



UNIVERSIDADE CATÓLICA PORTUGUESA

Effects of Financial Constraints and Earnout Payment on Acquirer's Earnings Management

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Resumo

Esta dissertação examina manipulação de resultados em aquisições. Em particular, avalia se empresas adquirentes, com restrições financeiras, manipulam mais em comparação com empresas adquirentes sem restrições financeiras. Adicionalmente, esta dissertação avalia o uso do *earnout* e a sua eficácia na redução da manipulação dos resultados.

Os resultados empíricos, usando dois tipos de modelos de manipulação de resultados (*accruals* e *real activity management*), demonstram que os adquirentes com restrições financeiras não parecem manipular mais do que os adquirentes sem restrições financeiras no período anterior à aquisição. Os resultados sugerem ainda que os adquirentes que utilizam *earnout* como forma de pagamento estão associados a um menor nível de manipulação de resultados por via de *accruals*. Os resultados sugerem também que os adquirentes que adquirem empresas estrangeiras ou empresas noutra setor através de *earnout*, estão associados a um menor nível de manipulação de resultados por via de *real activity management*. Conclui-se assim que a utilização de *earnout* como método de pagamento reduz o nível de manipulação de resultados dos adquirentes e, conseqüentemente, aumenta a qualidade dos resultados.

Palavras-chave: F&A, *earnout*, restrições financeiras, *accrual* e *real earnings management*, qualidade dos resultados.

Abstract

This work examines whether and how constrained acquirers are showing higher levels of earnings management in the past financial statements compared to unconstrained acquirer. Further, this paper contributes to the growing literature on the use of earnout and its effectiveness to reduce earnings management. The empirical results, using both accruals management and real activity management models, show that constrained acquirers do not experience higher levels of earnings management in the period before the acquisition. Further, the results demonstrate that bidders using earnout as method of payment are associated to lower level of earnings management in their past financial statement via discretionary accruals. Also, the results suggest that bidders that enter in foreign and diversifying acquisitions involving earnouts report lower levels of real earnings manipulation. Moreover, earnout as method of payment reduces the level of earnings management from a bidder's perspective, thus increasing earnings quality.

Keywords: M&A, Earnout, financial constraints, accrual and real earnings management, earnings quality.

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1. Introduction

In a highly competitive environment, mergers and acquisitions (M&A) are crucial events for corporations in terms of both development and growth. A company's main purpose is to increase its value of stocks to the maximum possible extent. Consequently, bidders as well as target firms, have numerous motivations to engage in earnings management (manipulation) prior to the acquisition deal.

Prior research (Campa & Hajbaba, 2016; Elnahas, Kabir Hassan, & Ismail, 2017) mostly shows the relevance of earnings manipulation in target firms. Less attention has been given to the acquirer's earnings management behavior. Therefore, we examine the role of earnings management on the acquirer's side. There are two main ways through which an acquirer can manipulate its earnings. The first one consists in altering discretionary accruals and the second one is known under the real activity management (RAM). In this case companies manipulate discretionary expenses to impact its earnings. Specifically, it will be investigated whether constrained acquirers, in the period prior to the acquisition, experience higher levels of earnings manipulation than unconstrained bidders. In a perfect market place with no frictions, as described by Modigliani and Miller (Modigliani & Miller, 1958), financing decisions would not be relevant. Given that there are financial distress costs and private information, before acquiring a firm, a bidder should carefully analyze the different sources of funding which are available. Financially constrained acquirers engage in mergers and acquisitions to benefit from potential synergies. In order to obtain funding constrained acquirers use earnings manipulation practices to ease their constraints and to be able to finance valuable investments (Linck et al., 2013).

Besides, it will be examined if earnout as method of payment reduce acquirer's earnings manipulation (which increases earnings quality) in domestic acquisitions as well as in cross-border and cross-industry acquisitions. In general there are four different payment methods: all-cash payment, all-stock payment, mixed payment (both cash and stock) and earnout payment. Over the past two decades, the earnout

clauses became increasingly popular. Earnout agreements are contracts which allow to reduce the valuation gap and the information asymmetry between the acquirer and the target about the real value of the latter (Kohers and Ang, 2000). Due to this reason, the earnout should be included, especially in the cross-border transactions, cross-industry and private acquisitions (Barbopoulos & Sudarsanam, 2012; Cain, Denis, & Denis, 2011). Given that earnouts reduce the uncertainty of acquisitions for the bidders and the acquirers, both parties are less incentivized to engage in earnings manipulation. Viarengo et al. (2016) demonstrate that acquirers using earnout have lower levels of earnings management via discretionary accruals. The authors show that acquirers using earnout report higher earnings quality to demonstrate the trustworthiness of the financial statements.

In order to examine the research questions above, we follow a two-step procedure. In the first step, we estimate acquirers' earnings management prior to the acquisition, using two models; an accrual based model (Modified Jones-Model, 1995) and a real activity management model (Roychowdhury, 2006). In the second step, these earnings management measures (absolute discretionary accruals and absolute abnormal discretionary expenses) are used to evaluate the research hypotheses.

The analysis is based on a sample of US bidders involved in acquisitions from 1996 until 2014. The data related to the acquisition (e. g. acquisition date, target nation) are obtained from the ThomsonOne database whereas accounting information are obtained from the Compustat database. Yearly data are used to classify acquirers into constrained and unconstrained while the earnings management models are estimated via quarterly data.

The empirical evidence suggests that the financially constrained acquirers do not show higher levels of earnings management than financially unconstrained acquirers. Second, the results show that earnout as a method of payment reduces the level of earnings manipulation in the acquirers' past financial statements. Also, the results suggest that acquirers using earnout in cross-border and diversifying acquisitions have lower levels of earnings management via discretionary expenses.

The remainder of this work is organized as follow: Section 2 summarizes the literature review concerning method of payment and earnings management. Section

3 describes the research hypotheses, Section 4 presents the econometric approach, Section 5 describes the data and reports the estimation results and Section 6 presents the conclusion.

2. Literature review

2.1. The Choice of payment methods in acquisitions deals

2.1.1. Waves and trends in Mergers and Acquisitions

Mergers and Acquisitions (M&A) are operations with a great impact on the stakeholders' value of both, bidders and targets. The total value invested for M&A has grown dramatically over the time reaching trillion of dollars in recent years¹. This work examines the most significant waves that occurred in the last century and provides a global overview of current trends and volume of M&A by sector.

Previous studies highlight that M&A are repeating over the time, therefore can be clustered in different waves. US and Europe are considered as the two main markets for value of concluded M&A value. Therefore, following Sudarsanam (Sudarsanam, 2003)², M&A past trends have been analyzed, and five waves have been identified.

The first wave lasted from 1890-1900, a period which was characterized by a phase of economic expansion. One of the major motivations for companies to merge in that period was to obtain a monopolistic and oligopolistic control of the market. A flourishing economic situation, leveraged by the second industrial revolution helped the M&A industry to grow. Some of the actual largest companies were created during this period, as for example General Electric.

The second wave ended in the 1920s. A major event of this second wave was the implementation of new legislation which aimed at banning monopolistic mergers.

¹ Thomson Reuters, Mergers & Acquisitions Review 2017

² Creating Value from Mergers and acquisitions, The challenges; Sudi Sudarsanam, 2003 page 14 of 615

The impact of the second wave was less disruptive than the first one and collapsed with the stock market crash in 1929.

The third wave was extended over a longer period and ended in 1971. The intention of companies involved in M&A was to start a diversification process. This diversification was pursued by the acquisition of unrelated companies or businesses.

The fourth wave occurred from the early 1980s to 1990. Surprisingly, during this period companies were focusing on selling part of their businesses which they considered not to be “core business” anymore. This trend went against the previous drift of diversification of the 1960s. The return to some selected core activities is also called “a round trip” (Shleifer & Vishny, 1991). More in general, the fourth wave tried to narrow down the activity and new forms of acquiring companies such as leveraged buyouts (LBO) and hostile takeovers emerged.

The fifth wave of the early 90s until 2003 followed the same logic as the fourth one. It focalized on core activities which were seen as major source of competitive advantage. In terms of value of M&A the fifth wave registered 1.8 trillion of dollars in 2000³. This M&A wave was favored by the start of globalization of products services and capital markets and ultimately the development and spread of the internet.

Similarly to what occurred in the USA market, the M&A activity in Europe experienced a similar evolution with similar patterns. The main difference between the USA and the European M&A activity is related to the size of the deals. In Europe, United Kingdom has known an important history in mergers and acquisitions.

Nowadays, the number of deals and values of transactions are enormous. According to Thomson Reuters, in 2017, the worldwide announced M&A activity achieved a total USD 3.6 trillion⁴. It was the fourth consecutive year that recorded over 3 trillion of US dollars in M&A transactions.

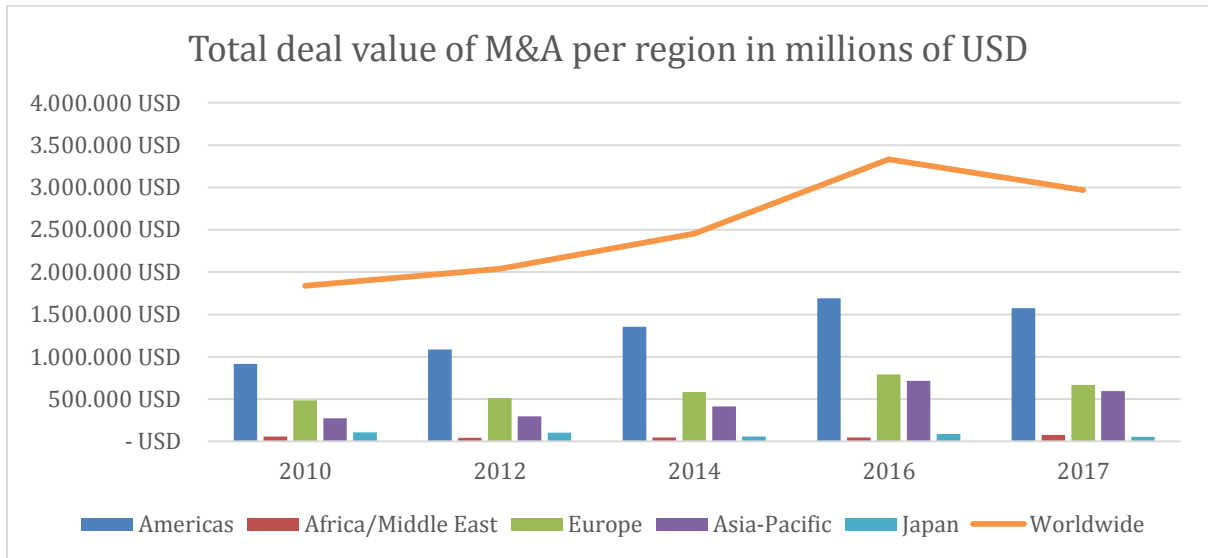
Figure 1 shows the evolution of mergers and acquisition in terms of total completed deal value from 2010 until 2017, a constant increase in M&A activity can

³ Numbers taken from; Creating Value form Mergers and acquisitions, Sudi Sudarsanam (2003) page 16 of 615

⁴ Mergers & Acquisitions Review; Full Year 2017, Thomson Reuters

be recognized. It can be noted a slightly decrease from 2016 to 2017 but nevertheless, these years recorded the higher expansion of M&A.

