0.0558	-0.3370
NbANALYSTS	0.0021	0.5470	0.0016	0.3520	0.0015	0.3220
DaysELAPSED	0.0001	0.5370	0.0002	0.7180	0.0002	0.8390
Industry control	included		included		included	
Country control	included		included		included	
Year control	included		included		included	

Adj. R-squared:	*35.13%*		*15.03%*		*16.08%*	
F-value	*3.54*	*****	*1.80*	*****	*1.79*	*****
Sample size	*404*		*390*		*342*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AFE is the analysts' forecast error. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. MTB denotes the market-to-book ratio. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. NbANALYSTS is the number of analysts following the firm. DaysELAPSED is the number of days elapsed since the last financial statement issued. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.4   Alternative Pseudo-Event Date for the Control Sample

In the sample design, the 'event' date ('announcement') of the control firms have been arbitrarily chosen. Therefore, it is now challenged with an alternative event date for the control firms.

In the main investigation, 180 days after the issue of the financial statements was chosen, which allows enough time for analysts to integrate EM into their forecasts and is close to the average numbers of days elapsed since the last financial statement issued for target firms and the M&A announcement (i.e., 196 days). This potential issue is dealt by setting the alternative event date for control firm as 270 days after the issue of the financial statements, which still allows analysts enough time to carefully examine the accounting numbers.

The results are presented in Table 57. The models exhibit similar results to those observed in the main investigation presented in Table 52. The only noteworthy difference is in the third regression, where the EM measure is the abnormal discretionary expenses. The direction and the statistical significance of the variable is the same as in the main analysis, but the magnitude of the interaction term is this time bigger than the magnitude of the EM variable. This result, combined with the negative value of TARGET, indicates that downward manipulation of target firms through discretionary expenses decreases the forecast error. The interpretation of this result suggests that REM3 does not mislead analysts of target firms but helps analysts to make more precise forecasts.

Table 57: Alternative Surprise Date for Control Firms

EM Measure	Kothari et al. (AEM2)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	AFE			AFE			AFE		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.4460	2.0510	*	0.4281	1.9380	†	0.4076	1.6900	†
TARGET	-0.0952	-3.4220	***	-0.1008	-3.5060	***	-0.0787	-2.3310	*
EM	1.6970	7.3360	***	0.0171	0.4570		1.0930	2.3490	*
TARGET x EM	-1.5290	-4.9510	***	-0.0240	-0.5200		-1.7030	-2.8580	**
SIZE	-0.0371	-3.0190	**	-0.0373	-2.8530	**	-0.0366	-2.4250	*
DEBT	0.0000	0.1610		0.0001	0.6930		0.0001	0.5550	
MTB	0.0009	0.3540		-0.0008	-0.3110		-0.0009	-0.2700	
SD.SALES	0.0315	0.4740		0.0243	0.3500		0.0103	0.1160	
NbANALYSTS	-0.0021	-0.6960		-0.0023	-0.7260		-0.0036	-1.0450	
DaysELAPSED	0.0001	0.5560		0.0002	1.0270		0.0002	0.6870	
Industry control	included			included			included		
Country control	included			included			included		
Year control	included			included			included		

Adj. R-squared:	*31.89%*			*27.17%*			*29.75%*		
F-value	*4.95*	***		*4.04*	***		*3.82*	***	
Sample size	*760*			*734*			*601*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AFE is the analysts' forecast error. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. MTB denotes the market-to-book ratio. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. NbANALYSTS is the number of analysts following the firm. DaysELAPSED is the number of days elapsed since the last financial statement issued. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.5 Earnings Management and Acquirers' Information Uncertainty

The acquirer may also face uncertainty about the accuracy of the accounting data. Even if they have access to private information during the due diligence, they may suspect that information is not accurate. As suggested by some studies (e.g., Myers and Majluf 1984; Hansen 1987; Fishman 1989; Officer et al. 2009; Huang et al. 2016), bidders are more likely to select to settle the deal with stocks if there is high information uncertainty about the target value (i.e., that accounting data could have been misleading to the market participants). Indeed, in post-

acquisition, target shareholders will share the risk of overpayment with acquirers' shareholders. Bidders can reduce the risk of overpayment related to information asymmetry if they pay the transactions with stocks. Stock payment not only reduces the risk of overpaying but also reduce other kinds of risk related to information asymmetry (e.g., litigation, bankruptcy, fraud).

For this reason, it is examined whether the likelihood of using stocks as a method of payment is affected by the presence of EM. It is assumed that if EM is not misleading, as suggested by previous results, then the EM measure should not affect the likelihood of a stocks payment, because it does not affect information uncertainty. Alternatively, risky and misleading EM should increase the likelihood of stock as a method of payment.

Using a binary regression, it is tested whether the method of payment (measured with a dummy variable denoting 1 if the method of payment contains stocks and 0 if it is settled only with cash) is associated with the analysts' accuracy and the EM measures. Moreover, the regression contains control variables for the target firms' characteristics and the deal's characteristics.

The results are presented in Table 58. In the first regression (which considers AEM), EM is not associated with the method of payment, but the information asymmetry (proxied by the analysts' forecast error) is positively associated with the stocks payment. Some control variables are also associated with the method of payment. The size of the firm, the percentage sought and the fact that target and bidder are in the same industry are positively associated with the likelihood of a stock payment. The premium, tender offers and cross border transactions are negatively related to the stocks as the method of payment. Together, the results suggest (as observed by previous literature) that information asymmetry increases the likelihood of stocks as the method of payment. Moreover, EM of target firms does not seem to affect the method of payment, so it seems trustworthy. The results of the two other regressions are similar, except for the variable of information uncertainty, which is not any more statistically significant.

Overall, the results show that EM measures are not associated with the method of payment, suggesting that they do not increase the information uncertainty environment. Similar to analysts, bidders' managers are not influenced negatively by the downward manipulation of the target firm before the announcement.

