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**"EARNINGS MANAGEMENT IN M&As: AN EMPIRICAL APPROACH
APPLIED ON A STOCK – FOR – STOCK M&A DEAL"**

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Firma dello studente _____

A mia nonna Rita.

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Abstract

This thesis analyzes how stock-for-stock M&As influence the use of income increasing EM in the period prior to such a merger or acquisition. This examination is done by performing computations of some diagnostics developed by Penman (2013) on a recent case of M&A deal announced on 2018 and closed in 2020. Firstly, this study provides the application of Penman's approach to the acquirer's side going through the reclassification of the balance sheet in order to highlight and separate the operating section. Thereafter it provides the same for evaluating the target's side, to check if there could be some possibility of EM from both perspectives. This study contributes to existing literature by providing evidence on EM that may be valuable for investors, analysts, directors and shareholders.

Key words: EM; M&A; stock-for-stock mergers; mergers; acquisitions; manipulation; value creation.

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1. Introduction

The EM phenomenon in case of M&A deals has become a widely discussed topic in the past few years, as a consequence of financial scandals occurred in recent times. Understanding what it is and what are the reasons for its use is fundamental for investors, analysts and for all the stakeholders involved in certain processes and transactions. In particular, the main source of information for these subjects is represented by the financial statements, through which the corporate disclosure is made public, essential for them to build a clear image of the company, its business, its strategy and financial situation. Theoretically, companies should select accounting methods and procedures to make estimates that reflect their performance in the most neutral and unbiased possible way.

However, the relationship between investors and managers does not appear to be, in most cases, characterized by transparency and this is where the possible presence of earning manipulation comes into play, in order to meet investors' expectations and at the expense of a truthful and reliable reported information.

Financial economists, regulators and accountants have long recognized that managers exercise discretion over accounting rules to manipulate their firm's earnings in many contexts, but there is a situation in which, according to the most part of researchers, EM is widely applied. This situation regards the stock for stock type corporate merger.

Understanding which companies make use of manipulation is one of the most difficult challenge for analysts and therefore numerous methods have been implemented to carry out this examination. These methods very often do not aim to express decisive judgments on the presence of EM phenomenon, but simply allow analysts to focus their attention on situations that could prove to be suspicious. This particular attention is justified with the absolute need to deduce, from the limited companies' disclosures, the real value of the firm and its assets. From this point of view, the literature provides numerous analysis models, both quantitative and qualitative, which, through an in-depth consultation of financial statements, allow to summarize the main aspects, to eventually recognize the presence of manipulation.

This thesis aims to analyze how stock-for-stock M&A influence the use of income increasing EM in the period prior to such a merger or acquisition, through the application of a specific operating method.

Particularly, the remainder of this thesis is organized in the following manner. The second section provides at first some theoretical background on the M&A phenomenon, and gives an

analysis of existing literature, about what determines the success and the creation of values in such type of deals.

In the third section the literature dedicated to the EM phenomenon will be analyzed to define this practice in all its different shapes through the contribution of various authors, determining its motivations and techniques. Thereafter the literature on the presence of EM in case of M&A deals will be scrutinized. Finally, the statistical approach through which the phenomenon was studied by analyzing its main models is also presented.

The fourth section provides information about the methodology of this research with the aim of transposing this theoretical analysis into a pragmatic analysis. So, we focus on a particular method developed by Stephen H. Penman, which will be explained and analyzed in detail, after which section five shows the results of its application. Finally, a conclusion is provided.

2. M&As phenomenon: a theoretical overview

An M&A deal could be analyzed as a system. A system needs to be internally consistent and therefore its parts need to fit together in a sensible way. Moreover, it must anticipate the side effects, giving the deal designer a wide-angle perspective by encouraging him to look out for the cumulative effect of tinkering (Bruner, 2004).

An M&A can be defined as the blend of two or more companies into one new company or corporation. The main difference between the two mentioned lies in the manner in which the combination of the companies is carried out (Moskovicz, 2018).

The term M&A refers to a number of different types of transaction. In almost every M&A transaction there is an acquirer firm and an acquired firm. In the typical merger the Bidder absorbs the Target. Bidder acquires all of the assets and liabilities of Target, which ceases to exist. This kind of transaction is also called **forward merger**. In a **reverse merger** it is the Target absorbing the Bidder. There is also another type of merger, called **consolidation** with which an entirely new firm is created (Newco) and both the Target and the Bidder cease to exist (Iannotta, 2010).

Merger is the combination of two companies usually by a mutual agreement that form an entirely new company. Mergers happen for a number of reasons and in a number of ways.

There are five commonly referred to types of business combinations known as mergers: horizontal merger, vertical merger, conglomerate merger, congeneric merger and market extension merger. The term chosen to describe the merger depends on the economic function, purpose of the business transaction and relationship between the merging companies (Hargrave, 2019).

- *Horizontal merger* occurs between companies operating in the same industry, typically done by competitors that want to consolidate in order to create a larger business with greater market share and economies of scale to reduce costs and maximize synergies.
- *Vertical merger* is when two companies operating at different levels within the same industry's supply chain combine their operations.
- *Conglomerate merger* can be subdivided into pure and mixed and describes the business combination between two firms operating in unrelated business activities. The main driver for such M&As is risk diversification.
- *Congeneric merger*, also known as a *Product Extension merger*, combines firms that operate in the same market with overlapping factors and happens when a new product line from one company is added to an existing product line of the other company. The major reason for this merger is to gain a larger market share.

- *Market Extension merger* occurs between companies that sell the same products but compete in different market that want to achieve a bigger client base (Hargrave, 2019).

Acquisition refers to the process through which the acquiring company gets a controlling interest in the share capital of the acquired company. In acquisitions, there is a change in management of the target company, but both the firms retain their separate legal identity (Godbole, 2013). In this case, no new company is created. When the Bidder purchases all or part of Target's stock the process is called *stock acquisition*. Alternatively, the Bidder can purchase all or part of Target's assets, that is *asset acquisition*. A transaction can be friendly or hostile. In a friendly transaction, managers of the Target welcome the deal. In contrast, in a hostile transaction (*hostile takeover*), the Target's management does not want to be acquired.

Bruner (2004) developed the ***structure-conduct-outcomes framework***, that according to him, does exercise on the M&A process. In particular, the direction of the influence starts from the structure that drives conduct and outcomes; and conduct shapes structure and drives outcomes. So, the success of an M&A deal is driven by the structure of the M&A opportunity one faces, as well as the conduct by which one pursue it (Bruner, 2004). Following his arguments, the elements of the ***structure*** include:

- *Economics of opportunity*, that are factors determining the financial risk and return of the deal;
- *Strategy*, that means analyzing the strategic position for the target and for the acquirer, drilling through the different scenarios of opportunities that the players in the "game" could encounter;
- The ability to integrate the *organizations* of the subjects involved in order to create real synergies. In fact, failures to integrate well the businesses can torpedo a deal that, on paper, looked like a winner;
- The *brand* is another important component in terms of ability of "*signaling*", through which the company is able to differentiate itself from the others. Specifically, in M&A context, personal brand assumes a key role, in the sense that people involved in the deal (like particular CEOs, financial advisors and managers) can exercise a very high influence on the outcome of the process.

The second important aspect highlighted is the ***conduct*** that plays a fundamental role in the "game". It is the intervention in the pursuit of good outcomes, when dealers must take strategic decisions. The conduct pervades all the aspects of an M&A deal, from the search for partners

to the due diligence, the negotiation process till the post-merger integration. But the whole scope of the M&A deal is its *outcome*, that needs to be benchmarked against the creation of market value and the enhancement of the brand, as well as against an improved strategic position and the reaching of a certain financial stability. Last, but not least, Bruner underlines the importance to be compliant to law and ethics. This is also linked to the concept on which all the thesis is developed, that is the level of honesty, duty and law observance looking at the deal from different angles.

2.1. Motivations for M&A activities

In literature many researchers went through different studies in order to test and prove the diverse motives behind the realization of this particular phenomenon, but, in general, we can say that there exist a series of the more prominent theories about why M&As happen. There are probably almost as many motives of M&As as there are bidders and targets. Some common motives include synergy, diversification, tax considerations, management incentives or buying undervalued assets (Tarun et al., 2003). Although the rationale may differ from one merger or acquisition to another and linked to that, several theories developed that may describe the motives for M&A. Trautwein (1990) studied various theories regarding merger explanations and classified them into seven groups: efficiency, monopoly, valuation, empire-building, raider, process, and disturbance theory. Out of these theories first four are in the favor of the shareholders of the acquirer company. The next ones relate to the managers of the acquirer organization. Process theory considers a merger to be an outcome of processes and disturbance theory considers a merger to be a macroeconomic phenomenon (Bedi & Vij, 2017).

Berkovitch and Narayanan (1993) suggest three major motives for M&As: synergy, agency, and hubris. They provide a way to distinguish among these different hypotheses by looking at the correlation between target and total gains. It is discussed that this correlation should be positive if synergy is the motive, negative if agency is the motive, and zero if hubris is the motive. They found that synergy is the primary motive in M&As with positive total gains whereas agency is the primary motive in M&As with negative total gains.

In order for the synergies to be effectively connected to the creation of value, McLetchie et al (2010) from McKinsey research argue that acquirers should find a balance between traditional or “combinational” synergies and “transformational” synergies, in order to outperform over time. The former type of synergies relies on merging operations, resulting in scale economies and/or basic scope economies, as well as protecting value by ensuring business continuity

(commonly known as *operational* and *financial* synergies). These synergies are the least risky, easiest to quantify, and most easily managed with a repeatable process. The latter, on the other hand, typically unlock one or more long-standing constraints on a business. Indeed, they require a huge management's ability to deal with complexity, that is why they need to provide incentives with real upsides for a breakthrough performance.

As far as diversification is concerned as another motive that pushes M&As, Koller et al. (2015) state that diversification is intrinsically neither good nor bad; it all depends on whether the parent company is the **best owner for the businesses** in its portfolio. Some executives believe it could bring benefits of its own, such as more stable aggregate cash flows, tax benefits from higher debt capacity, and better timing of investments across business cycles. Yet there is a cost for these benefits in terms of complexity and bureaucracy leading the firm to a situation of underperformance compared to its competitors. In reality, going through different studies, they have not found any evidence that diversified companies actually generate smoother cash flows. Moreover, there is considerable evidence that acquisitions resulting in unrelated diversification frequently result in lower financial returns when they are announced than non-diversifying acquisitions (Akbulut and Matsusaka, 2010). This is due to the so called conglomerate or diversification discount, a measure that sometimes values conglomerates as much as 15% lower than more focused firms in the same industry. This can be caused by two issues. The first is that investors may find difficult to value different parts of highly diversified businesses; the second is that they may perceive this type of firms as riskier because they think that management most likely tend to be focused on extending their "empire" rather than to improve the performance (Koller et al., 2015).