Figure 1 Evolution of total deal value in M&A in millions of USD



Source: Thomson Reuters Mergers & Acquisitions Review, 2010-2017

There exist some other perspectives beside the time series analysis that explain how and when M&A occur such as an environmental and economic analysis. Some Scholars, attributed different explanations to the occurrence of M&A, based on an environmental analysis, two principal ideas can be retained.

First, Michael Gort explained the waves of M&A by developing the economic disturbance theory of merger waves (Gort, 1969). The idea underlying this concept is that a phase of economic expansion generates different expectations on future demand which lead to disequilibrium in the market. Companies want to benefit from potential undervaluation of target firms and start a M&A process. Hence, competitors fear to miss the momentum and to lose market power. Therefore, they will follow the M&A movement and a M&A “wave” is created. Gort’s model holds and coincides for the merger waves identified before in this paper.

Following the Political Economic Social and Technical (PEST) perspective, the first wave of 1890 can be explained by the technological enhancements which affected business models and activities of companies. Other changes such as tax regulation also fall under this approach.

Moreover, different political, economic, social events motivated companies to look for opportunities outside of the home-country. These transactions are defined as cross-border acquisitions.

Another perspective can be taken into consideration which explains that M&A are occurring due the economic expectation of the firms. The rational underlying this perspective is that firms acquire and merge to obtain costs reduction and strengthen their market power. Companies can decrease their costs and increase their market power in different ways: a first alternative to obtain cost reduction via merger and acquisition is to follow economies of scale. Economies of scale helps to increase production meanwhile cost are being reduced. Costs are spread over larger volumes of production which reduces cost per unit and results in gain of efficiency. Secondly, acquiring firms achieve cost reduction through economies of learning which allow to reduce the costs through the specific know-how of the acquired firm. This type of economies is betting on organizational efficiency and a more efficient production. Lastly, economies of scope can be the goal of bidders when acquiring a target. This means that firms try to focus on a variety of products and are diversifying more.

2.1.2. Determinants of choice of payment methods (cash, stock, mixed)

Mergers and acquisitions are crucial events for the companies which are involved in the transaction. Hence, the choice of the payment method to finance the acquisition is considered one of the key factors of success of such a deal. The consideration which has to be paid depends on several factors such as the estimation of potential synergies and the premium paid. In general, this consideration can be paid in different forms: all-cash also, all-stock and mixed that include both all-stock and all-cash (Faccio & Masulis, 2005).

Each method of payment has a different impact and it has some advantages and some limits. Prior research highlights (Myers & Majluf, 1984) the impact of private information which creates a gap between target and acquirers view of the deal value. Due to this, the selection of the right between payment method is crucial given the

possibility to reduce the evaluation risk that the acquirer has to afford given the existence of asymmetric information between the counterparts.

Before examining each method of payment, it is relevant to identify the possible ways that a bidder can find to finance the acquisition. Usually, companies have two alternatives to raise financial resources: they can access the debt market. This possibility relies heavily on the existing leverage and debt capacity of a company. Bidders with high levels of leverage may have difficulties to issue new debt as they face elevated distress cost. Thus, acquirers with high leverage levels tend not to use cash as method of payment in M&A (DePamphilis, 2017). The second possibility is to issue new equity which potentially affects the control of the company. Hence, companies are facing a trade-off between distress cost of debt and control issues by issuing new debt.

Following the Pecking order theory (Myers, 1984), companies first choose internal funds due to adverse selection risk. In case that external financing is necessary firms then issue debt before an equity issuance. Companies follow a two-step strategy (Fischer, 2017): first of all firms determine whether external funding is needed to proceed with the acquisition or not. If external funding is needed, other factors such as target's characteristics become relevant to choose between debt financing or equity issuance. Fischer identifies several facts related to internal financing: the acquirers use internal financing for smaller takeovers and for larger ones they seek external sources. Companies rely on internal financing if their cash level is sufficiently large and they do not experience high levels of leverage. According to another stream of past theories of capital structure, firms follow a certain target capital structure but tend to drift away from these targets and thereby affect the cost of debt and debt capacities (Uysal, 2011; Frank & Goyal, 2007).

In the context of M&A, managers of acquiring firms apply the same criteria (Uysal, 2011). If companies seek for acquisitions, they are willing to change their capital structure, if necessary. Companies with relative high leverage ratios are less likely to proceed with acquisitions because and are less likely to include all-cash offers (Uysal, 2011). The way of financing an acquisition is primordially influenced

by company's concern regarding cost of capital followed by agency cost as well as the methods of payment (Martynova & Renneboog, 2009).

Therefore, the financial health of companies can heavily impact the choice of payment method in mergers and acquisitions. Bidders which are suffering from financial constraints are sometimes not able to finance all profitable projects and therefore choose financing policies based on the profitability of current and future investments (Almeida, 2004). Past studies (Almeida, 2004) demonstrated that constrained firms should systematically save cash from cash flows to face financing needs. Prior studies underlined that (Faulkender & Wang, 2006) cash holdings are form more important for financially constrained firms than for unconstrained firms.

An acquirer can opt to finance the acquisition with an all cash offer due to a variety of reasons among other: (i) usage of excess cash, (ii) to maintain the shareholder structure. In the cash offers, the deal value is known at the date in which the transaction occurs and it does not depend from other factors such as future performances. Additionally, it allows a simple valuation of the deal and it designates a clear end for target shareholders. Besides, cash offers are more likely to occur when bidders have special access to the debt market, such as access to bank loans or they can easily borrow due to the presence of interlocking directors (Faccio & Masulis, 2005).

Further, prior studies identify that a company's credit rating influences the choice of the method of payment. Thanks to the higher creditworthiness, highly rated firms have lower financial constraints and easy access to debt markets which ultimately raises the likelihood of cash payments in M&A activities (Karampatsas, Petmezas, & Travlos, 2014). Another study (Billett, Garfinkel, & O'Neal, 1998) underlines that firms that have higher credit ratings face lower cost of debts than lower rated firms. The lower cost of debt, can lead to a higher debt capacity as it is convenient to borrow financial resources.

Moreover, prior researches recognized that the size of the bidder influences the way of financing and the method of payment used in the deal. Larger firms tend to be more diversified, and given that they are perceives as "less risky" normally they experience lower bankruptcy cost. Thus, the access to debt financing is easier and a

cash payment is more reasonable. Also, the relative size of both bidder and target impacts on the choice of payment method. The likelihood of acquiring a relatively large target with an all-cash payment is lower as it is more difficult to obtain large financing sources (Ismail & Krause, 2010).

Usually, cash offers are linked to the high level of confidence of the bidder (Barbopoulos & Sudarsanam, 2012). The cash payment is used especially when bidders expect that the target has a high potential and that the operation will generate positive synergies. However, post-acquisition, target shareholders in all-cash offers are subject to a potential opportunity if the value generated from the operation which exceeds the premium received included in the total consideration.

Lastly, in the acquisitions financed by all-cash, both acquirers and bidders need to examine carefully the effects of fiscal policy. Countries which are favorable in terms of tax deductions are more attractive for cash offers than others. This is due to the nature of cash offers, in which taxation is liable on the profits of the transaction (DePamphilis, 2017; Ismail & Krause, 2010). In that case, targets require higher premiums to compensate these expenses, which implies that other methods of payment are possibly more convenient such as the stock payments.

An alternative to the all-cash offer is the all-stock payment. This method of payment methods relies heavily on the existence of asymmetric information (Hansen, 1987). In fact, both, acquirers and targets are speculating that the counterparty has more information about the real value of the deal. Hence, bidders try to finance the acquisition by offering its own stocks to reduce the risk of an overvaluation of the target's equity.

This concept can also be connected to the adverse selection theory. From the acquirer side, the adverse selection is associated to the overvaluation of the target, known as "Lemon problem" (Akerlof, 1970). A similar issue is afforded by the target which could receive overvalued bidder's stock.

Moreover, a stock payment allows bidders to minimize the risk of valuation post acquisition, especially when the target is performing poorly and share price is decreasing. On the other side, target shareholders can benefit from the stock payment when acquirer's stock price increases. Offering a stock payment, the

counterparty agrees on an exchange ratio⁵ which will embody the transaction value of the deal. The benefit of the stock payment is just known ex-ante and it depends on the variation of the price return.

Also, the stock offer leads to a “dilution effect” when new shares are issued and thus affect the existing shareholder’s structure. In terms of corporate control the stock payment does not represent the optimal choice, it would be better to offer an alternative method of payment. This effect is even more pronounced when the target company has a medium or high concentration of shareholders (Faccio & Masulis, 2005). A bidder, with a diffused ownership structure is less concerned about control issues and therefore it would offer a stock payment rather than cash.

Furthermore, acquirers prefer stock financing and when the company believes that the stock price of its shares is overvalued (Hansen, 1987). The reasons behind this behavior is that the bidder is able to benefit from the overvalued perception of its share price to finance the M&A deal at a lower value as it has to issue less stock. The acquirer benefits from its private information vis-à-vis the target company. When the bidder’s management estimate their stock as undervalued, a different payment method is more likely to be chosen. The announcement effects linked to a stock payment differs whether the target firm is public or private (Chang, 1998). A firm acquiring a listed company with a substantial number of shareholders may be subject to asymmetric information which then leads to valuation risk. A new stock issue is perceived negatively by the market as managers have superior information about stock prices and price return on the announcement day will be negative (Barbopoulos and Sudarsanam, 2012).

⁵ Definition exchange ratio, Exchange ratio represents the number of shares an acquiring firm delivers for each outstanding share of the target firm.
<https://corporatefinanceinstitute.com/resources/knowledge/valuation/share-exchange-ratio/>

2.1.3. The earnout payment

Both acquirers and targets face moral hazard and adverse selection risk when they enter in an acquisition. In order to reduce those risks and to reduce the risk of earnings management, bidders and targets can decide to include an earnout clause in the deal to overcome the valuation disagreement. Earnout contracts are particularly useful when there is high information asymmetry as in the case of deals that include: (i) private targets, (iii) cross-border acquisitions, (iv) industrial diversification (Kohers & Ang, 2000). In the specific case of private target companies, which are less subject to disclosure requirements, the information asymmetry is high. Therefore, in this case earnouts are really effective to reduce the risk (Kohers & Ang, 2000).