Table 58: Stock Payment to Share the Incertitude

EM Measure	Kothari et al. (AEM2)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	STCK.PAY			STCK.PAY			STCK.PAY		
Coefficients	Estimate	z-value		Estimate	z-value		Estimate	z-value	
Intercept	-12.2100	-0.0080		-12.3800	-0.0080		-14.8900	-0.0060	
EM	-0.1711	-0.0910		0.1714	0.5370		-7.4900	-1.2800	
AFE	1.3240	2.3230	*	0.8820	1.3460		0.3476	0.2790	
SIZE	0.4825	4.4290	***	0.5503	4.1920	***	0.9303	3.4140	***
ROA	-0.0267	-1.6000		-0.0474	-2.1460	*	-0.0768	-1.3770	
SD.SALES	-0.7274	-0.7830		-0.8951	-0.8240		-3.6380	-1.5520	
INT.SALES	0.4658	1.1410		0.5815	1.1950		0.8920	1.1470	
MTB	0.0155	0.7590		0.0162	0.7320		-0.0083	-0.2950	
PREM30D	-0.7273	-1.6760	†	-0.8192	-1.7090	†	-1.1570	-1.7640	†
%SOUGHT	0.0277	3.7840	***	0.0270	3.2680	**	0.0538	3.5970	***
COMPLETED	-0.3861	-1.0670		-0.3451	-0.8890		-0.5735	-0.9290	
TENDER.OFF	-0.7198	-2.3930	*	-1.0770	-3.1590	**	-0.8287	-1.4990	
CROSS.BOARDER	-0.6456	-2.4290	*	-0.7077	-2.3170	*	-1.2250	-2.3570	*
SAME.INDUSTRY	0.6089	2.2920	*	0.6724	2.2560	*	1.9700	3.6990	***
Industry control	Included			Included			Included		
Country control	Included			Included			Included		
Year control	Included			Included			Included		

Adj. McFadden R-sq.	*5.68%*			*12.14%*			*31.76%*		
Likelihood ratio test	*202.41*	***		*216.19*	***		*227.21*	***	
Sample size	*381*			*367*			*299*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. STCK.PAY indicates whether the acquisition is paid partially or completely with stocks. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. AFE is the analysts' forecast error. SIZE is the natural logarithm of the assets. ROA is the return on assets. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. PREM30D denotes the ratio of the acquirer's initial offer price to the target's share price 30 days prior to the announcement date (FactSet), minus one. %SOUGHT indicates the share percentage the bidder is seeking to buy. COMPLETED indicates whether the transaction is completed. TENDER.OFFER indicates whether the type of bid is a tender offer. CROSS.BORDER takes the value one if the country of the bidder is different from the country of the target. SAME.INDUSTRY indicates whether the acquirer has the same two-digit SIC code as the target firm. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.5.6   **Voluntary Disclosure and EM**

Informative accounting choices, as defined by Watts and Zimmerman (1986), is just one of the tools that managers have to convey additional information or signal and explain complex information. It is assumed that the choice to mislead or inform the stakeholders should be consistent throughout all the channels that managers have at their disposal. Within the reporting policy of a firm, the financial statements and notes aim to provide elucidation to complex financial accounts and make it easier for investors to correctly evaluate the firm. Despite the strict IAS/IFRS rules about the presentation of financial statements (that principally aim to ensure that firms provide the minimum amount of information), managers have discretion, especially in providing additional information. Moreover, outside the reporting policy of the firm, press releases and conference calls could be alternative channels for managers to convey information, which are not (yet) in the reports (Fiechter et al. 2018).

It is hypothesised that if the EM of target firms is informative and signals private information, then the amount of explanation provided in the financial statements and the number of press releases should also be positively associated with downward EM. Alternatively, EM that aims to mislead the shareholders should be related to less explanations in the financial statements and less press releases.

These two additional tests can support the causality of the results previously observed. Indeed, the alternative interpretation could also indicate that analysts can put more effort in evaluating future target firms, because the corporate event generates more demand of their research. This test considers the amount of information provided from the target firms, which can be not (or less) influenced by the analysts' effort to provide better information.[50]

The amount of information provided by the firms in their financial statements is proxied by the number of pages of the chapter called 'Financial Statements' in the annual report the year of suspected manipulation. The data about the number of pages for 183 available annual reports is hand collected. Moreover, the amount of additional information provided outside the annual report is proxied by the number of press releases during the same period used to compute the analysts' consensus. The number of press releases for 768 firms is collected, where the press releases considered are about earnings calls, earnings releases, guidance/update calls,

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[50] Despite no statistical evidence provided for causality, circumstantial evidence does not support that, on average, analysts put more effort in their forecasts for target firms because of the following points: (1) the number of forecasts provided by target analysts are not statistically different from the number of forecasts provided for the control group; (2) some of them are going to drop the coverage and are less motivated to put effort in target firms, as Tehranian et al. (2013) suggest and observe in their analyses; and (3) it is unlikely that analysts know private information (i.e., which firms will be targeted by a friendly M&A) before the market.

analyst/investor meetings, shareholder meetings, conferences or presentations, sales calls, sales/revenue releases and special situations. Then, it is regressed over the variables measuring EM, the dummy variable for target firms and a set of control variables that could affect the amount of information provided in the financial statements (the size of the firms, the leverage, the growth potential, the variability of revenue in the past years, the number of analysts, the forecast error, the country fixed effects and the industry fixed effects) or a set of control variables that could affect the number of press releases (the size of the firms, the leverage, the growth potential, the variability of revenue in the past years, the percentage of ownership held by institutional investors, the forecast error, the country fixed effects and the industry fixed effects).

Table 59 provides the results about the relation between the amount of information in the financial statements and EM. In the regressions containing the EM measures of abnormal accruals and abnormal discretionary expenses, the only variables affecting the amount of information provided are those provided by the year of issue, the country of the firm and the industry of the firm. However, when the regression containing the abnormal production costs is considered, the results are more interesting. In addition to the size of the firm, the amount of information provided in the financial statements by target firms is negatively related to the EM level. Which suggests that downward manipulation through abnormal production costs is related to a greater explanation in the financial statements of the firm. Consistent with the explanation provided by Aerts and Cheng (2011) and Aerts and Zhang (2014), target firms seem to provide additional information to reduce the potential concerns of shareholders about EM.

Table 60 exhibits the results concerning the number of press releases. The results of the first regression (considering AEM2) are consistent with those observed in the main analysis; there is a negative relationship between the abnormal accruals and the number of press releases for control firms, but there is no relation between the EM and the press releases for target firms. Indeed, the interaction term between target firms and EM is positive and statistically significant, and the magnitude is the same for the variable of EM and the dummy variable TARGET (which are both negative). This result seems to suggest that (upward) EM of control firms is associated with a lower number of press releases. Nevertheless, target firms do not change their disclosure policy for press releases when they manipulate. Moreover, the control variables of size and growth potential are both positive, as expected, and statistically significant. The second and third regressions (considering REM2 and REM3) do not show any effect of EM on the number of press releases. However, in both regressions, the variable indicating target firms is negative and statistically significant, and the control variables of size and market-to-book ratio are also

positive and significant. Moreover, in the regression considering REM3, the variable indicating the level of debt is negatively related to the additional amount of information provided, consistent with the fact that banks may have non-public channels for monitoring financial information.