2.2. M&As Value Creation

According to Koller et al. (2015) the strategic rationale for a value creating M&A should fit at least one of what they define as "Archetypes", that are not simply based on the mere concept of grow or strategic positioning, but they try to translate these concepts in something more pragmatic. Moreover, the creation of value is strictly connected to the price of the transaction because the acquisition will not create value for the bidder if it overpays, even if the deal is consistent with one or more of the following six archetypes:

1. ***Improve the performance of the target company*** refers to the action of acquisition of a company that allows to increase its margins and cash flows through the reduction of costs. This is often pursued by *Private Equity* firms which have a clear investment focus (in terms of industry and company size) so they know since the beginning in what industry they want

to invest because they have a certain knowledge of the sector. Investment objectives could range between high growth, restructuring and mature companies. They focus on *financial optimization*, both in terms of performance and cash flow generation (so optimizing working capital, financial structure, revenue growth). They cannot improve the value of the company through synergies, but they can only improve performances. This is easier when the target has low margins and low return on invested capital (ROIC).

2. ***Consolidate to remove excess capacity from an industry.*** This strategy is intended for companies that are in a mature phase of their business life cycle, in industries where the production is higher than the demand; or in order for them to avoid a price war reducing the competition in the specific industry. The consolidation does not come without some cons, because while there is substantial value to be created from removing excess capacity, this value often accrues just to the seller's shareholders, not considering the target's ones. In addition, there could be a problem of free riding in the extent to which all the other competitors in the industry may benefit from the capacity reduction without having to take any action of their own.
3. ***Create or accelerate market access for the target's (or, in some cases, the buyer's) products.*** This is the case of relatively small companies that need to gain access to the potential market for their products or services. Therefore, bigger companies can largely profit from this situation. In other cases, the target's company may provide to the bidder a faster access to new markets.
4. ***Acquire skills or technologies more quickly or at lower cost than they could be built in-house.*** This strategy consists of acquisitions made mostly by technology-based firms eager to buy other companies with technologies they need to enhance their own products. This is way faster and less expensive than developing the technology internally, and allows to avoid royalty payments on patented technologies, gaining a better position in terms of competitive advantage.
5. ***Exploit a business's industry-specific scalability.*** As said before, economies of scale are considered a key source of value creation in M&A. This is generally true when a large company buys a smaller one, but not in the case in which the two companies involved in the deal are already operating on scale. For an acquisition to create value, economies of scale have to be unique, that is why general rationale as back-office savings may be not a good reason to go for it.
6. ***Pick winners early and help them develop their businesses.*** The final strategic rationale involves making acquisitions early in the life cycle of a new industry or product line, long before most others recognize that the industry will grow to a large size. This involves the

management of the bidder to get exposed on three different sides: it needs to be willing to risk, ready to accept a potential failure and to have the skills and patience to nurture the acquired businesses (Koller et al., 2015).

A question that pops up in mind when thinking about M&As is whether it pays or not. For many consultants like Grubb and Lamb (2000), M&As simply destroy value:

“[T]he sobering reality is that only about 20 percent of all mergers really succeed. Most mergers typically erode shareholder wealth...the cold, hard reality that most mergers fail to achieve any real financial returns...very high rate of merger failure...rampant merger failure...”

Bruner (2002) states that the scientific research and numerous studies do not support the aforementioned view. One possible reason for the disparity between popular perception and scientific findings is confusion about what it means for an investment “to pay.” According to Bruner an *“investment is successful if it does anything other than destroy value”*. In order to assess if a deal is good or bad, he uses the “investor required return”¹ as a benchmark, against which three different output can be defined:

1. *Value conserved*, when no new value is created, therefore the investments return is equal to required return. Investors earns “normal” returns and the investment has a net present value of zero.
2. *Value created*, when new value is created and the return on investment is higher that the required return.
3. *Value destroyed*, when investments return is less than required return and therefore investors bear a loss in value.

Going to the core of this concept, Koller et al. (2015) state that acquisitions are a good example of the *conservation of value* principle. They create value when the cash flows of the combined companies are greater than they would have otherwise been. If the acquirer doesn’t pay too much for the acquisition, some of that value will accrue to the acquirer’s shareholders. More specifically, the value received by the acquirer equals the intrinsic value of the target company as a stand-alone company plus the present value of any performance improvements to be achieved after the acquisition, which will result in an increase of cash flows for the combined

¹ IRR: return investors could have earned on other investment opportunities of similar risk.

firm. The price paid is the market value of the target plus any premium required to convince the target's shareholders to sell their shares to the acquirer (Koller et al., 2015):

$$\begin{aligned} \text{Value Created for Acquirer} = & (\text{Stand Alone Value of Target} \\ & + \text{Value of Performance Improvements}) - (\text{Market Value of Target} \\ & + \text{Acquisition Premium})^2. \end{aligned}$$

Having said that, what really matters for investors and for the shareholders potentially involved in a deal is to understand whether they can capture some profitability from the potential transactions. Bruner (2002) summarizes four different types of approaches used in the researches that provide a measurement for M&As profitability. These are:

1. **Event studies:** These examine the abnormal returns to shareholders in the period surrounding the announcement of a transaction. The raw return for one day is simply the change in share price and any dividends paid, divided by the closing share price the day before. The *abnormal return* is simply the raw return less a benchmark of what investors required that day—typically, the benchmark is the return calculated by the capital asset pricing model (CAPM) or quite simply the return on a large market index, such as NIFTY (Bruner, 2002). These studies are regarded to be *forward-looking* on the assumption that share prices reflect the present value of expected future cash flows to shareholders and allows to directly measure the value created for them. A drawback of this approach is that it requires to formulate significant assumptions regarding the functioning of the stock market: efficiency, rationality, and absence of restrictions on arbitrage.
2. **Accounting studies:** These examine the reported financial results of acquirers before, and after, acquisitions to see how financial performance changed. They are structured as matched-sample comparisons, matching acquirers with non-acquirers based on industry and size of firm and the question is whether the acquirers outperformed their non-acquirer peers. An important strength of this approach is the credibility; indeed, it is used a lot by investors to have a general overview of the company they are dealing with. Moreover, it is based on numbers that somehow you can prove or check, and it is an indirect measure of economic value creation. Of course, there are some not negligible cons: first of all, this approach is forward looking; secondly, it could happen that different accounting policies are adopted by companies throughout different years or accounting standard could vary among

² Koller et al., 2015

countries. A particular drawback can also be the low quality of accounting disclosure, that will be furtherly discussed later on.

3. **Surveys of executives:** These present a sample of executives with a standardized questionnaire, in which they are asked to state if the acquisition created value or not. On the one hand it allows to yield insights into value creation that might not be known in the stock market; on the other hand it gives voice to the managers perspective that are surely not free from bias, and that could be aligned or not to the shareholders' perspectives (recalling Jensen and Meckling Agency problem). Typically, surveys have a low rate of participation (2-10%) that makes them subject to criticisms of generalizability.
4. **Clinical studies:** these are focused on a deep analysis of the deal that allows to find new insight by drilling down into the details of the transactions. It is an *inductive* type of research, objective and capable of discovering new patterns. The downside is that reports could be idiosyncratic making it difficult for the reader to abstract and generalize a concept from one or more studies (Bruner, 2002).

2.3. The drivers of profitability

Whether an M&A will pay or not is strictly related to the degree of “focus, consistency and professionalism” with which the acquirer manages the deal and, subsequently, how it runs the combined entity. This is connected to the *best owner principle*, that refers to that owner which possess distinctive skills, resources, technologies, links to other important players and finally able to exercise the best governance required for its particular business. The definition of *best owner* is not static, and best owners themselves will change over time as a business's circumstances change. Thus, a business's best owner could at different times be a larger company, a private-equity firm, a government, a sovereign wealth fund, a family, the business's customers, its employees, or shareholders whenever a business becomes an independent public company listed on a stock exchange (Koller et al., 2015).

In line with this concept, Campbell (2002) talks about the so-called *parenting advantage*. He states that normal firms with sound corporate strategies create value from the parent's skills and the target's needs, but the best companies have an added value, that is the ability to be the best owner for the target in order to create more value than competitors would (Campbell, 2002).

According to Ferrer et al. (2013) from McKinsey, the best acquirers are those that have the following capabilities, which are fundamental in order to keep and build a sustainable competitive advantage overtime:

- ***Engage in M&A thematically***: the ability to focus on maximum two or three explicit M&A themes to develop the corporate strategy through business plans that consider both M&A and organic strategies to achieve specific purpose. Priority themes are very accurate and are those where the company needs M&A to deliver its strategy and have the ability to add value to targets.
- ***Manage reputation as an acquirer***. Companies that invest in their reputation as acquirers are perceived as bold, focused on collaboration, and able to provide real mentorship and distinctive capabilities for the target. Enhancing their reputation makes them able to gain a not negligible competitive advantage, facilitation the integration process and reducing the chances of bidding war.
- ***Confirm the strategic vision***. The financial due diligence is reinforced with a strategic due diligence. That is, given the additional information available after the letter of intent, managers can better assess the feasibility of their scopes and strategy, as well as seeing whether their vision of the future operating model is actually achievable.
- ***Reassess performance improvement targets***. Successful acquirers revise expectations on performance improvements once they discover more about the targets during the integration process. This allows them to update their objectives and set their sights higher and higher to develop the deal to its maximum potential. In order to do that, the due-diligence estimates need to be considered as the lowest acceptable performance improvements.

The best acquirer is the one who is able to develop systematic institutional skills in defining its M&A strategy, enhancing its reputation as an acquirer, and constantly looking for new value creation opportunities, to improve the combined entity's performance.

Bruner (2002) went further with his researches and came out with a very interesting outlook on which are the main drivers of profitability in M&As. These are the followings:

- ***Value acquiring pays, glamour acquiring does not***. Rau and Vermaelen (1998) found that Value-oriented buyers (low book-to-market ratios) outperform glamour buyers. They discovered that post-acquisition underperformance by buyers was associated with "glamour" acquirers, so bidders focused on dealing with companies with high book-to-market value ratios (Bruner, 2002).
- ***M&A to build market power does not pay***. Studies by Ravenscraft and Scherer (1987), Mueller (1985), and Eckbo (1992) reveal that efforts to enhance market position and therefore to reduce the competitive forces through M&A does not improve the performance

of the firm combined. Moreover, Stillman (1983) and Eckbo (1983) find that share price movements of competitive rivals of the buyer do not conform to increases in market power by buyers.