Earnout, has been described as “a contingent form of payment used to finance an acquisition and involves a two-stage payment structure” (Barbopoulos & Sudarsanam, 2012).

An earnout contract consists of a first stage which is an upfront payment to the target company and a deferred payment. The upfront payment is non-contingent and related to “the value agreed” between the companies. The second part is contingent and deferred. The deferred payment is conditional on the achievement of some specific performance goals by the target. For instance, if the target company reaches certain milestones (e.g. revenue goals), agreed and settled beforehand, based on the earnout contract, the acquirer will provide and an additional payment (the earnout value). Concerning the nature of the payment, both parts can either be in cash, stock or mixed payments. Moreover, it can also be considered as a hedging instrument (Kohers & Ang, 2000). It hedges the bidder for overpaying for a target. The bidder bears less risk as the payment is limited to the to the upfront first payment when the target does not achieve the forecasted outcomes. For the target company, earnouts are attractive when the management is optimistic about their future performance and the milestones are realistically achievable.

Generally, the choice of the method of payment for the first installment as well as for the second one, are an important pillar in the financing strategy (Barbopoulos, Paudyal, & Sudarsanam, 2017). For instance, paying both parts (upfront and

deferred) by stock provides a signal of a more cautious behavior by the acquirer. Contrarily, paying both parts in cash signals confidence and it limits the value gain for the target shareholders to the premium paid.

Therefore, earnouts are used to bridge the valuation gap which exists due to private information. Hence, earnouts are used more often when a bidder is acquiring a private company (Cain et al., 2011; Faccio & Masulis, 2005; Kohers & Ang, 2000).

Another factor to take into consideration is the size of the company of both acquirer and target. Smaller bidders which are constrained in their financial ability may want to have some protection because they cannot bear the risk of misvaluation. Recently, some authors (Bates, Neyland, & Wang, 2018) highlight that earnouts are more likely to be used by companies which are facing financial constraints and during periods of stricter and tighter loan standards. These financial constraints can be from different nature as for example bad access to debt market. Earnouts can be considered as a source of financing for financially limited acquirers (Bates et al., 2018). By splitting the consideration in two different parts, bidders do not face the issue of raising the total deal value at once. The earnout gives the acquirer a certain financial flexibility and can be seen as financial slack as only the upfront payment is paid at the settlement date. The earnout payment is only due after a predefined period and the achievement of certain goals. This provides the acquirer some financial flexibility.

Prior literature shows that acquisitions involving earnout contracts obtain higher abnormal return for the bidder's shareholders at the announcement day compared to the other methods of payments (Barbopoulos & Sudarsanam, 2012; Kohers & Ang, 2000). Barbopoulos and Sudarsanam (2012) highlight the impact of earnouts for both private and public acquisition deals. In private acquisitions, earnouts provide a positive gain for the acquirer larger than cash offers whereas there is no significant difference between the earnout and stock payments. This can be explained by the similar mitigation characteristics that both methods of payment are providing. For public acquisition deals, a same logic is highlighted by the authors, earnouts are more valuable than stock offers but not significantly different from cash offers.

Nonetheless, some obstacles and complications can affect the feasibility of earnout contract. As earnouts are clauses, terms can be renegotiated as contracts are seldom complete from the beginning. To renegotiate, all parties should agree which is not always easy given that some companies are represented by a large amount of shareholders (Kohers & Ang, 2000). Some side cost such as lawyer advisory fees must be taken into consideration when setting up an earnout contract. Besides the structural and organizational complexity of earnout contracts, other factors also explain why such contracts are used with precaution. Recently, Viarengo et al. (2018) demonstrated that the use of earnout contracts in mergers and acquisitions transactions is heavily relying on a country's enforcement quality. This research shows a positive relationship between enforcement quality and the proportion of earnout in the M&A deal (Viarengo, Gatti, & Prencipe, 2018). Specifically, in the countries in which the legal system is more protective, the use of earnout is more pronounced.

2.2. The influence of methods of payment on Earnings management

2.2.1. Definition of Earnings quality

According to the Statement of Financial Accounting Concepts No1 (Financial Accounting Standards Board, 1978); "Financial reporting should provide information about an enterprise's financial performance during a period."⁶ In other terms, earnings quality is providing information about a specific firm's performance which is relevant for future decision making. If the quality of earnings is higher, more information about the characteristics of a firm's financial performance are relevant to a specific decision made by a decision-maker (P. Dechow, Ge, & Schrand, 2010).

⁶ Definition « Financial reporting », Statement of financial accounting concepts No. 1 page 19

Earnings quality is a broader concept than earnings management as it is related to the overall utility and relevance of earnings for each decision-maker. Even though prior research provides multiple definitions of earnings quality, the majority of the authors agree that there is not one exclusive appropriate measure of earnings quality, as each measurement proxy relates to a specific aspect of earnings quality (Dichev, Graham, Harvey, & Rajgopal, 2012; Diri, 2017).

Prior research has identified high earnings quality in presence of: (i) Persistence and thus best measurement predictions of future earnings (Penman & Zhang, 2002), (ii) Predict future earnings in a more accurate way (Schipper & Vincent, 2003) (iii) Have small changes in total accruals that are not linked to fundamentals (Jones 1991, Kothari et al. 2005).

The main aspects related to the concept of earnings quality are the following one:

- Earnings persistence. Companies with more persistent earnings are perceived to have sustainable, regular earnings and cash flows (P. Dechow et al., 2010). A higher earnings persistence will ultimately make it a more consistent input for equity valuation. The problem commonly associated with earnings persistence is the dependence of the accounting measurement system. Restating, for short periods earnings persistence can be realized by engaging in earnings management. This earnings management often is associated with the level of accruals of a company. Accruals as a factor of earnings are the most studied determinant of earnings persistence.
- Earnings smoothness. Earnings smoothness is a technique that allows managers to use their discretion to decrease the volatility of earnings, which affects stakeholders' risk perception (Diri, 2017; Walker, 2013). Earnings smoothing allows managers to represent the fundamental performance in a more stable way, thus reducing uncertainty among investors (Graham, Harvey, & Rajgopal, 2005). Moreover, Ronen and Yari (2008) classify earnings smoothing into two categories: (i) "real earnings smoothing", (ii) "artificial smoothing". First the real earnings smoothing

includes activities related to the operations or investing activities as they are hard to be identified. Second, the artificial smoothing consists in intentionally overstate/understate firm's earnings. Some authors (Ronen and Yari, 2008) also classified the consequences of earnings smoothing into beneficial, neutral and pernicious. Earnings smoothing is considered to be beneficial when it enhances the informativeness of earnings and leads to a more precise prediction of future earnings. Pernicious smoothing is the result of opportunistic behavior of managers to distort earnings and misrepresent them in order to hide bad news. Smoothing is considered to be neutral when it does not impact the cash flows. Earnings informativeness and quality have a great impact and lead to more volatile stock prices (Markarian & Gill-de-Albornoz, 2010).

- Earnings response coefficient (ERC). This coefficient measures investors' responsiveness to earnings in term of reaction on the firm's value. If there is a high correlation with value this implies that earnings are more accurately reflecting fundamental performance of a company (P. Dechow et al., 2010)

Dechow et al. (2010), identify six categories of determinants: (1) firm characteristics, (2) financial reporting practices, (3) governance and controls, (4) auditors, (5) equity market incentives, (6) external factors.

- (1) Dechow et al. (2010) highlight four firm characteristics which are associated to be proxies for earnings earning quality; firm performance, debt, firm growth and investment and fir size. Poorly performing firms are often associated to manage accounting tactics to improve their earnings, thus lowering earnings quality(Keating & Zimmerman, 1999). In case of highly leveraged firms, managers manipulate financial statements for instance to avoid the violation of debt covenants. Considering firm growth, prior research (Penman and Zhang, 2002) highlights that high growth firms report less persistent earnings. As noted by Dechow et al. (2010) earlier studies, opposed to more recent ones,

found a negative relationship between size and earnings quality as bigger companies adapt accounting method choices in response to the larger regulatory surveillance.

- (2) Earnings quality is affected by the accounting methods and principles used by companies. For instance earnings quality is affected whether financial information is reported via principles based or rules based methods.
- (3) The literature on governance and control mechanisms (Ashbaugh-Skaife, Collins, Kinney, & LaFond, 2008) emphasizes that internal controls and audit committees are negatively associated with earnings management (which increases earnings quality).
- (4) Auditors are considered as determinant of earnings quality as their role is to impede intentional and unintentional earnings manipulation. As such, firms with “Big-X” auditors report lower discretionary accruals than firms which do not have “Big-X” auditors (Kim, Chung, & Firth, 2003)
- (5) Prior research highlights that earnings quality is affected in periods where firms try to raise capital in the market (Dechow et al., 2010). In this case firms particularly manage their accrual choices and thus affect its earnings quality.
- (6) External factors which influence earnings quality include among others tax regulations, capital requirements and political processes. Moreover, past literature (Hanlon & Heitzman, 2010) provides support that tax expense accrual is used to manage earnings. However, the extent to which firm can manage earnings via taxes changes significantly as rules on taxation are constantly adapted.

2.2.2. Definition and incentives of Earnings management

This chapter examines the influence of different payment methods on earnings manipulation, applied by both acquirers and targets, and identifies the main incentives of firms to follow these practices. As M&A are of major importance for both firms (bidder and target) the public and private information is a major

determinant for the decision to engage in earnings manipulation. Hence, also the earnings quality and accuracy of the accounting information of both parties are relevant during the due diligence process.

Earnings quality is crucial because it gives economic agents information about the performance of firms. Traditionally, the role of accounting information is grouped in a dual role: informativeness and stewardship (Ronen & Yaari, 2008). The informativeness, considers accounting information as a source of information needed by financial agents to forecast future cash flows. An issue related to the quality of information can be found in the moral hazard of managers given the information asymmetry between managers and shareholders (Akerlof, 1970). Managers mostly act and base their decisions on what can provide them benefits. Therefore, often the accounting information is more useful for “providers of information” than real users (shareholders, stakeholders in general). This problem of diverging interest is referred to the principle agent problem.

Earnings management use flexibility of accounting standards to manipulate earnings using private information (Sankar & Subramanyam, 2001). This means that earnings management is “still inside” the boundaries of the accounting and reporting standards and therefore does not include fraud. Earnings management has to be interpreted as an opportunistic behavior of managers to maximize simply their goals rather than the shareholders’ ones.