Table 59: Financial Statement Length and EM

EM Measure	Kothari et al. (AEM2)		Ab. Production Costs (REM2)		Ab. Discretionary Exp. (REM3)	
Dependent Var.	PAGES.FS		PAGES.FS		PAGES.FS	
Coefficients	**Estimate**	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Intercept	65.4901	1.3530	46.0472	1.0120	47.7708	0.9010
TARGET	-6.4757	-0.8740	-7.1462	-1.0450	-6.7835	-0.8200
EM	37.1947	0.5270	18.0714	1.5670	-156.1025	-0.4590
TARGET x EM	-57.2654	-0.7460	-21.3417	-1.6900 †	76.9880	0.2450
SIZE	2.8033	1.3410	4.7117	2.3390 *	1.2714	0.5050
DEBT	0.0174	0.8120	0.0134	0.6770	0.0168	0.5700
MTB	-0.1246	-0.2660	-0.0381	-0.0890	-0.0853	-0.1260
SD.SALES	1.6214	0.1390	1.3105	0.1220	-1.9856	-0.1540
TOP5INSTIT.SH	-0.1455	-1.0780	-0.0855	-0.7000	-0.1762	-1.1590
AFE	-10.8103	-0.8000	-7.4819	-1.0010	-7.9721	-0.8860
Industry control	Included		Included		Included	
Country control	Included		Included		Included	
Year control	Included		Included		Included	

Adj. R-squared:	*42.28%*		*49.44%*		*39.97%*	
F-value	*2.78*	***	*3.34*	***	*2.47*	***
Sample size	*183*		*178*		*162*	

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. PAGES.FS denotes the number of pages in the financial statements the year of the suspected manipulation. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. MTB denotes the market-to-book ratio. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. AFE is the analysts' forecast error. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm. Year control is a set of dummy variables indicating the year of the suspected manipulation.

The negative relation between target firms and the amount of information provided through the channel of press releases may be due to the fact that target firms are afraid to reveal information related to M&As that could be considered a violation of the strict regulations about the publication of price-relevant information. Target firms select to not change their disclosure policy before the announcement of a friendly takeover despite the generalized use of downward

manipulation. This is not the case for control firms, who seem to adapt their disclosure policy according to the level and direction of manipulation.

Table 60: Press Releases and EM

EM Measure	Kothari et al. (AEM2)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Dependent Var.	PRESS.REL			PRESS.REL			PRESS.REL		
Coefficients:	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	-2.6265	-1.3310		-2.2523	-1.1430		-2.3364	-1.0790	
TARGET	-1.5489	-6.6400	***	-1.5596	-6.5580	***	-1.6241	-5.7450	***
EM	-4.5363	-1.9880	*	-0.5888	-1.6380		3.6405	0.7900	
TARGET x EM	6.2944	2.0800	*	0.1146	0.2590		-2.4051	-0.4140	
SIZE	0.8733	10.7620	***	0.8720	10.4370	***	0.9310	9.4090	***
DEBT	-0.0013	-1.4620		-0.0014	-1.5410		-0.0032	-2.4930	*
MTB	0.0513	2.0680	*	0.0539	2.1860	*	0.0909	2.7220	**
SD.SALES	-0.9336	-1.4420		-0.5427	-0.8080		-1.0925	-1.2540	
TOP5INSTIT.SH	-0.0043	-0.9480		-0.0067	-1.4780		-0.0037	-0.6520	
AFE	0.3709	1.3160		0.2663	0.9710		0.0318	0.1030	
Industry control	Included			Included			Included		
Country control	Included			Included			Included		

Adj. R-squared:	*23.54%*			*24.66%*			*22.38%*		
F-value	*3.95*	***		*4.03*	***		*3.18*	***	
Sample size	*768*			*742*			*605*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. PRESS.REL indicates the number of press releases made by the company during the 180 days preceding the M&A announcement. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. MTB denotes the market-to-book ratio. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. AFE is the analysts' forecast error. Industry control is a set of dummy variables indicating the industry in which the firm operates. Country control is a set of dummy variables indicating the country of the firm.

.5.7   The Monitoring Effect of Analysts' Coverage

To sharpen the model for EM detection, the analyst coverage is added to control whether the analysts have a monitoring effect on EM. This subsection investigates the monitoring effect of analysts' coverage using a sophisticated methodology.

The sample considered is composed of 555 target firms and as many matched control firms, similar to the methodology described above. The models for the detection of EM are the Kothari et al. (2005) model and three models for REM proposed by Roychowdhury (2006). To test the

effect of analysts' coverage on EM, Equation 7 is adapted, adding the variable representing the number of analysts following the firm. However, because of the simultaneity bias issue, a two stage least square regression with an instrumental variable must be run. The instrumental variable selected for the number of analysts following the firm during the 180 days before the reporting date (Nb.ANALYSTS) is the trading volume during the period under examination (Hong et al. 2014). Hong et al. (2014) argue that analysts prefer to follow firms with higher investor interests and trading volumes, because their compensation is tied to the dissemination of their research and the impact that it generates. Moreover, the trading volume is unlikely to be related to the level of EM, which allows the instrument to capture the exogenous effect of analyst coverage on EM. Formally, Equation 14 is the following

$$
\begin{aligned}
EM_i = \alpha_0 &+ \alpha_1 TARGET_i + \alpha_2 Nb.\widehat{ANALYSTS}_i + \alpha_3 SIZE_i + \alpha_4 LOSS.PROP_i \\
&+ \alpha_5 DEBT_i + \alpha_6 SD.SALES_i + \alpha_7 SD.OCF_i + \alpha_8 INT.SALES_i \\
&+ \alpha_9 TOP5INSTIT.SH_i + \alpha_{10} Country\ FE_i + \alpha_{11} Year\ FE_i + \varepsilon_i
\end{aligned}
\tag{14}
$$

Where:

$EM_i =$ the earnings management proxy for firm i;

$TARGET_i =$ a dummy variable indicating firms that are target of M&A,

$Nb.\widehat{ANALYSTS}_i =$ fitted value of the first-stage regression for firm i;

$SIZE_i =$ the natural logarithm of total assets for firm i;

$LOSS.PROP_i =$ the proportion of losses incurred by firm i in the previous five years;

$DEBT_i =$ the ratio of total debt divided by the mean of common equities for firm i;

$SD.SALES_i =$ the standard deviation of the sales of the firm in the previous 5, 4 and 3 years for firm i;

$SD.OCF_i =$ the standard deviation of cash flow from operating activities of the firm in the previous 5, 4 and 3 years for firm i;

$INT.SALES_i =$ the percentage of sales generated from operations in foreign countries for firm i;

$TOP5INSTIT.SH_i =$ the percentage of shares held by the top 5 institutional shareholders of the firm for firm i;

$Country\ FE_i =$ the country-fixed effects;

$Year\ FE_i =$ the year-fixed effects;

$\varepsilon_i =$ the error term for firm i;

$i =$ 1, …, N firms.