- ***Expected synergies are important drivers of the wealth creation through merger.*** Houston, James and Ryngaert (2001) studied the association of forecasted cost savings and revenue enhancements in bank mergers and found a significant relationship between the present value of these benefits and the announcement day returns. The market appears to discount the value of these benefits, however, and applies a greater discount to revenue-enhancing synergies, and a smaller discount to cost-reduction synergies. DeLong (2003) also studied bank mergers and found that investors responded positively to mergers where one partner was inefficient, and where the merger focuses on geography, activity, and earnings.
- ***Paying with stock is costly; paying with cash is neutral.*** Researches done by Koller et al. (2015) show that, on average, an acquirer's stock returns surrounding the acquisition announcement are higher when the acquirer offers cash than when it offers shares. Assuming that the acquirer is not capital constrained, the real issue is whether the risks and rewards of the deal should be shared with the target's shareholders. When the acquiring company pays in cash, its shareholders carry the entire risk of capturing synergies and overpaying, whereas if the companies exchange shares, the target's shareholders assume a portion of the risk (Koller et al., 2015). Asquith et al. (1987) found that stock-based deals are associated with negative returns to the buyer's shareholders at deal announcements, whereas cash deals are zero or slightly positive. This finding is consistent with theories that managers time the issuance of shares of stock to occur at the high point in the cycle of the company's fortunes, or in the stock market cycle. Thus, the announcement of the payment with shares could be taken as a signal that managers believe the firm's shares are overpriced.
- ***M&A to use excess cash generally destroys value except when redeployed profitably.*** Cash-rich firms have a choice of returning the cash to investors through dividends, or reinvesting it through such activities as M&A. In general, M&A transactions made by firms with excess cash are considered as value destroying activities. However, Bruner (1988) reports that this action creates value. Indeed, the return to the buyers' shareholders increases with the change in the buyer's debt ratio (that was lower before the merger) due to the M&A.
- ***When managers have more at stake, more value is created.*** Studies suggest that returns to buyer firm shareholders are associated with larger equity interests by managers and employees. Agrawal and Mandelker (1987) found that lower equity investment by

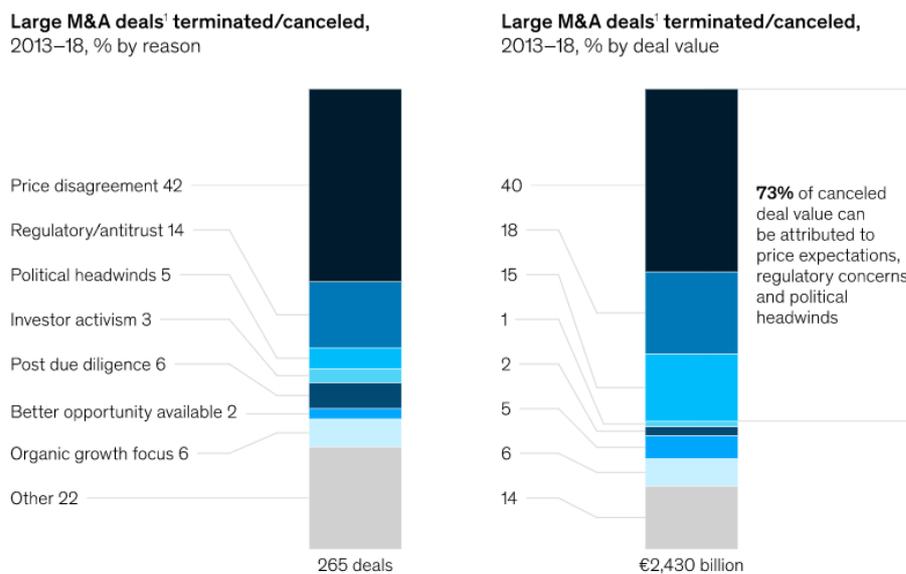
managers in their own firms was associated with higher propensity to undertake variance-reducing acquisitions. You et al (1986) found that announcement returns to bidders were lower, the lower the managers' equity stake in the buyer firm. Another interesting finding is that LBOs, in which managers tend to commit a high portion of their wealth in it, create value for buyers, not only from tax savings due to debt and depreciation shields, but also significantly from efficiencies and high operational improvements implemented after the LBO.

2.4. Fail in crossing the finish line

With the title of this section, I quote an article by Bahreini et al. (2019) from McKinsey. The researchers show that many large mergers and acquisitions are left before closing up the deal. The consequences of deal abandonment can be severe, affecting both the reputation and share price of the parties involved. Besides companies incurring the obvious one-off costs like advisory and termination fees, there is a reputational issue because senior managers in these businesses are often perceived as having wasted precious time and resources pursuing a strategic path that turned out to be a dead end (Bahreini et al., 2019).

After having reviewed a data set of 2500 deals that were announced between 2013 and 2018 and valued at more than €1 billion, they found that 265 canceled deals of varying sizes, industries, and geographies. The reasons for termination were different like for example interference from activist investors (about 3 percent of the deals). But the most cited obstacles were *mismatched expectations around synergies and value creation, regulatory concerns, and political issues*, such as the introduction of new laws that directly or indirectly affected the businesses involved (see *Figure 3*).

Figure 1: Deals are canceled for a range of reasons.



Source: McKinsey analysis

In order to get deals over the finish line they suggest three core principle to be kept in mind: be more transparent in deal communications, anticipate trade-offs coming out of regulators' concerns, and actively monitor the political landscape.

Transparency helps to avoid misunderstandings that most of the times appear just before or during the due diligence stage where prices are set, and investors are looking forward to seeing how the process is working out. To enhance the transparency, whenever possible, it is preferable to have simpler structures for transactions that should be favored over more complex ones, either all cash, or all shares.

Anticipate trade-offs coming out of regulatory concerns. When starting the process for an M&A deal it is fundamental to consider this aspect, especially for companies that have substantial market shares and that own important industry-standard-setting licenses, permits, processes, and technologies. These will inevitably attract close attention from regulatory agencies and therefore they need to analyze market scenarios and look at how regulators have treated similar industry deals in the past.

Actively monitor the political landscape. It pays for acquirers to undertake a formal “market intelligence scan” early in the life cycle of the deal to get a sense of key issues relating to jobs, taxes, and investment trends in relevant regions or countries, making use of external-communications and investor-relations professionals in the company. This because governments may want to interfere in the deals for national security issues (particularly in sensitive industries such as defense) and financial concerns (for instance, keeping a large employer in a structurally weak region) (Bahreini et al., 2019).

The reasons for M&A failures are not perfectly framed and limited because of the fact that the deals could be affected by numerous factors and risks that could be many like operational risks, market risks, counterparty risks, etc. Among a wide range of causes, Petitt and Ferris (2013) exhibit five principal explanations for value destruction due to errors occurring in the due diligence investigation, in the bidding process, or in the post-acquisition integration of the target (Petitt et al., 2013). These are:

- Overestimation of the target's value primarily caused by an overestimation of the growth and/or market potential (a forecasting error problem).
- Overestimation of the expected synergies (another forecasting error problem).
- Overbidding and overpayment, which is often a consequence of management's hubris. This risk increases when several bidders are competing for the target because this heightened competition gives the target more bargaining power to negotiate a higher offer price and, thus, premium.
- Failure to undertake a thorough due diligence of the target.
- Failure to successfully integrate the target after the merger or the acquisition (Petitt et al., 2013).

In his "*Deals from Hell*", Bruner (2005) stresses the attention on the other side of the coin, in the sense that every bidder should concentrate on the pragmatic strength of research before approaching to a deal. He believes that all M&A is local, since the practical value of M&A research lies in the insights it offers about the local conditions associated with the creation or destruction of value. Therefore, he thinks it is all about really drilling through the various aspects that characterize the whole environment in which the deal is taking place. Applying a critical thinking is fundamental for executives in order to tilt the odds of success in their favor. Bruner suggests some situations in which the transactions (from the bidder's perspective) is more likely to fail. These are the following:

1. *When the organization enters a fundamentally unprofitable industry or refuses to exit from one.* It is very important for a CEO not to be blotted out when listening to assertion about "strategic" value of an M&A transaction, in order to avoid some pitfalls like glamour acquisition, that in the short term would seem profitable, while might be value destroying in the long run. Therefore, a constant rethinking and research about positioning the firm in the most strategy way is required in order to boost the profitability.
2. *When the organization steps far away from what it knows.* As stated before, focus and relatedness pay better than unrelated diversification. But this is not necessarily a rule,

because it could be that a company is specialized in managing a portfolio of unrelated businesses. Therefore, in more general terms, what matters is that a company keep focusing in what it is good at and put in practice what it knows better.

3. *When the economic benefits of the deal are improbable or not incremental to the deal.* Entering into the deep meaning of M&A process being aware that is fundamental not to think “at the margin” by asking what new flows of cash an acquisition will trigger or to imagine benefits that are highly improbable and treat them as likely. Indeed, if the investors have the perception of a “too far too be good” deal, that is hard to achieve in terms of value creation, they would heavily discount it.
4. *When the bidder fails to seek some economic advantage.* Bruner (2005) suggests that in very competitive contexts, like auctions or in purchasing public companies, it is more likely for the buyer to pay a higher premium. The same could happen when the target has a wide bargaining power, like in the case of a cross boarder transaction, because of entry barriers, knowledge of local markets and customs, and market power.
5. *When the organization is not very creative in deal structuring.* The returns on even a mediocre deal can be enhanced for the buyer through a powerful deal design., through the use of cash, debt financing, tax shields, staged payments, merger-of-equals terms, and earnout. In particular, an *earnout agreement* is a financial contract whereby a portion of the purchase price of a company is to be paid in the future, contingent on realizing the future earnings level or some other performance measure agreed on earlier. It may also be used to retain and motivate key target firm managers (DePamphilis, 2018). Bruner (2005) proved that the returns to buyers are higher when the payment is structured like this, compared to the returns in straight cash or straight stock deals and are larger in cases where the target’s management stays. In this sense, earnouts and other contingent payment structures can be viewed as providing stronger performance incentives for selling managers as well as a risk management device for the buyer (Bruner, 2005). The *mergers of equal*, instead, combine partners of roughly equal influence without the payment of a premium by one party to the other. They are typically mergers effected by an exchange of shares with a low or zero implied acquisition premium. Bruner (2005) found that, premiums in these deals are typically much smaller than those in other deals and also the absence of dominance of one side over the other, reduces the resistance in the target company, being beneficial for a better post-merger integration.
6. *When the organization has poor checks, balances, and incentives.* With this last concept Bruner (2005) sends a clear message to the top management of the buyer company, inviting them to ask themselves a simple but concise question: “*do you have skin in the game?*”.