Following Healy and Wahlen (1999), “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.”

Compared to Healy and Wahlen, Joshua Ronen Varda Yaari (2008) highlight instead that earnings management is not always used to mislead stakeholders about the performance of a company. They define

Earnings management is a collection of managerial decisions that result in not reporting the true short-term, value-maximizing earnings as known to management. Earnings management

can be beneficial: it signals long-term value; pernicious: it conceals short- or long-term value; neutral: it reveals the short-term true performance. The managed earnings result from taking production/investment actions before earnings are realized or making accounting choices that affect the earnings numbers and their interpretation after the true earnings are realized.

Therefore, earnings management uses a set of practices that allow managers to inflate/deflate the earnings inside these boundaries which is possible thanks to the grey lines in accounting standards. These type of actions include for instance to underestimate or overestimate impairments, provisions, expenses or to accelerate or delay sales using “accruals”. Contrarily fraud implicates a violation of accounting principles like for example to record frictions of revenues.

Moreover, this work considers earnings management as the manipulation of earnings by the acquirer before the settlement of an acquisition.

Several studies focus on how firms practice earnings management as well as its incentives. There are various incentives for firms to engage in earnings manipulation: (i) affect market value of a firm (ii) executive compensation incentives (iii) CEO turnover (iv) financial resources incentive

One of the principal incentives which lead managers to alter reported earnings is to affect firm’s market value. In other words, managers may use their discretion to modify earnings to meet market expectations and analysts’ forecasts (Bartov & Cohen, 2009; Burgstahler & Eames, 2006). One of the strategies that managers use to meet market’s expectation is by applying income smoothing. Past literature argues that firms managers manipulate earnings to reduce volatility in earnings, thus avoiding significant decreases or losses that could impact price returns (Burgstahler & Dichev, 1999; Fudenberg & Tirole, 1995). Repeating constant levels of earnings signalizes a more stable environment and is associated with lower level of price volatility (Grant, Markarian, & Parbonetti, 2009).

Another incentive to do earnings manipulation is related to executives’ compensation. In fact, earnings manipulation is more pronounced in companies where executive compensation is dependent on firm performance (Grant et al.,

2009). This is so, as managers try to maximize their own utility rather than maximizing shareholders' value or even firm value. Based on the agency theory (Jensen & Meckling, 1976) this issue involves two parties (agent and principal) which have diverging interests and private information. Shareholders are in general less risk averse, as they want to achieve stock price increases. Opposing, managers have a lower risk appetite and sometimes act more conservative. To align these interests, compensation packages of executives are designed based on performance. Usually, the compensation structure consists of different parts, a fixed salary (base payment), bonuses and stock options that will be added if certain goals are achieved by the firm. Shrieves and Gao (2002) analyze the intensity of earnings management in relation with the compensation package. They find that the intensity of earnings management is negatively related to salary and positively associated with stock options and bonuses (Shrieves & Gao, 2002).

Another incentive is represented by CEO turnover which is positively associated to earnings management. Before to leave the company, the CEO can create the opportunity to inflate earnings to show better performance and to increase chances of a new job (Hazarika, Karpoff, & Nahata, 2012). When a new CEO arrives, he takes the advantage to deflate earnings, to lower expectations of shareholders thus facilitating to show better performances in the future (Ronen & Yaari 2008).

Lastly, a company's financial situation can be a key factor when managers consider entering in earnings management. Existing literature finds mixed evidence regarding which earnings management strategy financially constrained firms are pursuing.

Dechow et al. (1996) examined the motives for and consequences of earnings management in a sample where firms are subject to punishments of the security and exchange commission (SEC). One important motivation they came up with was that companies manipulate earnings with to attract financing at lower cost. Further, they highlight that companies with weak governance structures are more likely to alter earnings. Companies having weak governance structures usually do not possess important committees or independent directors which guarantee more transparency.

Lastly, they find that earnings manipulation, once identified by a regulator, leads to a severe increase of cost of capital.

Moreover, firms with severe financial problems engage in earnings management to obtain sources of funding and find funding at a cheaper cost (Linck, Netter, & Shu, 2013). Campa et al. 2019, highlight that companies facing financial distress use more discretionary expenses (real activity management) than accruals management. This effect is even more pronounced when firms face extremely high level of leverage and debt access is tough. Relying on this idea, financially constrained firms instead of using the less costly earnings management practices use the strategy which is harder to be detected (Campa, 2019; Campa & Camacho-Miñano, 2015).

Opposing this idea, Zang (2012) stipulates that companies confronted with financial difficulties, should opt for the earnings management strategy which destroys the least value of the firm which in this case would be the accrual based approach. This theory is confirmed by Haga et al. (2018) which endorses that financially stressed firms prefer accruals management over real activity management using an UK sample (Haga, Höglund, & Sundvik, 2018). Moreover, Linck et al. (2013) demonstrate that managers use discretionary accruals to ease financial constraint prior to investment opportunities to obtain financing at a cheaper cost. The authors underline that constrained companies experience higher discretionary accruals levels than unconstrained companies (Linck et al., 2013). Also, their results suggest that the strategic use of accruals manipulation increases investment efficiency for constrained firms that have wealth generating investment opportunities.

2.2.3. Differences in manipulation practices via Accruals and Real activity management

Companies can have distinct reactions in terms of earnings management, given their different structures (shareholder structure), financial health or status (listed or unlisted). Existing literature (Hope, Thomas, & Vyas, 2013) emphasize two different

hypotheses in relation to the behavior of firms when engaging in earnings management. The first hypothesis is the so-called demand hypothesis, which reckons that listed firms exhibit lower earnings management than unlisted companies due to the accurate financial information that needs to be provided to the stakeholders. The second hypothesis is related to the opportunistic behavior of a firm. The opportunistic behavior hypothesis stipulates that listed firms have more incentives than unlisted firms because they need to meet market expectations.

Earnings management include many techniques among which two are particularly relevant; (i) Accruals activity management, (ii) Real activity management.

Early research tends to focus exclusively on the role of accruals management to explain possible earnings management in firms. Accruals arise when there is a trade-off between the timing of a cash flow and its recognition in the financial statements of a company. As such, accrual accounting is based on economic transactions which are recorded based on expected and not actual payments. This kind of manipulation is making use of interpretation of GAAP⁷. Accruals based earnings management does not involve changing the economics of a company but rather more the way of recognizing and presenting them. Accruals management impacts the claims of the cash flow but does not impact firm value as the latter one is determined by these cash flows (Walker, 2013). Examples of accrual management are early or wrong estimated revenues and/or expenses, over- understating assets or liabilities. Accelerating the recognition of revenues for instance by means of channel stuffing⁸ can severely impact earnings of a company. This being said, the quality of accounting information becomes crucial again. Accurate accounting information facilitates company valuation and investment decisions.

The evidence of literature on accruals earnings management in the field of mergers and acquisitions provides mixed results. Easterwood et al. (1997) (Easterwood, Seth, & Singer, 1997) and Erickson and Wang (1999) find that during

⁷ GAAP, General Accepted Accounting Principles

⁸ Channel stuffing, When a company forces in more products through a distribution channel than the channel is capable of selling, its sales figures become inflated.
(<https://corporatefinanceinstitute.com/resources/knowledge/strategy/channel-stuffing/>)

the pre-merger period target's abnormal accruals are positive but not statistically significant. On the other hand Anilowski et al. (2009) find evidence of a positive for earnings manipulation in target companies which are acquired via auctions.

Focusing solely on accruals earnings management may not thoroughly highlight earnings management behavior of firms (Roychowdhury, 2006; Zang, 2012).

Besides the accruals management, the real activity management has caught attention over the past especially due to the works of (Graham et al., 2005) and Roychowdhury (2006). The latter one defines real earnings management as, "Management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds".⁹

Real earnings management includes: (i) overproduction to reduce fixed cost per unit, (ii) manipulating several expenses such as research and development (R&D) and advertising. Opposed to accruals, real activity management changes the free cash flow of the firm as some activities generating value are being sacrificed. Prior body of literature has shown the negative impact of real earnings management (Cohen, Dey, & Lys, 2008; Roychowdhury, Mizik, & Kothari, 2012) by influencing operating performance and stock returns.

Generally, accrual manipulation is easier to implement but at the same time are easier to detect compared to the real activity management (Zang, 2012). Real activity management can possibly turn out costly for a firm as it is not simply departing from accounting standards. From an economic stand point, RAM are suboptimal transactions carried out by the firm which can have negative impact on firm performance and profitability (Chen, Yen, & Chang, 2009).

More recent studies (Walker, 2013; Zang, 2012) highlight the usefulness of considering both approaches, accrual and real activity management as firms could use both strategies simultaneously.

⁹ Real activity management definition, Roychowdhury (2006) page 336.

2.2.4. Accruals-based models and real activity manipulation models

Numerous studies have used a variety of accruals prediction models for detecting earnings management. Earnings manipulation can be achieved via two different ways: (i) Accrual and (ii) Real activity management (RAM).

We will first address the models for detecting accruals management before illustrating the models for detecting real activity management models.

Before highlighting four of the most relevant models it is useful to define accruals as generally accepted by empirical literature. Dechow et al. (1995) define accruals as the difference between net income and operating cash flow.

$$TA_{it} = NI_{it} - CFO_{it} ,$$

where TA_{it} represents total accruals for firm i in period t , NI_{it} represents net income for firm i in period t , CFO_{it} represents operating cash flow for firm i in period t . According to Dechow et al. (1995) total accruals are computed as:

$$TA_{it} = \Delta ACTQ_{it} - \Delta CHEQ_{it} - \Delta LCTQ_{it} + \Delta DLCQ_{it} - DPQ_{it} ,$$

where $\Delta ACTQ_{it}$ represents the change in current assets total for firm i in period t , $\Delta CHEQ_{it}$ represents the change in cash and short term investments for firm i in period t , $\Delta LCTQ_{it}$ represents the change in current liabilities total for firm i in period t , $\Delta DLCQ_{it}$ represents the change in debt in current liabilities for firm i in period t and DPQ_{it} represents depreciation and amortization for firm i in period t .

The models will be presented according a chronological order. The first model is the Healy Model (1985). Healy (1985) represents discretionary accruals as the difference between total accruals and normal accruals. Plus, the model makes use of a five-year average of total accruals. The model looks as follow:

$$\widehat{NDA}_{it} = \frac{1}{n} \sum_{s=t-n}^t TA_{is} ,$$

where, \widehat{NDA}_{it} denotes the estimate of non-discretionary accruals for firm i in period t , TA_{is} is the total accruals for firm i in period s , n is the number of years over which the average is taken (for Healy model this is set as 5 years). Following the previous equation, the estimate of discretionary accruals can be computed as $\widehat{DA}_{it} = TA_{it} - \widehat{NDA}_{it}$. Critics about this model include that accruals usually tend to reverse over time. Thus, average normal accruals can be equal to zero and normal accruals might be considered as discretionary in some years.