The results of the instrumental variable model are presented in Table 61. The results of the three detection models tabulated exhibit that target firms still manipulate downward the year before the M&A announcement. Moreover, after controlling for other firm characteristics, it seems that the number of analysts covering the firm only mitigates the abnormal production costs. This result is consistent with the monitoring effect of analysts' coverage for EM. Nevertheless, the results are not consistent with Irani and Oesch (2016) about the differentiation between REM and AEM. The instrumental variable model with the abnormal operating cash flows is not tabulated, because the model does not show any interesting results. The only variables affecting the level of abnormal operating cash flow are the loss proportion in the past five years and the percentage of institutional ownership, which both mitigate the level of abnormal operating cash flows.

Finally, because of the distribution of the variable Nb.ANALYSTS (which contains only positive values with a non-random distribution), an alternative instrumental variable regression is run, that may better fits to the data about the analysts' covering; where, in the first stage regression a standard negative binomial model estimation is used (Boubaker and Labégorre 2008). Generally, the manual two-stage procedure operation is not preferred, because it can lead to inconsistent results (Wooldridge 2002). Nevertheless, because of the estimation model needed in the first stage, there is no alternative to running an automated regression with the actual software in possession. Nonetheless, the results are not qualitatively different from those previously presented (not tabulated for parsimony).

Table 61: Instrumental Variable – Analysts' Coverage

EM Measure	Kothari et al. (AEM2)			Ab. Production Costs (REM2)			Ab. Discretionary Exp. (REM3)		
Coefficients	**Estimate**	**t-value**		**Estimate**	**t-value**		**Estimate**	**t-value**	
Intercept	0.1040	1.5430		-0.3584	-1.2250		0.0818	1.6180	
Nb.ANALYSTS	0.0028	0.6960		-0.0328	-1.8500	†	0.0017	0.7680	
TARGET	-0.0148	-2.3500	*	-0.0919	-2.4050	*	-0.0090	-2.0790	*
SIZE	-0.0109	-0.8670		0.0985	1.7510	†	-0.0094	-1.1090	
ROE	0.0000	0.6930		0.0000	0.3160		0.0000	0.9090	
LOSS.PROP	0.0544	2.8450	**	-0.0989	-1.4820		0.0070	0.6130	
DEBT	0.0000	-0.1710		-0.0001	-0.6000		0.0000	-0.7090	
SD.SALES	0.0163	0.8720		0.7475	2.5570	*	0.0007	0.0350	
SD.CFO	-0.1757	-1.7750	†	-0.5129	-0.8210		-0.1146	-1.0170	
INT.SALES	-0.0080	-0.6690		-0.0488	-0.8840		-0.0117	-1.3580	
TOP5INSTIT.SH	-0.0001	-0.6510		-0.0016	-1.9100	†	-0.0001	-1.0210	
Country control	Included			Included			Included		
Year control	Included			Included			Included		

Adj. R-squared:	*0.09%*			*0.05%*			*0.06%*		
F-value	*2.82*	***		*2.25*	***		*1.36*	***	
Sample size	*1,110*			*1,074*			*832*		

Notes: the significance levels are denoted as follows: '***', 0.001; '**', 0.01; '*', 0.05; and '†', 0.1. AEM2 is the firm's abnormal accrual calculated from the Kothari et al. model. REM2 denotes the abnormal production costs. REM3 denotes the abnormal discretionary expenses. Nb.ANALYSTS is the fitted values from the first-stage regression. TARGET is a dummy variable indicating whether the firm is a target firm or a control firm. SIZE is the natural logarithm of the assets. DEBT is the total debt divided by the mean of common equities. LOSS.PROP is the proportion of loss incurred by the firm in the previous five years. SD.SALES denotes the standard deviation of the sales of the firm in the previous five (if not available, four or three) years. SD.OCF denotes the standard deviation of the cash flow from operating activities of the firm in the previous five (if not available, four or three) years. INT.SALES is the percentage of sales generated from operations in foreign countries. TOP5INSTIT.SH is the percentage of shares held by the top five institutional shareholders of the firm. Country control is a set of dummy variables indicating the firm's country. Year control is a set of dummy variables indicating the year of the suspected manipulation.

.6   Conclusions

This study examines EM surrounding friendly takeovers in Europe during 2005–2015 and its effect on analysts' accuracy. Earnings management is measured following the models proposed by Kothari et al. (2005) and Roychowdhury (2006). Moreover, to select the most appropriate control sample, a propensity score matching technique is employed based on the firms' characteristics (industry, performance, debt level and size of the firm).

It is hypothesised that if managers' intentions are to mislead target shareholders and accommodate the acquirer to bargain private benefits (i.e., opportunistic management), then the EM will be misleading for the analysts. Alternatively, it is hypothesised that analysts are not affected by EM if the target managers' intention is to make trustworthy EM to facilitate the

transaction (through increasing deal completion likelihood, cleaning the balance sheet of past burdens, creating performance in the post-merger period, misleading other stakeholders that are unable to understand EM and/or reducing the risk of litigation through conservative accounting).

The results suggest downward manipulation of target firms the year prior to the M&A announcement through abnormal accruals, abnormal production costs and abnormal discretionary expenses. The results of downward manipulation are consistent with the majority of the previous literature related to friendly takeovers and MBOs (Perry and Williams 1994; Wu 1997; Begley et al. 2003; Fischer and Louis 2008; Ben-Amar and Missonier-Piera 2008; Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015; Mao and Renneboog 2015). Successively, the relation between the EM before the M&A announcement and the analysts' forecast accuracy is examined. Preliminary results observed in the univariate analysis show that forecasts of target and control firms are optimistic and targets' forecasts seem more accurate than forecasts for control firms. In the multivariate analysis, results reveal that EM of target firms does not affect the forecast bias or the forecast error, while there is a negative association between the EM measures (abnormal accruals and abnormal discretionary expenses) and the forecast accuracy for control firms. The results are robust to alternative measures of the forecast accuracy, an alternative measure of abnormal accruals, a constraint on the minimum number of analyst estimations during the valuation period and an alternative pseudo-event date for control firms. Furthermore, it is observed that EM of target firms does not affect the method of payment (i.e., stock payment as a method to reduce the risk of information asymmetry for the bidder). Finally, the amount of information provided in the financial statements only increases for target firms that manipulate downward through the abnormal production costs. Moreover, the number of press releases seems negatively associated with EM for control firms, while target firms seem not to adapt their disclosure policy when they manipulate.