No deal would cross the finish line if the board of directors is not keen on the proper delegation of decision authority. Moreover, the top executives should lead the team to *think like investors*, focusing on what really could enhance the returns for the entrenched players.

At the end, in literature there is not a univocal answer to establish if an M&A pays or not. It all depends on several factors that characterize each specific case and play a role that many times could lead to ambiguous situations. According to Bruner (2002), an M&A:

- **Does pay.** This answer is certainly justified for shareholders of target firms. Also, studies of targets and buyers *combined* seem to suggest these transactions create some joint value. But for bidders alone, there is no clear value creation; except for 20-30% of the deals, in the sense of earning returns significantly in excess of the opportunity cost of capital.
- **Doesn't pay.** This is true if the focus is only on bidders and define "pay" as creating material and significant abnormal value - this line of reasoning is behind statements that 60-70% of all M&A transactions "fail." But as it has been stated before the concept of failure is all a matter of how we define it, in fact investors should be satisfied if they earn their required return. Therefore, for Bruner (2002) the popular definition of failure is extreme. So, if we remain coherent with this view it can be stated that the 60-70% of all M&A transactions are associated with financial performance that at least compensates investors for their opportunity cost, and therefore the buyers earns at least what they need not to destroy value.
- **It depends.** Value is created by focus, relatedness, and adherence to strategy. Diversification (especially conglomerate), size maximization, empire building, and hubris destroy value. The key implication of these insights is that managers *can* make choices that materially influence the profitability of M&A, especially in dealing with integration post-merger. This has a huge impact on the performance of the combined company in order to create real value and a competitive advantage that can be sustainable over the time. (Bruner, 2002)

To conclude, Bruner (2002) stated that "**M&As do pay, but the buyer in M&A transactions must prepare to be disappointed. The distribution of announcement returns is wide, and the mean is close to zero**". As it has been said by the Nobel Laureate Milton Friedman: "*there is no free lunch*". This would be *caveat emptor* for the buyer in the sense that he must be aware that M&A is not always a money machine and "*may well not offer the major career-building event you wanted*".

3. EM in M&As: theoretical description of the phenomenon

A phenomenon that has more and more been discussed in literature in the past few years is “EM”. This section provides an analysis of the various theories around the phenomenon and the motivations leading to its application. Reference will be made to the most widely used manipulation techniques and how this practice could be used in M&As deals. Finally, in this section will be treated an overview of the most important statistical models developed in the academic context, to study the possible presence of opportunistic behavior by managers.

Mohanram defines EM as an “*intentional misstatement of financial statements*” (Mohanram, 2003, p. 1). In finance and accounting literature there are several definitions of EM, and it has been defined in many different ways, the differences in definition between researcher and academics reflect their opinion and hypotheses to explain the phenomenon, and motivations stand behind, as well as their own perceptions regarding the extent of such behaviour (Arkan, 2015). Schipper conceives EM as the targeted manipulation of disclosure in the financial reporting process by managers or shareholders having a particular interest in the company, with the aim of obtaining personal gain, in contrast to what should be the merely neutral function of this process (Schipper, 1989, p. 92). So, this definition is mainly based on the existence of information asymmetry in the “Principal-Agent” relationship (Jensen & Meckling, 1976). In this case, the “principal” is represented by the shareholder who provides capital to the company and does not have information that is clearly available to the agent, i.e. the manager who is responsible for managing these resources (Arkan, 2015).

According to Healy & Wahlen (1999), “Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports either to mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.” (Healy & Wahlen, 1999). This definition also emphasizes the opportunistic perspective of those who perform EM and highlights both the intention to mislead the stakeholders about the company's real economic performance, and the influence on the contractual consequences that depends on the accounting data reported. This definition refers above all to those contractual relationships, such as the remuneration contracts of the TMT (Top Management Team) and in particular of the CFO, which has the access to substantial internal information; or debt contracts for which it is necessary not to exceed certain limits in order not to incur penalties (the so-called *debt covenants*).

Fields et al. (2001) state that we are in the presence of EM when “when managers exercise their discretion over accounting numbers with or without restrictions. Such discretion can be either firm value maximizing or opportunistic” (Fields et al., 2001). Ronen and Yaari (2008) present an alternative definition of EM: “EM is a set of managers’ decisions that consists in not “knowingly” reporting the real situation and company performance in the short term, boosting the profits based on their discretion” (Ronen & Yaari, 2008). According to Ronen and Yaari, there is an objective result that could have been obtained from the neutral and appropriate application of the accounting principles and the managers are aware of this result, so if they have interests in concealing it, they are, in fact, “manipulating the profits” (Arkan, 2015). Then, depending on the purpose, these authors distinguish EM into beneficial, neutral or pernicious and explain the phenomenon by outlining a further classification, differentiating the EM under three labels:

- “*White*”: if the EM is used by taking advantage of the flexibility in the choice of accounting treatments, to communicate to external investors truthful internal information of which only managers are aware;
- “*Gray*”: if the EM is exercised by implementing an accounting treatment that could appear to be “opportunistic”, by maximizing only the interests of the directors;
- “*Black*”: when the EM is intended as a group of techniques designed to distort or, in any case, reduce the transparency of financial reports (Arkan, 2015).

Arthur Levitt (1998), president of the Security and Exchange Commission (SEC), argues that EM can take five different forms:

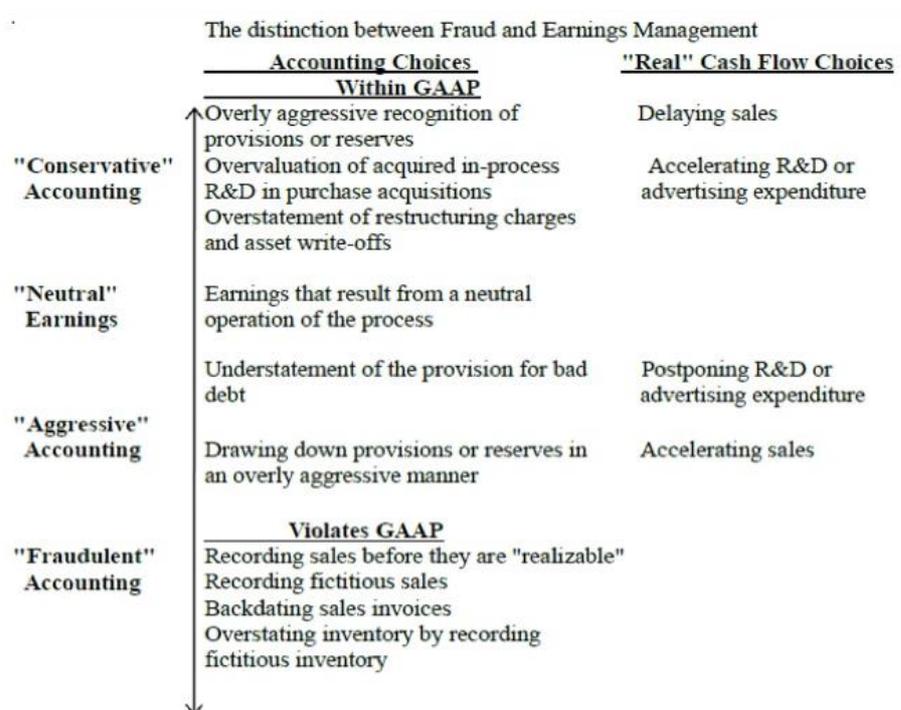
1. “**Big Bath**”: when companies present much lower profits than their peers, they could have an incentive to further worsen the results shown in the financial statements. First because, given the situation, it is unlikely for the company to reach the desired threshold; secondly, if the results are much lower than the set target, the costs of making the situation appear even worse are minimal (Mohanram, 2003). Typically, companies implement this technique by reporting higher restructuring costs during periods of structural change, as these costs are meant to be one-time expenses and, therefore, the negative impact on the share price is almost nil since the cost is considered as a disposable item. Within these charges, indeed, costs due to production, strategic or management inefficiencies could also be included; in addition, a company could increase restructuring costs by including future operating costs, resulting in a worse operating result. For example, this could be the case of a newly hired manager who presents the first financial statements with a large loss and attributes the

responsibility for this result to the old manager, and then reports better results in the following years to confer merit on his management (Levitt, 1998);

2. ***“Cookie jar reserves”***: when companies, on the other hand, exceed targets, they may still have an incentive to reduce profits, also in order to prevent the so-called “ratchet effect”. It occurs when the estimates of results are always higher if the company performance is very positive, and this leads to future expectations that it is not always easy to satisfy (Mohanram, 2003). EM, in this case, is identified in a dishonest accounting practice according to which the periods of good financial results are used to create “profit reserves” which are used in negative periods to “inflate” profits and reduce their volatility. Thus, giving investors the misleading impression that these results are consistent with the earnings targets. Therefore, the term “Cookie Jar” would allude to the fact that those who use this practice immerse their hands in the “cookie jar” of reserves whenever they feel like to do it, causing many problems in the case they get discovered by external subjects (Levitt, 1998);
3. ***“Creative acquisition accounting”***: occurs when there are consolidation or acquisitions and a significant part of the price or lower future profits are classified as research and development costs and, consequently, considered as one-off initial costs (*“One-time charge”*);
4. ***“Immaterial misapplication of accounting principles”***: when companies report incorrectly, and inaccurately certain balance sheet items considered irrelevant. This practice is often used to increase results (“bump up” practice), when profits are very close to reaching a certain target, so that the company meets the expectations of investors;
5. ***“Premature recognition of revenue”***: When companies report profits before sales have actually been completed or made, before delivery of the product to the customer or when the latter may have the possibility to postpone the purchase (Levitt, 1998).

Dechow and Skinner (2000) claim that there is no fully comprehensive definition of EM, yet they aim to mark the distinction between EM and fraudulent accounting (see *Figure 1*):

Figure 2: The distinction between Fraud and EM



Source: Dechow & Skinner (2000)

Each definition highlights two common aspects in the ways in which profits are manipulated:

- The first underlines how EM is characterized by a series of actions taken by managers with the specific purpose of altering the figures in the financial statements. It follows that the EM is different from unintentional errors that could be made, for example in the reporting of balance sheet data.
- The second characteristic shows that EM can be applied through the use of the company's accounting system or market transactions (Arkan, 2015).