The second model, from DeAngelo (1986), takes last year's total accruals as a measure of normal accruals. Therefore, changes in accruals from one year to another are considered as discretionary. The algebraic form is given by;

$$\widehat{NDA}_{it} = TA_{it-1} ,$$

where \widehat{NDA}_{it} represents the estimate of non-discretionary accruals of firm i in period t , TA_{it-1} represents the total accruals for firm i in period $t-1$. Likewise, DeAngelo computes the estimate of discretionary accruals the same way as Healy (1985). By considering solely the past year and not the last 5 years as the Healy model, DeAngelo reduces serial correlation but still is not valid all the time (Dechow, Sloan, & Sweeney, 1995).

The most notable and one of the most applied models is the model presented by Jones (1991). The model starts by estimating a regression for total accruals of the firms, per year and industry;

$$\frac{TA_{it}}{A_{iavg}} = \alpha + \alpha_1 \frac{1}{A_{iavg}} + \beta_1 \frac{\Delta R_{it}}{A_{iavg}} + \beta_2 \frac{PPE_{it}}{A_{iavg}} + \varepsilon_{it} ,$$

where ΔR_{it} denotes the change in revenue for firm i in period t , A_{iavg} denotes average assets of firm i , PPE_{it} denotes gross value of property plant and equipment of firm i in period t ,

After regressing this equation, the estimates of the coefficients are used to compute the estimates of the non-discretionary accruals for each firm in each period, as follows:

$$\frac{\widehat{NDA}_{it}}{A_{iavg}} = \hat{\alpha} + \hat{\alpha}_1 + \frac{1}{A_{iavg}} + \hat{\beta}_1 \frac{\Delta R_{it}}{A_{iavg}} + \hat{\beta}_2 \frac{PPE_{it}}{A_{iavg}} ,$$

where \widehat{NDA}_{it} represents the estimate of non-discretionary accruals for firm i in period t . To obtain the estimate of the discretionary accruals the difference between total accruals and an estimate of non-discretionary accruals must be computed.

$$\frac{\widehat{DA}_{it}}{A_{iavg}} = \frac{TA_{it}}{A_{iavg}} - \frac{\widehat{NDA}_{it}}{A_{iavg}} ,$$

where \widehat{DA}_{it} represents the estimate of discretionary accruals for firm i in period t . In all the regressions, an intercept is included and all variables are scaled by average total assets of the beginning and ending asset balance. This is made to avoid heteroscedasticity problems.

Despite being one of the most relevant models (Jones, 1991), it suffers some limitations. Moreover, the model does not consider other expenses as explanatory variables even though they influence total accruals. There is a problem of omitted variables leading to endogeneity and biasness of the model. The omission of relevant variables results in having a model which does not sufficiently explain earnings management (Yaari et al., 2007). The problem is related to the endogeneity which will bias the results.

Subsequently, to resolve and mitigate some of the weaknesses of the initial Jones model, Dechow et al. (1995) developed a new model based on the Jones model. It is commonly referred to as the modified Jones model. It starts by capturing the effects of the same first regression given by the following expression.

$$\frac{TA_{it}}{A_{iavg}} = \alpha + \alpha_1 \frac{1}{A_{iavg}} + \beta_1 \frac{(\Delta R_{it} - \Delta AR_{it})}{A_{iavg}} + \beta_2 \frac{PPE_{it}}{A_{iavg}} + \varepsilon_{it} ,$$

where ΔAR_{it} represents the change in account receivable for firm i in period t . The estimates of the coefficients are then used to determine an estimate of the accruals adjusting this time the change in revenues for the change in receivable. The algebraic form is given by:

$$\frac{\widehat{NDA}_{it}}{A_{iavg}} = \hat{\alpha} + \hat{\alpha}_1 \frac{1}{A_{iavg}} + \hat{\beta}_1 \frac{(\Delta R_{it} - \Delta AR_{it})}{A_{iavg}} + \hat{\beta}_2 \frac{PPE_{it}}{A_{iavg}},$$

where \widehat{NDA}_{it} represents the estimate of non-discretionary accruals for firm i in period t . The estimate of discretionary accruals is obtained by the same way as before, considering the difference between firm's total accruals and the estimate of normal accruals.

$$\frac{\widehat{DA}_{it}}{A_{iavg}} = \frac{TA_{it}}{A_{iavg}} - \frac{\widehat{NDA}_{it}}{A_{iavg}},$$

where \widehat{DA}_{it} denotes an estimate of discretionary accruals for firm i in period t .

In all the regressions, an intercept is included and all variables are scaled by average total assets of the beginning and ending asset balance. Again, this is made to avoid heteroscedasticity problems.

Overall, the modified Jones model mitigates some shortcomings of the former Jones model by allowing the possibility of manipulating accounts receivable in the event periods. Nevertheless, it overlooks the before mentioned fact in the estimation period leading to inconsistent results. To face this particular issue, some researchers (Dechow, Richardson, & Tuna, 2003; Kothari, Leone, & Wasley, 2005) adopt a cross-sectional version of the modified Jones model allowing for adjustment in the estimation and event period.

Additionally to the above listed models, other models have been developed over the years including the Forward-Looking Model (Dechow et al., 2003), the Competing-component model (Kang & Sivaramakrishnan, 1995) the Cash-Flows Model (Dechow & Dichev, 2002) the Performance-Matching Model (Kothari et al., 2005) and the Stubben Model (Stubben, 2010). All reported models try to solve the persisting limits of the Jones Model. Each model focuses on specific factors, which are considered to have a relative more important impact. As such, choosing the best

measurement model for explaining accruals earnings management remains a subjective and contextual of each research. Using a multitude of models may be helpful to analyze and obtain more reliable results.

Alternatively, instead of opting for accruals earnings management model, real earnings management models can give an additional, complementary explanation. The most referred models in literature are the Roychowdhury (2006) and the Gunny (2010)'s models.

The Roychowdhury model (2006) is based on the work of Dechow et al. (1995) and is one of the most frequently employed measurement methods for non-financial sectors. It embodies three components. Firstly, it analyzes the decrease in operating cash flow as a consequence of high amount of discounts to boost sales volume and increase earnings in a specific period. The model starts by estimating the following regression:

$$\frac{CFO_{it}}{A_{iavg}} = \alpha + \alpha_1 \frac{1}{A_{iavg}} + \beta_1 \frac{Sales_{it}}{A_{iavg}} + \beta_2 \frac{\Delta Sales_{it}}{A_{iavg}} + \varepsilon_{it} ,$$

where CFO_{it} denotes operating cash flows for firm i in period t , $Sales_{it}$ represents the sales of the firm i in period t , $\Delta Sales_{it}$ represents the change in sales during the period t for firm i . To avoid heteroscedasticity, all variables are scaled by average total assets.

The estimate of abnormal operating cash flows are computed based on the difference between the estimates of normal operating cash flows and the actual operating cash flows. For illustrative purposes, an upward earnings management needs to be multiplied by -1.

$$\frac{\widehat{NCF}O_{it}}{A_{iavg}} = \hat{\alpha} + \hat{\alpha}_1 \frac{1}{A_{iavg}} + \hat{\beta}_1 \frac{Sales_{it}}{A_{iavg}} + \hat{\beta}_2 \frac{(\Delta Sales_{it})}{A_{iavg}} ,$$

where $\widehat{NCF}O_{it}$ represents the estimate of normal operating cash flows for firm i in period t . Abnormal operating cash flows are given by the following expression:

$$\frac{\widehat{ACF}O_{it}}{A_{iavg}} = \frac{CFO_{it}}{A_{iavg}} - \frac{\widehat{NCF}O_{it}}{A_{iavg}} ,$$

where \widehat{ACFO}_{it} represents the estimate of abnormal operating cash flows for firm i in period t .

Secondly, accordingly to the model, the second component is illustrated by the decrease in discretionary expenses which improves earnings and cash flows. These expenses include R&D or advertising. The model starts to establish discretionary expenses based on the regression shown below:

$$\frac{DiscExp_{it}}{A_{iavg}} = \alpha + \alpha_1 \frac{1}{A_{iavg}} + \beta_1 \frac{Sales_{it-1}}{A_{iavg}} + \varepsilon_{it} ,$$

where $DiscExp_{it}$ denotes discretionary expenses for firm i in period t , $Sales_{it-1}$ denote sales for firm i in period $t - 1$. Again, all variables are scaled by the average of total assets.

The estimates of abnormal discretionary expenses are obtained by subtracting the actual discretionary expenses by the estimate of normal discretionary expenses. The estimates of normal discretionary expenses are given as follow:

$$\frac{NDiscExp_{it}}{A_{iavg}} = \hat{\alpha} + \hat{\alpha}_1 \frac{1}{A_{iavg}} + \hat{\beta}_1 \frac{Sales_{it-1}}{A_{iavg}} ,$$

where $NDiscExp_{it}$ represents the estimates of normal discretionary expenses for firm i in period t . To obtain the estimate of abnormal discretionary expenses the difference between actual discretionary expenses and the estimate of normal discretionary expenses must be computed:

$$\frac{ADiscExp_{it}}{A_{iavg}} = \frac{DiscExp_{it}}{A_{iavg}} - \frac{NDiscExp_{it}}{A_{iavg}} ,$$

where $ADiscExp_{it}$ represents the estimate of abnormal discretionary expenses for firm i in period t .

The last component of the model addresses the increased inventory, which as mentioned in the previous part can be done via channel stuffing, reducing the cost of goods sold, hence improving earnings. The algebraic representation is as follows:

$$\frac{Prod_{it}}{A_{iavg}} = \alpha + \alpha_1 \frac{1}{A_{iavg}} + \beta_1 \frac{Sales_{it}}{A_{iavg}} + \beta_2 \frac{\Delta Sales_{it}}{A_{iavg}} + \beta_2 \frac{\Delta Sales_{it-1}}{A_{iavg}} + \varepsilon_{it} ,$$

where $Prod_{it}$ denotes the production cost which includes COGS (cost of goods sold) for firm i in period t , $\Delta Sales_{t-1}$ represents the change in sales for firm i during the period $t - 1$. As in all the other equations, variables are scaled by average total assets.

This model is very informative and treats different aspect of real earnings management. However, it suffers from an omitted variables problem as well as it does not fit very small sample because it would violate an OLS assumption regarding the normal distribution of the error term.