Overall, the results support the hypothesis of informative EM, which is not aimed to mislead the market participants around the M&A announcement. Indeed, target managers know that financial statements before the M&As will be examined in depth by the acquirer and target shareholders if they suspect opportunism, which may lead to the cancellation of the deal or a higher likelihood of litigation for non-respect of the fiduciary duty. In both cases, the consequence can be a decrease in the reputation of target managers. The risks incurred by opportunistic managers around M&As can be high.

This study contributes to the literature about the disclosure policy of target firms around the specific context (of high scrutiny) of M&As. Despite the choice to undertake EM, target firms do not try to mislead market participants. Moreover, this paper employs an innovative methodology based on the analysts' target price to compute the forecast accuracy around the announcement of a M&A, which accounts for the analysts' forecasts containing updated information until the M&A announcement.

This study also has some limitations. First, there is no control at the individual analyst level, whether the analysts' characteristics affect their ability influences the results, even if it is unlikely that the research framework suffers from a selection bias (i.e., individual analysts' characteristics are unlikely to drive the results). Secondly, the reversal of EM affects the analysts' forecasts after the deal announcements are not examined. The main issues for this kind of investigation are 1) some firms go private and the data in the post-merger period are not available and 2) after the M&A, it is difficult to isolate the EM reversal of the target firm because of the structural change that the firm goes into.

.7   Appendices

Appendix 7: Year of Suspected Manipulation Distribution

Year	Target	Control	Target %	Control %
2005	35	19	9.04	4.91
2006	58	52	14.99	13.44
2007	50	53	12.92	13.70
2008	22	22	5.68	5.68
2009	22	26	5.68	6.72
2010	31	32	8.01	8.27
2011	37	32	9.56	8.27
2012	28	25	7.24	6.46
2013	31	39	8.01	10.08
2014	43	45	11.11	11.63
2015	30	42	7.75	10.85
Sum	**387**	**387**	**100**	**100**

Notes: Year denotes the year of suspected manipulation of the firm. Target denotes the sample of target firms. Control denotes the sample of non-target firm of a M&A deal. The columns Target% and Control% express the percentage of firms residing in the country.

Appendix 8: Country Distribution

Country	Target	Control	Target %	Control %
AUSTRIA	6	7	1.55	1.81
BELGIUM	9	9	2.33	2.33
CYPRUS	1	0	0.26	0.00
CZECH REPUBLIC	1	0	0.26	0.00
DENMARK	5	12	1.29	3.10
FINLAND	13	15	3.36	3.88
FRANCE	40	44	10.34	11.37
GERMANY	34	46	8.79	11.89
GIBRALTAR	1	0	0.26	0.00
GREECE	6	5	1.55	1.29
HUNGARY	3	2	0.78	0.52
ICELAND	1	1	0.26	0.26
IRELAND	5	6	1.29	1.55
ITALY	22	25	5.68	6.46
LUXEMBOURG	5	7	1.29	1.81
NETHERLANDS	30	6	7.75	1.55
NORWAY	27	24	6.98	6.20
POLAND	6	6	1.55	1.55
PORTUGAL	3	5	0.78	1.29
RUSSIAN FED.	2	5	0.52	1.29
SLOVENIA	1	0	0.26	0.00
SPAIN	5	11	1.29	2.84
SWEDEN	23	33	5.94	8.53
SWITZERLAND	13	25	3.36	6.46
TURKEY	0	4	0.00	1.03
UNITED KINGDOM	125	89	32.30	23.00
Sum	**387**	**387**	**100**	**100**

Notes: Target denotes the sample of target firms. Control denotes the sample of non-target firms of a M&A deal. The columns Target% and Control% express the percentage of firms residing in the country.

Appendix 9: Analysts' Accuracy Variables Definition

Two measures are employed to proxy the forecast accuracy, namely the forecast bias and the forecast error.

Since the share price of the target firm on the announcement date contains the acquisition premium, the day before the announcement is selected as the day to compute the forecast bias. The analysts' forecasts are not supposed to contain the premium. The analysts' consensus is measured over the period of 180 days preceding the M&A announcement (respectively 100, 75 and 45 when the event date is too close to the date of the financial statement issue). If the announcement date is within 45 days after the issue of the annual report, the firm is not considered in the sample. For control firm, 180 days after the fiscal year end is used as the event date. This allows enough time for analysts to integrate EM into their forecasts. Moreover, it is close to the average number of days elapsed since the last financial statement issued for target firms and the M&A announcement (i.e., 196 days).

All forecasts considered in this paper are one-year-ahead forecasts.

The first measure is the forecast bias:

$$AFB = \frac{F - P_{A-1}}{P_{A-1}}$$

Where:

AFB	Analysts' forecast bias;
F	The median of the analysts' target price with a measurement width of 180 days before the announcement for target firms and 180 days after the fiscal end period for control firm.
P_{A-1}	Share price the day before the announcement date for target firm.

When the AFB is positive, the analysts are optimistic; when it is negative, the analysts are pessimistic in their forecasts.

The second measure is the forecast error:

$$AFE = |AFB|$$

Where:

AFE	Analysts' forecast error;
AFB	Analysts' forecast bias.