3.1. Reasons and application techniques of EM

With their research, Watts and Zimmerman (1986) identify three main *hypotheses* liable to push managers to implement EM:

1. The ***hypothesis of the bonus plan*** (or Capital market expectations and valuation): where investors and analysts estimate the value of the shares by discounting the company's future cash flows; to do this they use the financial data shown in the financial statements and this

encourages management to manipulate profits, trying to influence the short-term performance of the company, as well as the share price;

2. The *hypothesis of debt covenants* (or contracts written in terms of “accounting numbers”): the reasons for entering into contracts are mainly based on the “Positive Accounting Theory³”. The company enters into contracts with a range of stakeholders, employees, suppliers, creditors and consumers, and one of the main objectives is to minimize contractual costs. These contracts are used by creditors and other stakeholders to protect themselves from the risk to not be paid back by borrowers. In fact, according to this theory, these “accounting numbers” are used in order to monitor the contractual agreements between managers and the various stakeholders (Skinner & Sloan, 2002);
3. The *hypothesis of political cost* (or anti-trust or other political regulations): concerns the reputation of the company, so companies could be incentivized to manipulate profits in order to obtain greater social weight and to gain visibility in political and media field (Arkan, 2015).

More recent researches on the phenomenon are no longer focused on the *Positive accounting theory*, but they consider reasons that are linked to the financial market as an interpretation of the opportunistic behavior of managers. Many researchers have highlighted the various motives that could incentivize managers to implement the practice of manipulating profits, and these can be summarized in five categories:

1. *Capital Market motivations*: since the information transmitted through the financial statements influences the stocks’ price of a specific company, the desire to meet investors’ expectations regarding the risk and return linked to company performance could lead managers to manipulate results (Arkan, 2015); as shown by Skinner and Sloan (2002), the market response to the failure in satisfying analysts’ expectations is asymmetric: specifically, the so-called “market penalty” for missing 1% of expectations seems to be relatively greater than the “market reward” of exceeding expectations by the same amount. In addition to these capital market’s considerations, managers are eager to meet or exceed investors’ expectations also for two other reasons: firstly, to improve their reputation within the market labor; and secondly to enhance their reputation towards the various stakeholder

³ *Positive Accounting Theory* makes predictions of real-world events and translate them to accounting transactions. While normative theories tend to recommend what should be done, Positive Theories try to explain and predict actions such as which accounting policies firms will choose and how firms will react to newly proposed accounting standards.

groups. By interviewing some financial executives, Graham et al. (2005) reported that approximately 75% of respondents agree on managers' tendency to manipulate results to maintain a high reputation level. The same survey documents that around 60% of the interviewees agree that maintaining the reputation of the company among the interested parties is a push factor for EM practice. In addition, 80% of respondents believes that failure to achieve earnings targets signals uncertainty in the market with respect to the company's forecasts, and 60% believes that failure to reach a certain target can be interpreted externally as a weakness. Accounting regulators expressed great concern about managers' "obsessions" in meeting short-term earnings expectations (Fang Li, et al., 2009). In 2000, SEC President Arthur Levitt declared: "I expressed my concern that corporate America's motivation to meet Wall Street earnings expectations could be overriding common sense business practices. The zeal to project smoother earnings from year to year cast a pall over the quality of the underlying numbers" (Levitt, 2000);

2. **Management compensation contract motivations:** when the manager acts in conflict of interest with the principal, with the aim of obtaining remuneration bonuses or increasing his compensation often linked to the company performance (Arkan, 2015);
3. **Lending contract (loan agreement) motivations:** it is linked to the hypothesis of "debt covenant" as creditors often impose restrictions on the payment of dividends, share repurchases and issue of additional debt with respect to those already reported, in order to guarantee the repayment of the loans by the company (Arkan, 2015);
4. **Regulatory motivations:** listed companies are generally monitored by authorities and subject to numerous accounting compliance rules. This could push managers to manipulate results in order to ensure compliance with the standards; this is the case for sectors such as banking, insurance and utilities (Arkan, 2015);
5. **Political cost motivations:** the companies could implement EM to show lower profits in order to reduce the risks of investigation and any intervention by anti-trust regulators (Arkan, 2015).

Very often it is difficult to discern manipulation from accounting fraud, in fact managers have various techniques and methods of manipulating results without necessarily violating accounting regulations, and this is possible due to the accounting standards' flexibility. In this sense, EM is defined as a selection of accounting techniques aimed at achieving a desired financial result (Fang Li et al., 2009). Accountants and managers have a wide range of methods and techniques of manipulating with numbers, records and statements through the flexibility of accounting rules and policies. The technique of EM can be defined as a method or a way of

selecting or violating accounting standards in order to affect financial events. EM techniques could take two forms (Ronen & Yaari, 2008):

- Accounting choices
- Accruals choices: which divided into two macro-categories:
 - a. Accruals based EM
 - b. Real transactions-based EM

a. *Accruals based EM*

Accruals represent the difference between net income and cash flows (for example, when companies sell items on credit, this sale forms an accrual of revenues). These are distinguished in:

- Normal or expected accruals (Non-Discretionary): which occur in normal transactions implemented by the company relating to its performance level, business strategy, industrial conventions and macroeconomic events (Arkan, 2015);
- Abnormal and unexpected Accruals (Discretionary): they occur through transactions and accounting treatments in order to manipulate profits, such as the evaluation of inventories using LIFO, FIFO and weighted average cost methods, depreciation of fixed assets, provisions and charges such as write-downs of real estate and receivables (Fang Li et al., 2009).

Numerous researchers highlight the existence of this practice and many studies have been conducted on it. In particular, Fang Li et al. (2009), show how public policies affect managers' use of each of these tools. They show, for example that, in the period preceding the Sarbanes Oxley Act, there was a greater use of manipulation based on accruals. The Sarbanes Oxley Act, passed in 2002 in response to the accounting scandals involving Enron, WorldCom, Arthur Andersen and others, is considered to be one of the most significant pieces of securities legislation since the Securities Acts of 1933 and 1934. The Act contains a number of provisions aimed at reducing the instances of financial accounting fraud that plagued the late 1990s and early 2000s (e.g., Tyco, HealthSouth, Enron, WorldCom, Global Crossing). These provisions include 1) the establishment of the Public Company Accounting Oversight Board (PCAOB) as an oversight body of the public accounting industry, 2) the requirement that all CEOs and CFOs certify that to the best of their knowledge the financial statements are free of material misstatement, and 3) the prohibition of auditors from providing non-audit consulting services to their audit clients; to name just a few (Fang Li et al, 2009).

In particular, Koh et al. (2008), investigate what are the implications on the practice of EM by managers following the entry into force of the Sarbanes Oxley Act, and this research shows the evident decrease in the use of manipulation techniques of profits in the periods following the accounting fraud of the late 1990s and early 2000s. Furthermore, the results indicate that attempts to meet investor expectations in the post-Sarbanes Oxley period are more associated with future cash flows. This suggests that the decrease in accruals-based profit manipulation techniques has improved the so-called “Earnings quality” of companies, as there is a tendency to represent in a more trustable way the future performance (Fang Li, et al., 2009).

With a similar outcome, Cohen et al. (2008) show an increase in EM practice in the period preceding the Sarbanes Oxley and a decrease during the periods following it (Cohen et al., 2008).

Other studies compare the presence of accrual-based EM in various countries around the world. Leuz et al. (2003) analyzed EM in 31 countries and noticed that manipulation activities are lower in those countries with large equity markets and strong regulations to protect investors (Leuz, et al., 2003).

Burgstahler et al. (2006) examine the EM activities of public and private companies in 13 countries of the European Union and find that these companies show higher profit manipulation, and that there is less discretionary management of profits in private and public companies in countries with stronger legal systems (Burgstahler et al., 2006). Shuto et al. (2007) investigate the relationship between EM and executive compensation for a sample of Japanese firms and provide evidence that managers engage in EM activities in order to increase their compensation (Fang Li et al., 2009).

b. *Real transactions-based EM*

On the other side of the coin of the techniques of EM accruals-based, in which managers manipulate the results and estimates through the accounting system, the EM based on real transactions concerns the timing and structuring of commercial activities in order to obtain a desired financial result (i.e., the timing of sales).

Graham et al. (2005) conduct an investigation which shows that managers are willing to make decisions that would not be beneficial for the firm just to meet the investors’ expectations. Among these decisions are those to delay the costs of research and development, advertising, maintenance and to give up projects that would have a positive impact on the company. From this research, it also emerges that managers would be more likely to adopt this type of EM technique than the accrual-based one to achieve the desired financial result (Graham et al., 2005).

Roychowdhury (2006) in his article claims that managers manipulate real activities to avoid reporting annual losses through various operations such as product discounts to temporarily increase sales, overproduction to show lower cost of sales and lower discretionary expenses to improve profit margins. And through a cross-sectional analysis it has been observed that these activities are less frequent in the presence of investors protected by stricter regulations (Roychowdhury, 2006).

Cohen et al. (2008) and Koh et al. (2008) highlight how managers are moving away from EM techniques based on accruals in an increasingly rigorous regulatory environment and, in particular, show how this choice was influenced by the entry into force of the Sarbanes Oxley Act (Fang Li, et al., 2009).

3.2. EM and M&As

Financial economists, regulators and accountants have long recognized that managers exercise discretion over accounting rules to manipulate their firm's earnings in many contexts. As mentioned in the previous chapter, there are different types of deal structure in M&As, i.e. cash deals, stock deals etc., but there is a situation in which, according to the most part of researchers, EM is widely applied. This situation regards the stock for stock type corporate merger. As described by Erickson and Wang (1999), in many corporate mergers, when the transaction is completed, target shareholders receive a specified number of acquiring firm shares for each of their target shares. For these mergers, the total number of shares issued by the acquiring firm is determined by a negotiated *exchange ratio*⁴ agreed on by the acquirer and the target. Clearly, it is set in a way such that target shareholders generally receive a substantial premium above current market price (Erickson and Wang, 1999). As a result, the higher the price of the acquiring firm's stock on the agreement date, the fewer the number of shares that must be issued to purchase the target firm. This mechanism provides several incentives for the acquiring firm to attempt to increase its share price pre-merger for at least three reasons: to minimize the likelihood of earnings dilution and voting power reduction in order to keep the control over the target, particularly manager-shareholders and , clearly to lower the cost of acquiring the target firm (Erickson and Wang, 1999).

Whether EM succeeds in raising the market price of a bidder's stock will depend on the level of information efficiency in the market, and whether an analyst can "see through" and "reverse out" the EM device employed by the bidder's directors (Botsari and Goh, n.d.). But if the market

⁴ The exchange ratio is equal to the number of shares of acquiring firm stock to be issued for a share of target stock.

is semi-strong efficient (Fama, 1970), whilst the EM is opaque to the analyst, and the bidder's price is affected, then EM in such takeovers may have much more powerful economic consequences than in routine financial reporting (Botsari and Meeks, 2008).