At last but not least, the Gunny Model (2010) tries to capture real earnings management following four types of activity management: (i) decrease of discretionary R&D, (ii) decrease of discretionary selling, general and administrative expenses, (iii) timing of fixed asset sales to report gain, (iv) overproduction to reduce cost of goods sold. Even though the model includes more variables trying to explain real activity management it still suffers from endogeneity issues and does not suit small samples. Given the current research, only few models have been developed in this area.

To conclude on the models of earnings management, Zang (2012) introduces a combination of both earnings management models. The basic idea behind the model is to combine two models, the Roychowdhury model (2006) to measure real activity management and the Jones model (1991) to capture the effect of accruals management. The model relies on a sequential approach of both earnings management activities. Moreover, Zang (2012) argues that accruals activities are performed after the year end whereas real activity management occurs during the financial year.

It is important to notice, that both earnings manipulation practices can happen at different moments in time.

2.2.5. The effects of the different methods of payment on Earnings management

As both bidders and sellers possess private information relative to its true value, information asymmetry arises and impacts the terms of the agreement. Based on this asymmetry of information, Akerlof's (1970) theory suggests that a bidder believes that a target only accepts the offer if the price is exceeding the true value of the company. Given this environment, bidders themselves would discount the value of the target for avoiding adverse selection. Likewise, targets have incentives to manipulate earnings to compensate the discount applied by the bidder.

As bidders and target are aware of the valuation issue derived from private information, the payment method has great importance as it guarantees a better execution of the deal. For all-stock acquisitions, the payment of the purchase price is made by offering a specified number of shares of the bidder for each share of the target. The exact number of shares is determined by what is called the exchange ratio.

It is shown by prior literature (Erickson & Wang, 1999; Henock, 2004) that non-cash bidders have more incentives to manipulate earnings before approaching a target firm. Moreover, Erickson and Wang (1999) find that bidders manage earnings in periods prior to the merger and acquisition deal. Also, they highlight a positive relation between income increases and the relative size of the agreement. In other words, the bigger the deal in terms of value, the more acquirers tend to increase their earnings.

Following the idea of Erickson and Wang (1999), Henock (2004) studied the performance of acquiring firms post-merger and found strong evidence that bidders overstate their earnings a quarter before a stock acquisition deal. Further, the author finds evidence that post-merger underperformance of acquiring firms is related to pre-merger earnings management.

For acquirers offering a stock as method of payment inflating earnings to increase stock price has several advantages. First, by doing so the acquirer would need to issue fewer shares to close the transaction. Second, for current shareholders of the bidding firm this would mean a reduced dilution effect as well as a lower cost of the

acquisition. On the other hand, for target companies earnings manipulation is a rather difficult action. The idea is that targets have difficulty to anticipate either when nor if they will be acquired (Skaife & Wangerin, 2013). Its disposition to inflate earnings relies heavily on its capability to foresee a potential offer of a bidder. Nevertheless, target firms have incentives to increase pre-merger earnings to push the total consideration of the agreement up. Existing literature (Campa & Hajbaba, 2016; Elnahas et al., 2017) demonstrates that targets firm do manipulate before takeovers especially by cutting discretionary expenses.

For acquisitions involving earnout as method of payment Viarengo et al. (2016) provide evidence that there is a negative relationship between earnings management and the inclusion of earnout in the acquisition. Therefore, acquirers, which want to include earnout in the acquisition deal will manipulate less to show higher earnings quality. This means acquirers' past earnings quality is a proxy of the acquirer's reliability for the target. When examining the role of target earnings management in earnout acquisitions, Elnahas et al. (2017) highlight that, after the settlement of the deal, target companies manipulate earnings by cutting discretionary expenses during the earnout period.

3. Research Hypotheses

Previous studies suggest that companies manage earning prior to stock-for-stock mergers (Erickson & Wang, 1999; Louis 2004). It is known that companies engage in manipulating activities to alter the total consideration of the transaction. Moreover, prior to M&A deals, acquirers and bidders try to inflate their earnings, share price as much as possible to affect the total deal value.

There can be significant differences in the degree of manipulation when we look closer at the financial health of bidders. Following the study of Linck et al. (2013) constrained acquirers ease financial constraints to obtain more funding and to be able to pursue with investments. Considering the acquisition as a valuable

investment opportunity (otherwise bidders would not follow M&A), constrained bidders should report higher levels of earnings manipulation (via accruals and discretionary expenses) compared to unconstrained bidders.

For this, we would expect a higher level of earning manipulation by constrained acquirers than unconstrained acquirers.

Therefore, we hypothesize our hypothesis as follows:

H1: Acquirers that are financially constrained are associated to higher level of earnings management before the acquisition via accruals and discretionary expenses.

The second hypothesis which is going to be tested is linked to the earnout payments. Earnout contracts, despite being complex to design and to use, effectively help to mitigate some of the risks involved in acquisitions such as the valuation gap between bidders and acquirers and the adverse selection risk. These risks are more pronounced when such transactions involve a public bidder and a private target. As accurate financial and accounting information are particularly hard to obtain, linking part of the total consideration to a contingent payment eliminates part of the valuation risk. Method of payments such as all-cash, all-stock and mixed payments cannot effectively reduce the risk of overestimation of the target's equity value. For this reason, in presence of disagreement between both parties (Kohers & Ang, 2000), due to the high information asymmetry on the real value attributed to the target, the two companies could decide to include the earnout in the deal.

Earnout as method of payment reduces the incentive and level of earnings management as it reduces the information asymmetry and facilitates valuation of the target firm (Viarengo & Prencipe, 2016) which in our case is private or a subsidiary.

Following the idea of Viarengo et al. (2016), targets carefully monitor the earnings quality of an acquirer prior to the acquisition to control that the acquirers will be able to meet the pre-specified earnout requirements. A higher level of earnings quality (meaning less earnings manipulation), prior to the deal, signals a greater level of confidence in the bidder from the side of the target.

Therefore we hypothesize our hypothesis as follows:

H2: Acquisitions that include earnout are associated to lower levels of earnings management in the acquirer's past financial statement (both via accruals and discretionary expenses).

The third hypothesis is looking at the earnings manipulation in earnout acquisitions which include extreme cases of uncertainty. This includes acquisitions where bidders and targets are not in the same industry (diversification), operating in different countries (foreign) or where targets are private companies (private). Prior research (Vasilescu & Millo, 2016) dealing with target companies highlights that there is a difference between industrial and geographic diversification when it comes to the degree of information asymmetry. Their results suggest that geographic diversification is related to a higher degree of earnings manipulation; however the results are not statistically significant. Other studies suggest that (Barbopoulos, Paudyal, & Sudarsanam, 2017; Cain et al., 2011; Kohers & Ang, 2000) earnouts are particularly useful in deals involving high level of asymmetry of information. These deals are considered to be of higher risk, thus companies prefer to be protected against adverse post acquisition performances. Based on the idea of Viarengo et al. (2016) bidders using earnout, in these acquisitions, will show higher past earnings quality to show their trustworthiness.

Therefore, the third hypothesis states as follows:

H3a: Cross-border acquisitions (compared with same-border) that include earnout are associated to lower levels of earnings management in the acquirer's past financial statement (via both accruals and discretionary expenses).

H3b: Diversified acquisitions (compared with undiversified) that include earnout are associated to lower levels of earnings management in the acquirer's past financial statement (via both accruals and discretionary expenses).

4. Econometric Method

4.1. Measuring earnings management

In order to evaluate the research hypotheses we have to quantify earnings management. Earnings management can be done via accruals and real activity management. Therefore we present two models: (i) The modified-Jones Model (1995) (ii) Roychowdhury model (2006).

The first model is the Modified Jones Model which captures discretionary accruals and includes the following key variables. Dechow et al. (1995) suggest that modified-Jones model provides the most powerful model for detecting earnings management. We estimate the model for each quarter and industry (measured by the two-digit SIC industry).

$$\frac{TA_{it}}{A_{it-1}} = \alpha + \sum_{j=1}^4 \alpha_j \frac{Q_j}{A_{it-1}} + \beta_1 \frac{(\Delta Sales_{it} - \Delta AR_{it})}{A_{it-1}} + \beta_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} ,$$

where TA_{it} defines total accruals for firm i in quarter t , $A_{i,t-1}$ defines total assets for firm i in quarter $t-1$, Q_j represents a binary variable that takes the value of one for quarter j and 0 otherwise, $\Delta Sales_{it}$ defines the quarterly change in sales for firm i in quarter t , ΔAR_{it} defines the quarterly change in accounts receivable for firm i in quarter t , PPE_{it} defines property plant and equipment for firm i in quarter t and ε_{it} defines the error term for firm i in quarter t which captures discretionary accruals.

This follows the notation of prior applied studies in the field of earnings management (Dechow et al., 1995; Viarengo et al., 2016; Elnahas et al., 2017) which also use lagged total assets rather than the assets average (Diri, 2017).

Accordingly total accruals are computed as the change in non-cash current assets minus the change in current liabilities plus the change in debt in current liabilities minus depreciation:

$$TA_{it} = \Delta ACTQ_{it} - \Delta CHEQ_{it} - \Delta LCTQ_{it} + \Delta DLCQ_{it} - DPQ_{it} ,$$

where $\Delta ACTQ_{it}$ represents the change in current assets total for firm i in quarter t , $\Delta CHEQ_{it}$ represents the change in cash and short term investments for firm i in quarter t , $\Delta LCTQ_{it}$ represents the change in current liabilities total for firm i in quarter t , $\Delta DLCQ_{it}$ represents the change in debt in current liabilities for firm i in quarter t , DPQ_{it} represents depreciation and amortization for firm i in quarter t .

The next step is to compute an estimate of discretionary accruals as the residual, e_{it} , of the modified-Jones model. Therefore, for each firm-quarter the estimate of non-discretionary accruals are computed using estimates of the coefficients.

$$\frac{\widehat{NDA}_{it}}{A_{it-1}} = \hat{\alpha} + \sum_{j=1}^4 \hat{\alpha}_j \frac{Q_j}{A_{it-1}} + \hat{\beta}_1 \frac{(\Delta Sales_{it} - \Delta AR_{it})}{A_{it-1}} + \hat{\beta}_2 \frac{PPE_{it}}{A_{it-1}} ,$$

where \widehat{NDA}_{it} denotes the estimate of non-discretionary accruals for firm i in quarter t . The difference between total accruals and the estimate of non-discretionary accruals represents the estimate of discretionary accruals:

$$\frac{\widehat{DA}_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} - \frac{\widehat{NDA}_{it}}{A_{it-1}} ,$$

where \widehat{DA}_{it} represents the estimate of discretionary accruals for firm i in quarter t .