Appendix 10: Scheme of Research Design
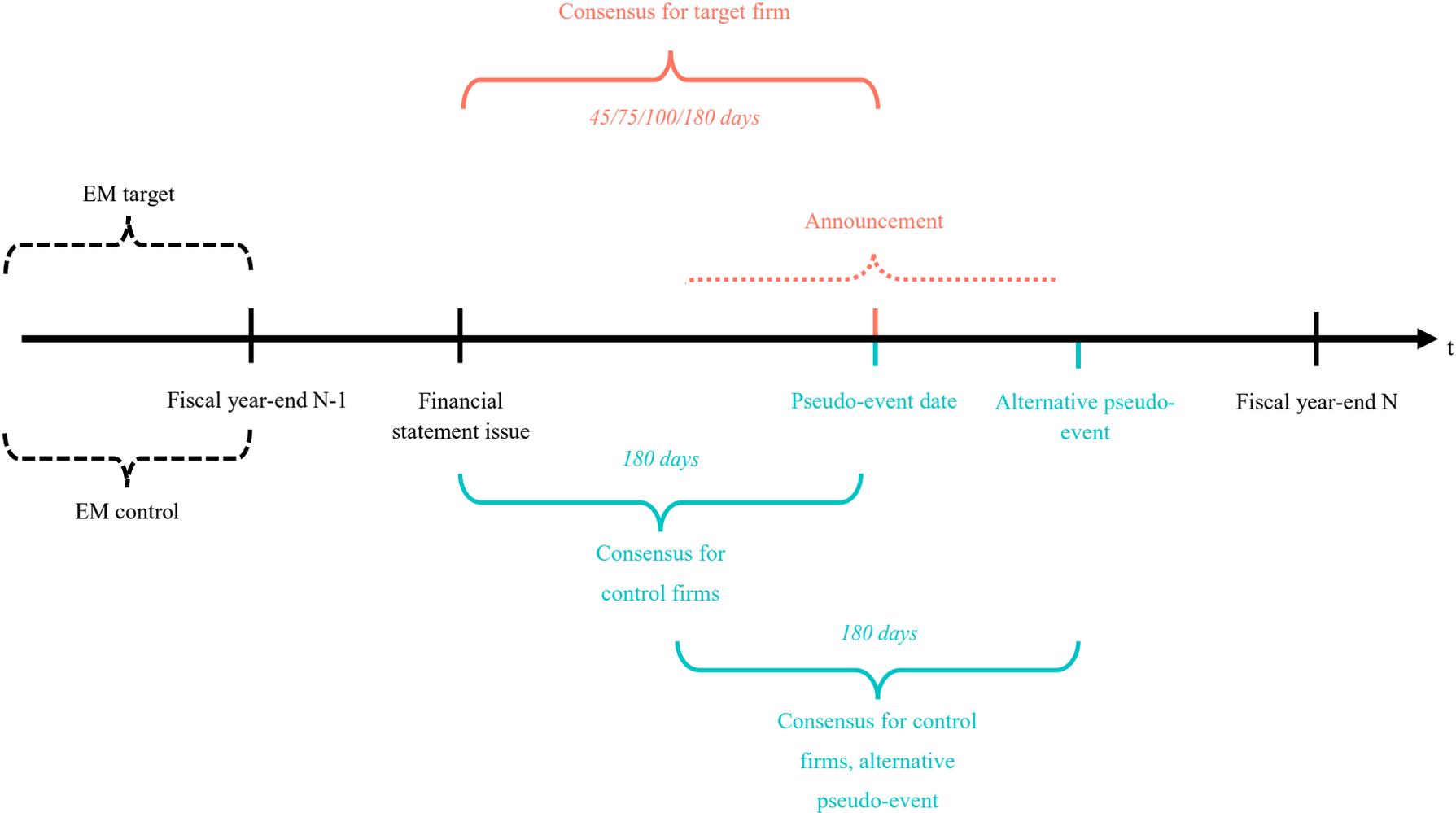
Appendix 11: Scatter Plots for Analysts' Accuracy

Scatter Plot AFB-AEM
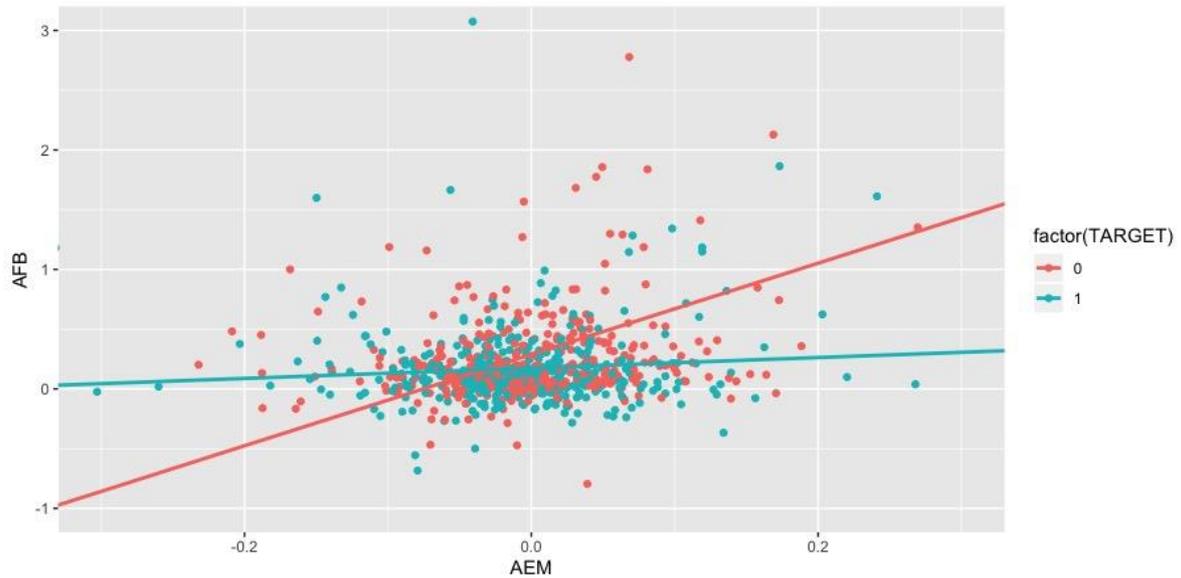
Notes: Subscript 0 corresponds to control firm, and subscript 1corresponds to target firm. AEM is the firm's abnormal accrual calculated from Kothari et al. model. AFB is the analysts' forecast bias.

Scatter Plot AFE-AEM
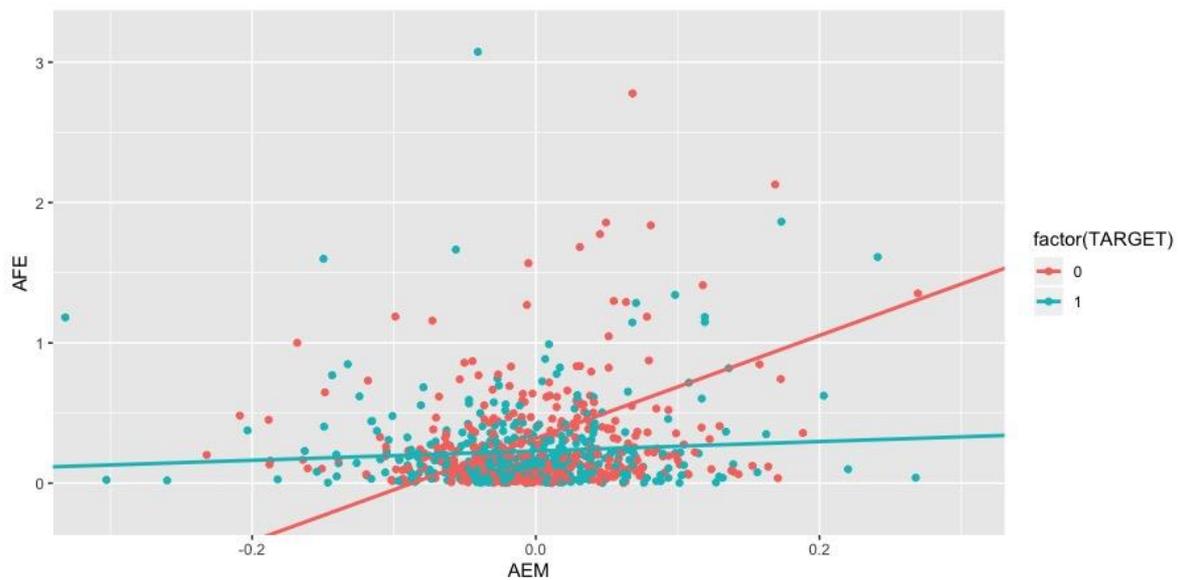
Notes: Subscript 0 corresponds to control firm, and subscript 1 corresponds to target firm. AEM is the firm's abnormal accrual calculated from Kothari et al. model. AFE is the analysts' forecast error.