Botsari and Goh (n.d.) provide an analysis of EM by bidders in the world's second largest takeover market, the London Stock Exchange, because they believe that such opportunistic behaviour in an M&A context can have irreversible wealth consequences for each actor involved. They do so by examining a range of corporate governance mechanisms to understand which one could restrain opportunistically driven M&A decisions.

Some of them are the following:

- ***The Role of the Auditors***: The employment of an independent external auditor to verify accounting numbers reported by managers is a market-induced mechanism to reduce agency costs (Jensen and Meckling, 1976). Thus, an important economic function of auditing is to monitor and control EM. In order for this to work, and so for EM to be detected, it is obvious that the quality of the audit needs to be high. Dopuch and Simunic (1982) argue that investors may perceive Big 4 auditors as having higher quality because these auditors have more of the observable characteristics associated with quality than do non-Big 4 auditors. Big 4 auditors are also more likely to invest in information technology and employ state-of-the-art techniques to detect EM, less willing to accept questionable accounting practices and more likely to report errors and "not so safe" practices. This is due to the fact that they have more to lose in the event of a loss of reputation and thus greater incentives to protect their brand name and even screen out disreputable clients (Botsari and Goh, n.d.). Becker et al. (1998) find that clients of non-Big 6 auditors report discretionary accruals that are on average 1.5 to 2.1 percent of total assets higher than the discretionary accruals reported by clients of Big 4 auditors.
- ***Board Composition***: An important function of the board of directors is to reduce costs that come from the separation of ownership and decision control of the modern corporation (Fama and Jensen, 1983). The board of directors receives its authority for internal control and other decisions from stockholders of corporations. To this extent, three are the specific aspects that need to be considered: *The Role of Non-Executive Directors, the board size and the effect of the CEO Duality*. Starting with the first one, it can be said that corporate boards generally include outside members who are called to mitigate disagreements among internal managers and ratify decisions regarding serious agency problems (Fama and Jensen, 1983). Rosenstein and Wyatt (1990) suggest that stockholders value the inclusion of outside

directors on boards as evidenced by a positive stock price reaction at the announcement of the appointment of an additional outside director, but they also suggest that outside directors are chosen in the interest of shareholders. Botsari and Goh (n.d.) highlight how also the Cadbury report published in 1992 reflected the fact that non-executive directors can enhance corporate governance mechanisms. The Cadbury Report, titled *Financial Aspects of Corporate Governance*, is a report issued by “The Committee on the Financial Aspects of Corporate Governance” chaired by Adrian Cadbury that, among all the recommendations, it states that UK boards should contain at least three outside directors, and that these should be “independent of management and free from any business or other relationship which could materially interfere with the exercise of their independent judgement, apart from their fees and shareholding”(Botsari and Goh, n.d.). The market’s reaction suggests that the higher the percentage of non-executive directors on the board, the higher the probability of a profitable acquisition, since non-executives are more likely to take decisions consistent with shareholder value maximization. In a study of a sample of firms subject to accounting enforcement actions by the Securities Exchange Commission, Dechow et al. (1996) find that these firms employ more income-increasing accounting procedures, have higher total accruals and higher estimated discretionary accruals, and are more likely to have a board of directors dominated by insiders. On the other hand, as Sudarsanam (2000) notes, since the pool of potential non-executive directors is often limited to the top management of companies, there is scope of cross-board memberships with the CEO of one firm being on the board of another and vice versa. Thus, non-executive directors may not act following an unbiased attitude. Furthermore, they are not so motivated in monitoring EM practices because of lack of incentives and interests in something that does not really have a direct impact on their wealth.

The second aspect to be considered, according to Botsari and Goh (n.d.) is the *Board Size*, since many researchers argue that having a too large board of directors in term of size turns to be very inefficient. Particularly, Jensen (1993) states that “as groups increase in size, they become less effective because the co-ordination and process problems overwhelm the advantages from having more people to draw on”. Jensen (1993) states that the optimal board size is seven to eight people, because “when boards get beyond seven or eight people, they are less likely to function effectively and are easier for the CEO to control”. In other terms, the more members on the board, the weaker the board’s monitoring function.

Finally, regarding *the Effect of the CEO Duality*, Jensen (1993) suggests that CEO and Chairman of the board be separated to reinforce the function of the board. This view is also

reflected in *Cadbury Report's* (1992) recommendation to split the two roles in order to improve board independence because having both in the same person embodying the two roles could lead to concentration of power and possible conflicts of interest, potentially reducing the level of monitoring.

- **Managerial Ownership:** According to Jensen and Meckling (1976), the costs of deviation from value-maximisation decrease as there is an increase in the management ownership. They sustain the “convergence-of-interest hypothesis” which states that the higher the managerial ownership in a company, the better will be the firm’s performance, as managers are more focused to convert resources to realize value maximizing projects. On the other hand, Morck et al. (1988) exhibit that substantial levels of managerial ownership could lead to “entrenchment”, that is the pursue of self-interests, since it is more difficult for external shareholders to really have a clear view and full control on managers’ plans. Following the same wave, Stulz (1988) models the M&A process as a game between managers and an outside bidder vying for the voting rights of few shareholders. Increases in managerial ownership force the outside bidder to pay higher premiums and if this premium is too high it could be unprofitable for the bidder resulting in an M&A transaction that – using Bruner’s term – does not pay. Therefore, the higher is the managerial ownership, the higher the premium that the bidder must offer, and accordingly this will result in a lower probability that the bidder will make an offer in the end. This shows that a too large managerial ownership could prevent the realization of value creating activities, such as cases of profitable M&As, when managers want to keep their position afraid to lose control on the target firm.

The incentives for acquiring firms to increase reported accounting earnings preceding a stock for stock merger should be an increasing function of the economic benefits that can be generated from such strategic behaviour (Erickson and Wang, 1999). Because of the fact that EM is not costless, if the size of the target is relatively small compared to the size of the acquiring firm, the economic benefits from increasing stock price via manipulated earnings will also be relatively small and therefore there is no incentive to risk and manipulate earnings this case (Botsari and Goh, n.d.). Erickson and Wang (1999) find that an acquiring firm’s EM magnitude, as proxied by the level of discretionary accruals, is an increasing function of the deal ratio (defined as the ratio of the deal’s market value to the market value of the acquiring firm’s equity). Marquardt and Wiedman (2004) classify the costs associated with EM into two broad categories: the costs of detected EM, and the costs of undetected EM. Costs under the first category include enforcement actions by the regulatory bodies, earnings restatements,

shareholder litigation, qualified audit reports, and negative coverage in the business press. All these situations are associated with significant negative abnormal returns for the firm caught to manipulate earnings. Costs under the second category include:

- *A possible reversal of the accruals and the impact that it could have on the future reported figures and therefore a negative impact on the share price in the future.* As reported by Teoh et al. (1998), for example, negative unexpected accruals following equity offerings coincide with stock price declines over the same time period, suggesting that investors assess these reversals in a very strict way, thus boosting the cost of undetected EM to the company.
- *Constraints on the firm's future reporting flexibility.* In particular, EM in a previous accounting period necessarily constrains the firm's ability to manage earnings in the current period. Some researchers demonstrate that firms with overvalued assets, which proxies for prior optimism in financial reporting, are less likely to report larger positive or smaller negative earnings surprises. In other words, one cost of managing earnings today is a decreased ability to manage earnings tomorrow, regardless of whether the EM is explicitly revealed to the public (Marquardt and Wiedman, 2004).
- *Audit costs,* since the firm may need to undertake additional audit procedures to mitigate audit risk. Indeed, income-increasing accruals are positively associated with the likelihood of a lawsuit caused by audit failure, which may indirectly increase audit fees.
- *A decrease in the perceived earnings quality,* as high levels of accruals result in a decreased magnitude in the correlation between earnings and cash flows, a commonly used measure of earnings quality).
- *A higher probability of detection,* given that the extent to which managers engage in EM increases the likelihood that their actions will eventually be uncovered. Beneish (1999) finds a positive association between total accruals and the probability that a firm will be the target of an SEC enforcement action. Further, after controlling for total accruals, he finds that disproportionate increases in receivables relative to sales, which likely indicates revenue inflation, also are a significant predictor of an SEC enforcement action. This view is aligned with the one of Dechow et al. (1996), according to which the SEC is more likely to detect EM that occurs through revenue inflation than through other methods, thereby increasing its potential costs.

3.3. Detecting EM: statistical models

The corporate literature has extensively dealt with the issue of EM through the development of statistical and operational models that were able to capture its presence and assess its impact and size. In particular, the models analyzed here are those based on the analysis of aggregate accruals, considering the discretionary and non-discretionary component.

Among those, the most frequently mentioned are:

- *Healy Model (1985)*
- *De Angelo Model (1986)*
- *Jones Model (1991)*
- *Industry Model - Dechow and Sloan (1991)*
- *Modified Jones Model (1995)*

Most of the models require that there should be at least one parameter to be estimated and this is typically done by considering an “estimation period”, during which it is assumed an absence of systematic manipulation (Dechow et al., 1995).

3.3.1. *Healy Model*

The Healy model studies the presence of EM by comparing the total accruals (divided by the total assets of the year $t-1$) with respect to a partitioning variable (PART), i.e. a dummy variable that divides the data being analyzed into two groups, which is equal to 1 when EM is expected in response to a stimulus identified by the researcher (“Event Period”), and is equal to 0 when there is no systematic manipulation of the results (“Estimation Period”). The Healy Model differs substantially from the others, in that it assumes that the EM is implemented systematically, and therefore in every period. In this case, the PART variable divides the data set into three groups, considering the manipulation of profits upwards in one of the three groups and downwards in the remaining two groups. Therefore, the average of the total accruals of the group in which there is an upward manipulation of profits is compared with the average of the total accruals of the group in which it is expected a downward manipulation. This approach is equivalent to considering the group of observations for which upward manipulations are expected as an “estimation period” and the set of observations for which a downward manipulation of profits is expected as an “event period” (Dechow et al., 1995, p. 197).

The average of the total accruals detected in the estimation period therefore represents the measure of non-discretionary accruals and the model is as follows:

$$NDA_{\tau} = \frac{\sum_t TA_t}{T}$$

Where:

NDA are the estimated non-discretionary accruals;

TA are equal to the total accruals divided for the total asset at t-1

T=1, 2...T is the year included in the “estimation period”

τ is the year included in the “event period” (Dechow et al., 1995).