The second model which is used is the RAM model (real activity management) regarding abnormal discretionary expenses. To estimate the RAM model we use the model defined by Roychowdhury (2006) where discretionary expenses are defined as the sum of R&D expenses, advertising expenses and sales, general and administrative expenses (SG&A). As well as for the first model, the model is estimated for each calendar quarter and two-digit SIC industry:

$$\frac{DisExp_{it}}{A_{it-1}} = \gamma_0 + \gamma_1 \left(\frac{1}{A_{it-1}} \right) + \gamma_2 \left(\frac{Sales_{it-1}}{A_{it-1}} \right) + \varphi_{it} ,$$

where $DisExp_{it}$ defines discretionary expenses for firm i for quarter t , $Sales_{it-1}$ defines sales for firm i in quarter $t-1$, φ_{it} defines the error term for firm i in quarter t , which captures abnormal discretionary expenses.

Following Roychodhury (2006) and Elnahas et al. (2017), we divide the variables by lagged total assets rather than by average assets (Diri, 2017). Then for each firm-quarter, the estimate of non-discretionary expenses is computed using the estimated coefficients:

$$\frac{ND\widehat{DisExp}_{it}}{A_{it-1}} = \widehat{\gamma}_0 + \widehat{\gamma}_1 \frac{1}{A_{it-1}} + \widehat{\gamma}_2 \frac{Sales_{it-1}}{A_{it-1}},$$

where $ND\widehat{DisExp}_{it}$ represents the estimate of non-discretionary expenses for firm i in quarter t . The difference between the actual and the non-discretionary expenses represents abnormal discretionary expenses:

$$\frac{AD\widehat{DisExp}_{it}}{A_{it-1}} = \frac{DisExp_{it}}{A_{it-1}} - \frac{ND\widehat{DisExp}_{it}}{A_{it-1}},$$

where $AD\widehat{DisExp}_{it}$ represents the estimate of abnormal discretionary expenses for firm i in quarter t .

After computing the discretionary accruals and abnormal discretionary expenses as the residuals of the respective equation, we are ready to evaluate the hypotheses described in Section 3. To do so, we estimate the following equations:

$$\begin{aligned} \left| \frac{\widehat{DA}_{it}}{A_{it-1}} \right| &= \theta_0 + \theta_1 Constrained_{it} \times Acqyear_{it} + \theta_2 Earnout_{it} \times Acqyear_{it} \\ &+ \theta_3 Earnout_{it} \times Acqyear_{it} \times Foreign_{it} \\ &+ \theta_4 Earnout_{it} \times Acqyear_{it} \times Diversif_{it} \\ &+ \theta_5 Earnout_{it} \times Acqyear_{it} \times Private_{it} + \theta_6 Size_{it} + \theta_7 Lev_{it} + \theta_8 BM_{it} \\ &+ \theta_9 ROA_{it} + \theta_{10} NegROA_{it} + \sigma_{it} \end{aligned}$$

$$\begin{aligned}
\left| \frac{\widehat{ADisExp}_{it}}{A_{it-1}} \right| &= \mu_0 + \mu_1 \text{Constrained}_{it} \times \text{Acqyear}_{it} + \mu_2 \text{Earnout}_{it} \times \text{Acqyear}_{it} \\
&+ \mu_3 \text{Earnout}_{it} \times \text{Acqyear}_{it} \times \text{Foreign}_{it} \\
&+ \mu_4 \text{Earnout}_{it} \times \text{Acqyear}_{it} \times \text{Diversif}_{it} \\
&+ \mu_5 \text{Earnout}_{it} \times \text{Acqyear}_{it} \times \text{Private}_{it} + \mu_6 \text{Size}_{it} + \mu_7 \text{Lev}_{it} + \mu_8 \text{BM}_{it} \\
&+ \mu_9 \text{ROA}_{it} + \mu_{10} \text{NegROA}_{it} + \omega_{it}
\end{aligned}$$

where $|\widehat{DA}_{it}/A_{it-1}|$ represents the estimate of absolute discretionary accruals for firm i in quarter t , $|\widehat{ADisExp}_{it}/A_{it-1}|$ represents the estimate of absolute abnormal discretionary expenses for firm i in quarter t , Acqyear_{it} is a dummy variable which takes the value of 1 if firm i is involved in an acquisition in quarter $t+1$, Constrained_{it} is a dummy variable, which takes the value of 1 if firm i is constrained in quarter $t-1$, 0 otherwise, Earnout_{it} is a dummy variable which takes the value of 1 if the payment method chosen by firm i for the acquisition of quarter $t+1$ is earnout, 0 otherwise, Foreign_{it} represents a dummy variable that takes the value of 1 if the target of firm i in the acquisition of quarter $t+1$ is not from the US, 0 otherwise, Diversif_{it} represents a dummy variable that takes the value of 1 if the target of firm i in the acquisition of quarter $t+1$ is in a different two-digit SIC industry, 0 otherwise, Private_{it} represents a dummy variable that takes the value of 1 if the target of firm i in the acquisition of quarter $t+1$ is private, 0 otherwise. Size_{it} represents the natural logarithm of total assets for firm i in quarter t , Lev_{it} represents the leverage measured as total debt divided by total assets for firm i in quarter t , BM_{it} represents the Book to Market ratio for firm i in quarter t , ROA_{it} represents return on assets calculated as Income before extraordinary items divided by total assets for firm i in quarter t , Neg_ROA_{it} represents a dummy variable that takes the value of 1 if firm i has a negative ROA in quarter $t-4$ and $t-8$, 0 otherwise.

The coefficient of $\text{Constrained}_{it} \times \text{Acqyear}_{it}$ will answer H1, of whether constrained acquirers manipulate more than unconstrained acquirers. The answer to the H2 is given by $\text{Earnout}_{it} \times \text{acqyear}_{it}$. To answer to H3a and H3b, the coefficients of

$Earnout_{it} \times Acqyear_{it} \times Foreign_{it}$ and $Earnout_{it} \times Acqyear_{it} \times Diversif_{it}$ are respectively examined.

5. Estimation Results

5.1. Data and Sample

The theoretical part of this work aims at better understanding how acquirers and more specifically constrained acquirers manage earnings prior and post acquisitions. Further, it puts light on the usage of the earnout contract as payment method and the role in the mitigation of earnings management.

Consequently, the sample consists of acquisitions of private targets or subsidiaries completed by United States listed/public companies between 01/01/1996 and 15/07/2014. The data for the acquisition dates as well as the countries of both bidders and sellers are obtained from the Reuters ThomsonOne database.

The sample is restricted to takeover bids where the acquirer is pursuing majority control (at least 50%) of the target. More specifically, for a bid to be included in the sample, several criteria must be met;

1. Acquirer is a U.S. company listed on NASDAQ or NYSE and has a market capitalization not less than 1 million US dollars.
2. Bidders and targets are not from financial services (SIC 6000-6999). This sector is dropped because of the heavy regulatory environment.
3. Target companies are not publicly traded but are classified as private or subsidiary. This restriction is applied in order to focus on acquisition deals where the asymmetry of information is heavier. As a consequence, the importance of earnout for mitigating the information problem is enhanced.
4. Payment methods are classified as only cash, stock, mixed payment a

combination of cash and stock and earnout.

Accounting information of the relevant variables are obtained from Compustat database. To estimate discretionary accruals and abnormal discretionary expenses, quarterly data are used whereas for the financial constraints criteria annual data are used.

5.2. Estimation of Discretionary Accruals and Abnormal discretionary expenses

To test the research hypotheses, discretionary accruals are calculated following the literature by using the modified Jones Model (1995) and the abnormal discretionary expenses are computed using the Roychowdhury model (2006). Using a model for each type of earnings management (Accruals and real activity management), we are able to get a broader understanding of the behavior of the acquirers.

5.3. Definition of constrained acquirers

Previous studies came up with several measurement criteria to classify a firm as constrained but overall there is no universally accepted classification. In this paper we will follow the classification proposed by Linck et al. (2013). Moreover, six measures of constraints are used to classify bidders in two groups.¹⁰

The first one is the SA Index suggested by Hadlock and Pierce (2010). The SA Index is composed as follow: $-0.737 \times Size + 0.043 \times Size^2 - 0.040 \times Age$, where Size is the natural log of book assets (in millions of dollars) and Age is the number of years, from the first year, a firm has a non-missing stock price in Compustat. The bottom (top) 30% is considered unconstrained (constrained).

¹⁰ See « Appendix A. Construction of annual constraints »

The second criterion is Net Leverage (Hadlock & Pierce, 2010; Kaplan & Zingales, 1997). Net Leverage is computed as net debt, sum of long term and short term debt minus excess cash, scaled by sum of net debt and shareholder's equity. Firms which experience negative net debt are classified as unconstrained.

The third criterion is the Free Cash Flow where top 30% of firms FCF are considered unconstrained. The free cash flow is obtained from the cash from operations minus average CAPEX in the past three years, scaled by the sum of long term and short term debt.

The next criteria are a company's bond rating (Almeida 2004), dividend payout ratio (Almeida, 2004) and operating cash flow (Hadlock and Pierce 2010). If a company has (has not) a bond credit rating it is considered as unconstrained (constrained). For the dividend payout ratio the top (bottom) 30% are considered unconstrained (constrained) which is also true for the operating cash flow.

For each firm, the six criteria are used and a point is attributed if a firm is constrained, zero otherwise. The constraint score is the sum of a firm's six criteria. A company showing a constraint score equal or above 3 is considered as constrained.

5.4. Descriptive statistics

The final sample consists of 753 acquisitions from 1996 until 2014. Table 1 shows descriptive statistics for the main variables adopted in the empirical analysis. The number of observations is equal to 31,341. By looking at the data of Table 1 the average bidder shows, in terms of lagged assets, 2.6% and 4% of absolute discretionary accruals and absolute abnormal discretionary expenses, respectively. In the sample, 0.5% of acquirers are constrained prior to the acquisition. Also, 0.5% of acquirers use earnout as payment method for the acquisition. The use of earnout is equal in acquisitions which involve industrial diversification as well as geographical diversification (0.1%). Table 1 shows that on average 0.4% of acquirers use earnout as payment method when the target firm is a private company. The average acquirer's size is of approximately USD 271 million dollars and has a level of leverage of 18.2% of total assets. The book-to-market ratio is relatively high (>1)

which indicates that the average acquirer is undervalued. Bidders on average report negative return on assets which indicates less assets efficiency. Lastly, on average 21.6% of the acquirers demonstrate two year of consecutive negative return on assets prior to acquisition.