• **Conclusion**

Prior research on EM is predominantly based on the characteristics of past M&A activity, which is mostly focused on the US M&A market and hostile deals or MBOs. The hostile corporate control context is particular, because target managers have a higher risk of being replaced due to suspected inefficiencies. Hence, managers are motivated to select income-increasing accounting choices as a defence mechanism. Despite the relatively small number of MBOs, the high suspicion of managerial opportunism pushes researchers to address studies about the accounting choices of managers. Based on the actual M&A activity data and characteristics, this thesis aims to examine the friendly context, where the motivations to manipulate are not completely clear. Prior literature mainly observes downward manipulation for friendly target firms, but there is a lack of literature on the effects of EM and its motivations.

To fill this gap, a sample of friendly M&A attempts is examined in Europe during the period between 2005 and 2015. The European context is interesting, because it allows the results obtained from the US market to be challenged. The European sample tests an international setting with cultural differences (e.g., shareholders' concentration, legal origins, etc.) but with a common regulation. All firms are subject to the EU regulation (most of the countries that are not in the EU voluntarily adopted regulations identical or similar to those adopted by the EU). The period of analysis chosen is given by the mandatory adoption of IAS/IFRS by European listed firms, which allows for a higher comparability of the accounting data for the computation of EM and reduce the risk of miscalculation. Finally, it is decided to end the collection of M&A data in 2015 to have a post-acquisition period to collect data about CEO retention after the conclusion of the M&A process. Only M&A transactions of at least 100 million EUR are selected. This threshold is due to the fact that EM (which could have a limited magnitude due to the respect of GAAP) could have a significant economic consequence.

In the early stages of the thesis, general literature about EM is reviewed; that is the definitions, the literature about the managerial motivations and the evolution of the techniques. Successively, a review of the existing literature about M&As is proposed to contextualise the M&A activity in Europe, the determinants and characteristics, the regulatory setting and lay the foundations for an exhaustive analysis.

In the first study, the primary analysis focuses on detecting EM before friendly takeovers the year before the announcement. Because of the long private negotiations process, it is made the

underlying assumption that target managers are able to manipulate the earnings according to the M&A announcement (e.g., Boone and Mulherin 2007), especially for techniques that require less time and that can be executed at the end of the year. First, the focus is put on the detection of EM for target firms. It is observed that friendly target firms select both techniques (accruals and real EM), income-decreasing accounting and real activities choices. These first results are consistent with previous literature about MBOs and friendly takeovers. After the detection of EM, the examination of the effect of EM on the target shareholders' wealth becomes the main focus. Target shareholders' wealth is proxied with the acquisition premium. The main results suggest that downward EM increases the acquisition premium. Target shareholders benefit from a 9% higher premium when the firm has negative abnormal accruals. The market reaction is also controlled around the issue of the financial statements, where the EM is first visible to the market participants. The examination around the issue of financial statements does not show any abnormal effect of EM on the share price. This indicates that the effect observed on the premium is not a reaction to a previous decrease in stock price. Finally, in the first study, the effect of EM on the likelihood of deal completion is examined. The results, consistent with previous literature by Skaife and Wangerin (2013) and Lim and Chang (2017), suggest that AEM downward manipulation of target firms reduces the likelihood of completing the deal. Various sensitivity tests are computed, taking into account alternative measures of EM and premiums. The conclusion of Chapter 1 suggests that target shareholders are not penalized by downward manipulation; on the contrary, they are rewarded if the target managers select downward manipulation prior the M&A announcement. This result goes against the managerial opportunism hypothesis and suggests that target managers select accounting choices that respect their fiduciary duty towards their shareholders. At this stage, with the current results, multiple non-mutually exclusive explanations for efficient and informative downward manipulation are proposed that could fit with the results. First, as suggested by Perry and Williams (1994) and Ben-Amar and Missonier-Piera (2008) and tested by Chen et al. (2016), target managers may choose income-decreasing accounting choices to create fictitious post-acquisition performance, which could help the management of the bidder to better justify the acquisition strategy. Second, downward manipulation could be a strategy to ease the negotiation process and show the bidders the will to clean the balance sheet from past burden (Anagnostopoulou and Tsekrekos 2013; Anagnostopoulou and Tsekrekos 2015). Nevertheless, this is not supported by the analysis run about the effect of EM on deal completion. Finally, target firms may choose conservative accounting choices, because in the context of high scrutiny of the M&A, managers prefer to reduce the risk of litigation (Abbott et al. 2006).

Indeed, literature already observed the high risk of litigation around M&As (Krishnan et al. 2012). Here again, the result about the deal completion does not perfectly align with this motivation. Bidders should reward conservative accounting choices that reduce litigation risks with a higher likelihood of completion, because litigations could also negatively affect the acquirer in terms of image, time and resources.

Chapter 2 analyses the effect of EM on the managers' wealth. Top management's wealth at target firms is proxied by the CEO retention. Around M&As, the risk of loss in wealth (e.g., salary, bonuses) and power for CEOs can be significant (Walsh 1988; Walsh 1989; Martin and McConnell 1991; Hambrick and Cannella 1993; Kennedy and Limmack 1996; Denis et al. 1997; Dahya and Powell 1998). For this reason, it is hypothesised that CEOs may choose EM to collude with the acquirer and bargain for their position with target shareholders' wealth. Alternatively, if a CEO respects their fiduciary duty, then they will not bargain their position with target shareholders' wealth. The results of the analysis confirms the latter hypothesis. That is, AEM is rewarded by the acquirer with a higher retention rate when the deal is completed. Additionally, no evidence of a trade-off between the CEO retention and the premium are observed. Alternatively, REM seems to have a negative effect on the retention rate of CEOs for completed deals, consistent with the idea that the manipulation of real activities for short-term goals may affect the long-term performance of the firm (Cohen et al. 2008; Cohen and Zarowin 2010; Zang 2012). Finally, downward EM by target managers of cancelled deals seems to be punished by the target's board with a lower retention rate.