Healy considers earnings as the breakdown between the cash flows derived from operations and total accruals:

$$E_{it} = CF_{it} + TA_{it}$$

And he calculates TA using the following equation:

$$\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta STD_{it} - DEP_{it}$$

ΔCA is the change in current assets from t-1 to t;

ΔCL is the change in current liabilities from t-1 to t;

$\Delta CASH$ is the cash flow for the period of analysis;

ΔSTD is the long-term matured debt;

DEP represents the depreciation and write-down costs for the period t.

In Healy’s model, therefore, discretionary accruals are given by the difference between total accruals and non-discretionary accruals. Therefore, if the discretionary accruals are high, the model detects the presence of EM.

The limits of this model consist in the assumption of constant non-discretionary accruals over time and that there is no EM in the period of analysis (Riccardo, 2016).

3.3.2. De Angelo Model

De Angelo’s model can be seen as a particular case of Healy’s model, in which the estimate period for non-discretionary accruals is limited to the observation of the previous year.

$$NDA_{\tau} = TA_{\tau-1}$$

What this model has in common with Healy's is the use of total accruals from the estimate period as a proxy to calculate the expected non-discretionary accruals: but this model only works when the non-discretionary accruals are constant and the discretionary ones have an average of 0 in the estimation period, otherwise the estimate would present errors. The use of the De Angelo model rather than that of Healy depends on the trend followed by the non-discretionary accruals that results from the analysis of the time series: if these follow a "random walk" trend, then the De Angelo model is more suitable; otherwise, if the non-discretionary accruals follow a "white noise" trend around the average then the Healy model will prove more appropriate.

But both models have limits, in particular the omission of other important variables for the company and the assumption of constant non-discretionary accruals (Dechow et al., 1995).

3.3.3. *Jones Model*

Jones' model overcomes the assumption that non-discretionary accruals are constant over time and is mathematically represented by the formula:

$$NDA_{\tau} = a_1(1/A_{\tau-1}) + a_2(\Delta REV_{\tau}) + a_3(PPE_{\tau})$$

Where,

ΔREV_{τ} are the revenues of year t minus revenues of year t-1 (divided by the total assets t-1);

PPE_{τ} are the tangible fixed assets of year t before depreciation (divided by the total assets t-1);

$A_{\tau-1}$ total assets at t-1;

a_1, a_2, a_3 firm- specific parameters.

The estimates of the company specific parameters α are obtained through the model in the estimation period (which assumes no EM):

$$TA_{\tau} = a_1(1/A_{\tau-1}) + a_2(\Delta REV_{\tau}) + a_3(PPE_{\tau}) + u_{\tau}$$

where the total accruals are divided by the total assets at time t-1 and the parameters a, i.e. the estimates of α , are obtained with the OLS method.

An implicit assumption of this model is the NON discretionality of revenues, therefore it omits many of the manipulations of discretionary revenues and this determines an estimate of the EM that most of the times tends to 0 (Dechow, et al., 1995).

3.3.4. *The Industry Model*

Dechow and Sloan (1991) developed this model which argues the hypothesis on which the Jones model was built, that is the assumption of constant non-discretionary accruals over time. This model, on the other hand, assumes that the variation in the determinants of non-discretionary accruals are common for companies of the same sector. For non-discretionary accruals it is equal to:

$$NDA_{\tau} = \gamma_1 + \gamma_2 \text{median}_1(TA_{\tau})$$

$\text{Median}_1(TA_t)$ = the median value of total accruals scaled by lagged assets for all non-sample firms in the same 2-digit SIC codes⁵. The firm specific parameters γ_1 , and γ_2 are estimated using OLS on the observations on the estimated period.

But even this model has limitations in that it does not consider the variation in non-discretionary accruals that is common among companies in the same sector and this could cause distorted estimates; moreover, it removes the same industry. The severity of this problem depends on the extent to which the EM stimulus is correlated across firms in the same industry (Dechow et al., 1995).

⁵ The use of *two-digit SIC* levels represents a trade-off between defining industry groupings narrowly enough that the Industry Model captures the industry specific effects versus having enough firms in each industry grouping so that the model can effectively diversify firm-specific effects.

3.3.5. *Modified Jones Model*

In this model, non-discretionary accruals are estimated during the “event period” (when the presence of EM is assumed) in the following way:

$$NDA_{\tau} = a_1(1/A_{\tau-1}) + a_2(\Delta REV_{\tau} - \Delta REC_{\tau}) + a_3(PPE_{\tau})$$

Where ΔREC_{τ} = net receivables in year τ minus net receivables in year $\tau-1$ scaled by total assets $\tau-1$. It is important to note that the estimates of α_1 , α_2 and α_3 are those obtained from the original Jones Model, not from the modified model. The only adjustment relative to the original Jones Model is that the change in revenues is adjusted for the change in receivables in the event period (i.e., in the year EM is hypothesized).

The original Jones Model implicitly assumes that discretion is not exercised over revenues in either the estimation period or the event period. The modified version of the Jones Model implicitly assumes that all changes in receivables in the event period result from EM. This is based on the reasoning that it is easier to manage earnings by exercising discretion over the recognition of revenue on receivables than on cash sales. If this modification is successful, then the estimate of EM should no longer be biased toward zero in samples where EM has taken place through the management of revenues (Dechow et al., 1995).

In this section, we have outlined what are the key concepts regarding the EM phenomenon by analyzing the characteristics, reasons and techniques through which manipulation can manifest itself, especially in case of an M&A deal. Furthermore, we also drilled through some of the most important statistical models widely used in literature for the detection of EM practices and we continue in the next chapter with an in-depth analysis on the use of a more pragmatic method, that is Penman’ approach. This will help us to conduct an empirical study on a real M&A deal in order to eventually detect the presence and incidence of EM phenomenon.

4. Penman's approach to conduct the empirical analysis

Technical and *fundamental* analysis are the two main schools of thought regarding financial market analysis. The substantial difference between the two is represented by the fact that the first looks at the movements of the share price and uses these data to predict future changes; the second evaluates the shares, attempting to identify their intrinsic value by examining the economic, financial, quantitative and qualitative factors that influence the market and the firm (or “the market valuation”). The technical analysis typically starts from the graphs relating to the financial trends to make forecasts on stock price changes, while the fundamental analysis mainly deals with the financial statements of a company, and in particular, the income statement, the balance sheet, cash flow statement and other types of disclosure to find out the intrinsic value of the company. So, if the latter assumes a long-term orientation, the technical analysis takes a short view horizon: in fact, while the stocks charts can be determined for short periods (weeks, days or even minutes), the fundamental analysis refers to data which are generated much more slowly than the stocks' price, main object of observation of the technical analysis (Kuepper, 2018).

Focusing on the fundamentalist approach, which “anchors” itself to the financial statements analysis of companies to make forecasts, it becomes relevant to verify the quality of the information provided by these documents. As it has been previously stated, accounting techniques can be used to “package” the company and its value, making it appear better (or worse) than it really is. The quality analysts assume the role of “discarders” of this package, and in case of anomalies and EM, they are appointed to warn stakeholders (Penman, 2013).

From now on it will be presented the approach to “Quality Analysis” studied and implemented by Penman. Its principal scope is to verify the degree of accounting quality in financial statements and in the disclosure reported by the companies. This is an operational approach that differs from the purely statistical one, analyzed in the previous section, which does not presume to solve the problem, but to diagnose it and raise suspicions in case of risk of manipulation.

Penman (2013) highlights a fundamental concept: “An accounting quality is imperative because of the reversal property of accounting: Earnings induced by accounting methods always reverse in the future” (Penman, 2013, p. 591). So, for example, if the estimated bad debts are too low (and the estimated profits too high), the costs for the bad debt of these credits may be too high in the future (drastically lowering the profits); or if the depreciation rate is too low, it may result to be higher in the future, or the company may find itself forced to reduce the value of the asset

or detect a loss deriving from the sale of this asset. Therefore “Earnings are good quality if they do not reverse” (Penman, 2013). In fact, if the quality of the profits represented in the financial statements is low and does not conform to a criterion of truthfulness and correctness, it could lead to weak forecasts and valuations, exposing investors to the risk of finding themselves towards the so-called “Torpedo”, a sudden drop in shares’ price resulting from the discovery of results manipulation.

4.1. Accounting Quality: five questions that the analyst should ask himself

Checking the quality of the information reported in the financial statements is something that should be considered as a very relevant issue, especially when an M&A deal is in place. For this reason, when facing this kind of situation, Penman argues that the analyst should be able to answer to five questions:

1. ***GAAP Quality: is GAAP accounting deficient?*** The analyst wonders if GAAPs are able to capture, from an accounting point of view, the relevant characteristics of a company;
2. ***Audit Quality: is the company violating GAAP or committing accounting fraud?*** GAAPs may be appropriate but, at the same time, may not be applied in compliance with the regulatory standards. To this regard, as it has already been said in the previous section, there are agencies that embody a function of control, such as the aforementioned SEC (Security and Exchange Commission) and the PCAOB (Public Company Accounting Oversight Board). Therefore, the analyst is faithful to the audit, but must always take into consideration the presence of potential manipulations by managers who try to “opacify the results” or corrupt auditors who facilitate the occurrence of such situations. In addition, Penman points out that the GAAPs are, by nature, particularly suitable for making “form over substance” prevail, thereby invalidating the “*true and fair*” representation of a company's financial, accounting and economic situation;
3. ***GAAP application quality: Does the company use GAAP to manipulate results?*** GAAPs reduce the number of accounting methods that can be used but, at the same time, allow some discretion in their choice. This discretion could be seen by managers as a sort of “manipulation license” in order to obtain the desired results, especially when considering estimates regarding, for example, the useful life of assets, bad debts, guarantee costs, pensions, restructuring costs and maintenance costs, etc.;

4. ***Transaction Quality: is the company manipulating its results to adapt to accounting criteria?*** A company could faithfully stick to compliance with GAAP, but at the same time, “arrange and plan” its accounting transactions in order to achieve its desired objectives. This is a type of real manipulation, which is carried out through the actual business’ side of the company and not just using the mere accounting one. It can take two forms:
- a. ***Transaction Timing:*** is carried out through a shift of the moment in which the transactions occur to influence the operating result and, in this sense, involves the period in which the revenues and costs are reported. Revenue timing, known as *channel stuffing*, times transactions around revenue recognition rules. Typically, GAAPs require revenues to be recognized when goods are delivered, and services are performed. This principle would favor the practice of manipulating profits in two possible directions: increasing them, in the event that the products were delivered before the end of the period in question; or postponing the reporting, thus delaying the delivery. Instead, as far as the costs are concerned, the period in which they are reported could be subject to manipulation to increase the profit, for example through the deferral of R&D and advertising costs that would be charged to the following year (whereas advancing them to the current period would be used to decrease income for the future);
 - b. ***Transaction Structuring:*** it puts in place the prevalence of the form over the substance, so that transactions are arranged in the best form to be treated in a certain way through the accounting principles, but in substance they could reveal themselves to be inconsistent;
5. ***Disclosure quality: Is the information made available by the company suitable to disclose its characteristics in an exhaustive manner?*** The information takes different forms and takes place through the financial statements, notes, market analyzes, discussions of managers and it is essential for investors in order to better know the legal entity they deal with. There are four types of “disclosure” that are fundamental to conduct a proper company’s valuation:
- a. The disclosure that distinguish operating from financial figures in statements;
 - b. The disclosure that distinguishes profitability deriving from the company’s operations from that deriving from extraordinary components;
 - c. The disclosure showing the drivers of the company’s core profitability;
 - d. The disclosure that verifies if there is consistency between the accounting used and the quality of application of the GAAP.