Table 1- Descriptive statistics

Number of observations= 31,341

	Mean	Median	min	max
Absolute Dis Acc	0.026	0.017	0.000	0.247
Absolute Abn DisExp	0.040	0.030	0.000	0.437
Constrained x Acqyear	0.005	0.000	0.000	1.000
Earnout x Acqyear	0.005	0.000	0.000	1.000
Earnout x Acqyear x Foreign	0.001	0.000	0.000	1.000
Earnout x Acqyear x Diversif	0.001	0.000	0.000	1.000
Earnout x Acqyear x Priv	0.004	0.000	0.000	1.000
Size	5.601	5.560	0.005	11.774
Leverage	0.182	0.112	0.000	20.349
Booktomarketratio	3.800	2.152	-797.217	5603.074
ROA	-0.003	0.009	-4.553	3.114
Neg ROA	0.216	0.000	0.000	1.000

5.5. Preliminary analysis

Table 2 reports t-test results for absolute discretionary accruals and absolute abnormal discretionary expenses for the four groups of the research hypotheses. No statistical significance is reported in these preliminary results. The results for H1, related to the constrained and unconstrained group, suggest that constrained acquirers do not manipulate significantly more than unconstrained acquirers via accruals. However, the sign suggest that constrained acquirers manipulate less even if this is not statistically significant. Opposing, it seems that constrained bidders report higher absolute abnormal discretionary expenses prior to acquisition than unconstrained acquirers.

Acquirers which use earnout as method of payment present lower absolute discretionary accruals which moderately provide support for H2. Acquirers try to

show earnings quality to the counterpart (Viarengo et al., 2016). However, when examining the abnormal discretionary expenses, bidders using earnout show higher values than non-earnout bidders.

Looking at cross-border acquisitions which involve earnout as method of payment (variable foreign), acquirers have higher discretionary accruals and lower abnormal discretionary expenses. The mixed evidence leads to a partial rejection of H3a which stipulates that these acquisitions involve lower levels of earnings management. For H3b, which involve earnout as method of payment and industrial diversification, acquirers show lower level of earnings management for both, discretionary accruals and abnormal discretionary expenses.

According to the preliminary analysis, all of the hypotheses show mixed evidence and no statistical significance. The results suggest no differences in earnings management constrained acquirers and unconstrained acquirers as well as for bidders using earnout as method of payment

Table 2 - Preliminary analysis

T-test for key variables. P-values are reported between parentheses. The number of observation per group is the following: Constrained=155 Unconstrained=31,186. For Earnout=154 and Non-Earnout=31,187. Foreign=27 Non-foreign=31,314. Diversification=42 Non-diversification=31,299

	Panel A. Absolute Discretionary Accruals	Panel B. Absolute Abnormal Discretionary Expenses
Constrained	0.024	0.041
Unconstrained	0.026	0.040
Difference	-0.002 (0.376)	0.001 (0.794)
Earnout	0.023	0.045
Non-Earnout	0.026	0.040
Difference	-0.003 (0.132)	0.005 (0.173)
Foreign	0.028	0.034
Domestic	0.026	0.040
Difference	0.002 (0.792)	-0.006 (0.404)
Diversification	0.022	0.037
Same-Industry	0.026	0.040
Difference	-0.004 (0.364)	-0.003 (0.592)

5.6. Regression Results

Table 3 shows the results of the regressions shown in Section 4. For specification (1) the dependent variable is absolute discretionary accruals. The dependent variable for specification (2) is absolute abnormal discretionary expenses. To estimate the regressions, industry and year-quarter fixed effects are included. The latter ones are taken into consideration as variables are based on annual and quarterly data. Further, the regression results are reported using clustered standard errors for firms.

Overall, the results suggest a rejection of H1. There is no evidence that constrained acquirers report higher levels of earnings management in their past financial statements than unconstrained acquirers neither via discretionary accruals nor via abnormal discretionary expenses. The variable “Constrained × Acqyear” shows no significance for discretionary accruals and for abnormal discretionary expenses. Constrained bidders may be reluctant to manipulate more due to the risk and probability of being caught by a control authority. As stated by Dechow, Sloan, & Sweeney (1996) once a company has been identified to engage in earnings management, it is subject to penalties which ultimately increase the cost of capital worsening even more the financial situation. Furthermore, following the “demand hypothesis” (Hope et al., 2013) listed companies need to provide accurate and reliable accounting information to the stakeholders, which can be an additional reason why constrained acquirers do not engage more aggressively in earnings management. It seems that constrained acquirers prefer to accept a higher cost of financing rather than manipulating more. Moreover, constrained acquirers may opt for other payment methods which engender less earnings manipulation. Bates et al. (2018) shows that constrained bidders are more likely to use earnout compared to other methods of payments. According to Bates et al. (2018), earnouts are a source of financing for bidders with restricted access to external capital.

The coefficient estimate in specification (1) yields significant support to H2 with a significance of 5%. The result indicates that acquirers using earnout reduce earnings manipulation one year prior to acquisition. Acquirers using earnouts as method of payment are associated with lower levels of absolute discretionary accruals in the past financial statements. Therefore, the result indicates that companies increase

earnings quality (reduce manipulation) by having lower levels of absolute discretionary accruals. The result follows the idea highlighted by Viarengo et al. (2016) that acquirers try to show greater earnings quality to show that targets can trust the bidders' reported performances. As noted by the Viarengo et al. (2016), earnings quality of the bidder is a crucial determinant for the inclusion of earnout clauses in the transaction. From specification (2), the level of absolute abnormal discretionary expenses seems not to be different between acquirers (in general) that use earnout and acquirers that do not use earnout.

The results from specification (1) show no impact for H3a and H3b, meaning bidders using earnout in acquisitions where the target is foreign or diversified do not manipulate less via discretionary accruals. However, H3a as well as H3b are supported in specification (2) with a statistical significance of 5% and 10% respectively. This means that bidders using earnouts in acquisitions involving foreign and diversified targets have lower absolute abnormal discretionary expenses in comparison with bidders involved with non-foreign and non-diversified targets. As earnings management is considered to be an inverse proxy of earnings quality, (Viarengo et al., 2016) the bidder's past financial statements are a reliable source to evaluate a bidder's trustworthiness. The trustworthiness of the bidder gives to the target a positive signal which increases the probability of inclusion of earnouts in the acquisition deal. The use of earnout helps to bridge the valuation gap and reduces adverse selection risk which in case of diversifying and foreign acquisitions is more pronounced.

Table 3 - Regression results

This table reports coefficient estimates for acquirers' earnings manipulation. P-values are between parentheses. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels, respectively. N= 31,341. A constant is included for both specifications.

Variables	Absolute Discretionary Accruals (1)	Absolute Abnormal Discretionary Expenses (2)
Constrained x Acqyear	0,002 (0,487)	0,002 (0,523)
Earnout x Acqyear	-0,009** (0,037)	0,009 (0,181)
Earnout x Acqyear x Foreign	0,008 (0,146)	-0,014** (0,020)
Earnout x Acqyear x Diversif	0,001 (0,713)	-0,011* (0,091)
Earnout x Acqyear x Private	0,003 (0,481)	-0,005 (0,508)
Size	-0,004*** (0,000)	-0,004*** (0,000)
Leverage	0,006*** (0,000)	0,007* (0,064)
Book-to-Market	0,000 (0,266)	0,000* (0,081)
ROA	-0,025*** (0,000)	-0,055*** (0,000)
Neg_ROA	0,001 (0,183)	0,007*** (0,002)
Year-quarter fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
R-squared	0,112	0,166

6. Conclusion

While there is ample support on acquirers and targets engaging in earnings manipulation prior to the acquisition, this work contributes to the literature by examining if constrained acquirers manipulate more than unconstrained ones. Further it contributes to the growing literature of earnout use, specifically its role in reducing earnings management and increasing the earnings quality of an acquirer.

To do so, two models of earnings management are used; the first model involves accruals (Modified-Jones Model, 1995) and the second model focuses on the real activity management (Roychowdhury, 2006)

The results show no statistical evidence that constrained acquirers do manipulate more than unconstrained ones. This can be explained by the fact that constrained acquirers do not want to bear the risk of getting caught in earnings management leading to future penalties, thus worsening the financial situation.

The analysis also underpins the role of earnout in mitigating earnings manipulation. Earnout agreements are an instrument which helps to mitigate information asymmetry between both parties thus helping to bridge the valuation gap. Besides this, the results elucidate that acquirers using earnouts exhibit higher earnings quality thus sending a positive signal to the target company. The higher earning quality is obtained as bidders are engaging less in discretionary accruals manipulation whereas the real activity management model does not show any significant evidence. Lastly, it has been shown that bidders using earnout in foreign and diversifying acquisitions, show lower levels of earnings manipulation compared to acquirers which are involved in domestic and same-industry acquisitions. In this case a higher level of earning quality is achieved as bidders using earnout report lower levels of absolute abnormal discretionary accruals.

To conclude, this work has shown that financial constraints are not an indicator of higher earnings manipulation. Plus, it highlights the usefulness of earnouts in reducing earnings management (via accruals and real activity management) in the acquirers' financial statements, thus resulting in higher level of earnings quality.

Future studies can examine whether the size of an acquirer, which uses earnout as method of payment, has an impact on its earnings quality and earnings management practices.

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Appendix

Appendix A.

Construction of Annual Constraint Measures		
Criterion	Definition	Classification
SA Index	$-0,737 \times \text{Age} + 0,043 \times \text{Size}^2 - 0,040 \times \text{Age}$	Top (bottom) 30 percent firms are constrained (unconstrained)
Net Leverage	Net Debt/ (Net Debt + Equity)	Firms with negative Net Debt are unconstrained
Free Cash Flow	(Cash Flows- Ave.Past Investment)/ Total Debt	Bottom (top) 30 percent firms are constrained (unconstrained)
Bond Rating	Firm's bond credit rating	Firms without (with) credit ratings are constrained (unconstrained)
Dividend Payout Ratio	Dividends/ Net Income	Bottom (top) 30 percent firms are constrained (unconstrained)
Operating Cash Flows	Operating Cash flows/ Lag(PPE)	Bottom (top) 30 percent firms are constrained (unconstrained)
Constraint Score	Sum of constraint variables (SA Index Net Leverage...)	Firms with a score of three or more are constrained.

Definition of accounting items

Age	Number of years from the first year that a firm has a stock price in Compustat
Ave. Past Investment	Average(Capex) -1 to -3
Cash Flows	OANCF
Operating Cash Flows	IB + DP
Property Plant and Equipment	PPENT
Total Debt	DLTT + DLC
Net Debt	DLTT + DLC - Excess Cash
Excess Cash	CHE - Max[LCT-(ACT-CHE),0]
Dividends	(DVC+DVP)/Lag(PPENT)
Equity	SEQ
Net Income	NI
Size	AT