Chapter 3 of the thesis focuses on the effect of downward EM on the transparency and accuracy of the accounting data provided by target firms before the announcement. Literature about the analysts' forecast accuracy does not completely agree about the analysts' ability to observe and correctly integrate the information about EM. Moreover, the disclosure policy of the firm can convey trustworthy information or misleading information (Lang and Lundholm 2000; Healy and Palepu 2001; Schrand and Verrecchia 2002). Such disclosure policies can affect the forecast ability of the analysts (Lang and Lundholm 1996).

It is then assumed that if target managers manipulate opportunistically (to gain private benefits), then the accounting information will be misleading and analysts will be less able to forecast accurately. Alternatively, it is assumed that if target managers manipulate efficiently (to accurately inform the market participants), then analysts will be more able to understand EM. The findings support the second hypothesis. First, EM of target firms does not affect the

analysts' forecast accuracy, while for EM of non-target firms, a negative relation is found. Second, further analysis suggests that target firms with downward EM provide more information in their financial statements, and do not decrease the number of press conferences when managing earnings (i.e., what non-target firms do). Third, informational uncertainty (proxied by the choice to pay with shares) around the transaction appears to be reduced by abnormal downward production costs. In conclusion, analysts of target firms are able to provide forecasts that are not affected by EM before the M&A announcement. This is because the target management seems to provide transparent EM before the M&A announcement.

When the results of the three studies are combined, it is inferred to be a win-win situation for firms in which downward manipulation is observed. Indeed, it seems that in the first place, downward EM is transparent, it increases the target shareholders' wealth through the premium and the target CEOs seem rewarded with a higher retention rate for such manipulation (under defined conditions). These results are not trivial; downward EM has such beneficial effects, and it is unexpected by the literature (to the best of my knowledge, nobody has answered this research question). Overall, the results of this thesis suggest efficient and informative downward manipulation for target firms prior to a friendly M&A transaction (except for the effects of EM on the completion of the deal), which consequently seems to exclude the managerial opportunism hypothesis. Some possible motivations that can push managers to act in such direction have been proposed (i.e., fiduciary duty, litigation risks, accruals reversal.), but further examination should be conducted to discern the motivations empirically.

Table 62 summarises the hypotheses examined in the thesis, the results and the conclusions drawn from them. The three main hypotheses that are respectively tested in the three studies are highlighted as main tests, while additional tests are labelled as 'sensitivity' tests. The column 'Function' presents the variable of interest for each test. Finally, the second to last columns exhibit the expected direction (positive [+], negative [-], and no relation [0]) of the relation under the opportunism hypothesis and the efficiency rationale, whereas the last column documents the observed relation. Except the analysis of the impact of EM on deal completion, the other tests support the efficiency rationale.

Table 62: Summary of the Results

Chapter	Level of Analysis	Description	Function	Opportunism	Efficiency	Empirical Results
				Expected Relation with EM		
1	**Main test**	**Premium**	**Premium = f (EM, control)**	+	-	-
1	**Main test**	**Premium**	**Premium = f (negative EM dummy, control)**	-	+	+
1	Sensitivity	Abnormal return around earnings announcement	CAR = f (EM, control)	+	**0**	**0**
1	Sensitivity	Deal completion	Completed (1,0) = f (EM, premium, control)	+	-	+
2	**Main test**	**CEO Retention rate completed deals**	**Retention (1,0) = f (EM, premium, control)**	-	-	-
2	**Main test**	**CEO Retention rate completed deals**	**Retention (1,0) = f (EM, premium, control)**	Trade-off ret-prem	No trade-off ret-prem	No trade-off ret-prem
2	Sensitivity	Opportunism of entrenched CEO	EM = f (Tenure, CEO duality, control) Premium = f (Tenure, CEO duality, EM, control)	- +	**0**	**0**
2	Sensitivity	Mitigating effect of CEO ownership on EM	EM = f (CEO ownership, control)	-	**0**	**0**
3	**Main test**	**Forecast error**	**FE = f (EM, control)**	-	**0**	**0**
3	Sensitivity	Forecast bias	FB = f (EM, control)	+	**0**	**0**
3	Sensitivity	Stock payment to share the incertitude	Stocks exchange (1,0) = f (EM, AFE, control)	-	**0**	**0**
3	Sensitivity	Amount of disclosure	Nb. pages Financial Stat. = f (EM, AFE, control) Press releases = f (EM, AFE, control)	+ +	- -	- -

This thesis brings a renewed view of EM practices in the M&A context. While most studies are based on data from the 1980s and 1990s, these studies cover recent M&As. Indeed, the regulation and market conditions have changed significantly since the first analyses (proportion of hostile takeovers, regulation that affects transparency and reporting, financing possibilities, etc.). A heterogeneous sample of European target companies, which is usually less examined in the existing literature, is used for the analyses. The standardisation process started by the UE allows for a common regulation throughout all of Europe and examination of a large sample, even though some differences persists within countries.

Despite the wide use of basic methodology to detect EM in the existing literature, it is heavily criticized by some authors. This thesis tries to deal with some of the issues that arose. Consistent with McNichols and Stubben (2018), the propensity score matching technique is employed to enhance the quality of the control group. As suggested by Larson et al. (2018), multiple EM detection models, both basic and sophisticated ones (modified Jones versus Larson et al. model), are considered and the results are controlled to be economically plausible, as required by Ball (2013). Furthermore, the methodology considers all techniques of EM (i.e., accruals, real activity and classification shifting). Finally, the main point of this thesis is the triangulation of the effects of EM, as proposed by McNichols and Stubben (2018). Overall, the three studies provide a better understanding of the motivation for undertaking EM before a M&A for target firms.

Healy and Wahlen (1999) suggest that standard setters and regulators should know the magnitude and frequency, the techniques, the determinants and the consequences of EM to decide the level of discretion allowed to managers. Based on the outcomes of the investigations, it seems that despite the presence of decreasing EM and the suspicion of opportunistic behaviour, the market does not need further regulation.

Finally, further analysis should focus on the discrimination between the effect of low EQ and downward manipulation on the premium. The examination of other consequences that EM can create around M&As can develop the knowledge about EM strategies around corporate events and about managerial opportunism or efficiency (e.g., auditor turnover, lawsuits, etc.). Moreover, further research should consider the management earnings forecast and the effect of additional information on the EM strategy to confirm the hypothesis of signalling strategy before a M&A announcement.

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