We can therefore conclude that “without adequate disclosures it is difficult to forecast from a good measure of current core operating income, so low-quality disclosures lead to low-quality valuations” (Penman, 2013).

4.2. Key aspects to consider in order to conduct the analysis.

Before conducting the empirical analysis on the quality of reports, it is reasonable to clarify which elements could be subject to any form of manipulation. In general, financial statements contain estimates and valuations. This entails, in the majority of cases, the presence, even minimal, of speculation. According to Penman (2013) “there is a tension in accounting: To remedy the defects of cash accounting, accrual accounting adds estimates, but these estimates inevitably add some speculation. Unbiased management and unbiased auditors constrain the speculation, but unfortunately, these agents are not always to be relied on”. (Penman, 2013). As a starting point for the analysis, Penman defines the operating income as the sum of the two “hard” and “soft” components. Moreover, it has been noted how the manipulation of profits through estimates and accounting methods always leaves a trail, since the changes in items in the income statement have an impact on the items in the financial statements. Indeed, higher revenues could result from an increase in receivables (an asset) or a decrease in deferred income (liabilities), and lower costs could result from an increase in prepaid expenses (an asset), or a decrease in accrued expenses (liabilities) (Penman, 2013). So, for this research we rely on the classification made by Penman (2013) on operating income and, in particular of its components, to understand on which of them the practice of EM has a direct impact and leaves a trail:

$$\begin{array}{rcc}
 \textit{Operating income} = & \textit{Free cash flow} & + \textit{Change in net operating assets} \\
 OI = & C - I & + \Delta NOA \\
 & \uparrow & \uparrow \\
 & \textit{Hard} & \textit{Soft}
 \end{array}$$

Where:

C represents “Cash flow from operations” and

I represents the “Cash flow from Investments”.

The soft part, that potentially is the easiest one to be manipulated, is made up of Δ NOA. We define NOA as the set of all the assets of a company that are directly related to operational management minus all operating liabilities.

More precisely, it can be calculated as follows:

$$\begin{aligned}
 &+ \textit{The total assets of a company} \\
 &- \textit{All liabilities} \\
 &- \textit{All financial assets} \\
 &+ \textit{All financial liabilities} \\
 \\
 &= \textit{Net operating assets} \quad (\text{Bragg, 2017})
 \end{aligned}$$

A high increase in NOA leads to an increase in the operating income (OI). Free cash flow is hard which means that it cannot be easily affected by the accounting. The soft part of operating income that has to be challenged is the Δ NOA. A big increase in NOA creates operating income and a higher current $RNOA_0$ but results in a high NOA_0 that becomes the base for next year's $RNOA$ ⁶: $RNOA_1 = OI_1/NOA_0$. Accordingly, $RNOA_1$ declines if NOA_0 has been inflated (Penman, 2013, p. 597).

More specifically it is possible to investigate directly the equation representing the “soft” part in the operating income:

$$\textit{Change in net operating assets} = \textit{Cash investment} + \textit{Operating accruals}$$

$$\Delta NOA = I + \textit{Operating accruals}$$

This equation highlights how the analyst can investigate on the possible presence of manipulation going through two aspects: the component represented by investments and the one represented by accruals. In particular, regarding the investments, it is important to check whether these have been subject to a correct capitalization or not. For example, if investments in PPE are reported in a proper way in the balance sheet, but a firm capitalizes periodic repairs and maintenance in PPE, it increases current earnings and reduces future earnings through higher depreciation charges. This same result occurs by recognizing too much prepaid expense,

⁶ Return on Net Operating Assets

allocating too much cost to inventories, capitalizing promotion costs, and capitalizing the costs of acquiring customers (Penman, 2013, p. 598).

As far as the second route is concerned, this is about checking the presence of EM by looking at the accruals, namely the difference between net income and cash from operations in the cash flow from operations section, such as the allowances for bad debts, allowances for sales returns, deferred revenues, warranty accruals, accrued expenses, and pensions liabilities.

According to Penman (2013), before starting an analysis on the quality of the information reported in the financial statements, the analyst must be able to capture four fundamental aspects:

- The business;
- The accounting policy;
- The business areas in which the accounting policies adopted appear more controversial and raise suspicion of manipulation;
- Situations in which management is particularly tempted to manipulate (Penman, 2013, p. 598).

Regarding the accounting policy, it represents a “benchmark” for the firm, useful for identifying any variation that could be an indication of manipulation. The accounting policy adopted can be *conservative*, *liberal* or *neutral*. This is an aspect captured by the information reported in the footnotes, which integrates particularly important details not directly explained in the income statement or in the balance sheet. The policy used determines the level of current and future RNOA.

This permanent effect does not frustrate the valuation, but deviations from the policy may be manipulations. Penman (2013) suggests paying particular attention to those companies that adopt accounting policy that are considerably different from the standard for the same sector; but also, to companies whose valuations and accounting estimates have been incorrect in the past (Penman, 2013).

Finally, with the last of the four aspects, Penman (2013) lists various situations in which manipulation is more likely to occur, by distinguishing them in “institutional” conditions and “accounting and financial statements” conditions.

Institutional conditions include cases where:

- The company is carrying out a process of raising capital or renegotiating borrowing. The moment of greatest risk is before an initial public offering (IPO);
- Debt covenants represent a field with high risk of manipulation;
- Changes in management;
- Change of auditors;
- Management rewards (like bonuses) are tied to earnings;
- Management implements the “repricing”, that is the change of the price of the shares on stock options;
- Weakness of the governance structure: wide decisional power of the management that forms the board of directors and there is a weak audit committee or even non-existent;
- Regulatory requirements (such as capital ratios for banks) are particularly at risk of manipulation;
- Related parties vs arm’s length (Transactions are conducted between related companies rather than independent companies);
- Earnings meet investors’ expectations, but just barely;
- The company is potentially subject to “takeover” (i.e. to be subject to economic control by another company, through the purchase of the majority stake or the exchange of equity capital). This is the specific aspect on which the practical analysis will be conducted further on.

The *accounting and financial conditions* are:

- A change in accounting principles or estimates;
- An Earnings surprise;
- A drop in profitability after a positive period;
- Constant sales or decrease in sales;
- Profits that increase faster than sales;
- Very low profits (which without manipulation would have resulted in losses);
- Too low or zero growth in profit margin (which without manipulation could have been negative);
- Accounting adjustments in the last quarter of the year (Penman, 2013).

What is clear regarding these issues, is that the process of controlling any manipulation practice is not absolutely simple and direct, as very often the analyst has to deal with low-quality disclosures. In response to the scarce transparency of information, Penman provides the analyst

with a diagnostic tool in order to check the quality of earnings and figures reported in the financial statements. These diagnostic tools, if the disclosure is inadequate, are not meant to solve the problem, but to act as a “red flag” in order to warn the analyst about the possible presence of EM.

Most of the diagnostic tools are accounting ratios which must be compared with those relating to previous years and those of comparable companies.

Therefore, Penman (2013) proposes to look for differences from the past and differences from other firms and compare changes from the past with changes from the past for comparison firms.

4.3. Diagnostic tools to identify EM.

After the focus on the components of disclosure that could be subject to EM, we proceed by providing the outlines of the approach implemented by Penman to identify the potential presence of the aforementioned phenomenon applied in M&As’ deal. Firstly, we will start with an analysis of the quality of the sales revenue and then we try to measure the adequacy of the disclosure relating to the quality of the costs (core expense) and of the extraordinary components of income (unusual item). Finally, this will be followed by the approach adopted by Penman (2013) to analyze the quality of different types of transactions.

4.3.1. Diagnostics to Detect manipulation of Sales

Penman (2013) argues that revenues are considered to be appropriately reported in the income statement (and therefore the quality of disclosure is adequate) if they represent appropriate and undistorted estimates of the liquidity that should be generated through them (Penman, 2013). Indeed, there could be the risk that goods may be returned, receivables not paid, or sales recorded in the current period that belong to subsequent years (unearned revenue). Therefore, it is appropriate to focus on net sales calculated as follows:

$$\begin{aligned} & \textit{Net sales} \\ & = \textit{Cash from Sales} + \Delta \textit{Net Accounts Receivable} \\ & - \Delta \textit{Allowance for sales returns and discounts} - \textit{Unearned Revenue} \end{aligned}$$

Cash from sales cannot be easily manipulated by the accounting, so what needs to be questioned is the accruals’ part, that affect changes in net receivables (that are net of estimated bad debts), allowances for sales returns and discounts, and unearned revenue. If it is not possible to

calculate net revenues as shown above, they are calculated according to GAAP, i.e. Net sales = Sales- estimates sales returns and discounts (Penman, 2013, p. 603).

Penman (2013) provides the following manipulation diagnostics, which look for changes in sales relative to cash generated by sales and changes in sales relative to changes in the net operating assets that relate to sales:

Diagnostic: Net sales/ Cash from sales (1)

Diagnostic: Net sales/ Net accounts receivable (2)

Diagnostic: Net sales/ Allowance for sales returns and discounts (3)

Diagnostic: Net sales/ Unearned revenue (4)

By applying this first analysis we can deduce that if the company adopts an “aggressive” accounting policy by overestimating revenues or underestimating returns and credit losses (and thus does not have legitimate receivables that are being paid off in cash), the first ratio will increase (1), whereas the second one will decrease (2). If net sales are increasing because of reduced estimates of unearned (or deferred) revenue, the last ratio will increase (Penman, 2013). But we will investigate the change in these ratios over time in the next section through the empirical analysis. Obviously, these ratios can also change for legitimate reasons, not only because of manipulations, such as in the case of abnormal increase in receivables or because of delays in payments by customers. Receivables can also be indicative of the trend of the business, when they signal (therefore act as a *red flag*) for example a lower interest from customers towards a product, or a price discounting with the aim of increasing sales. But these aspects concern the quality of earnings as a whole and not only from an accounting point of view.

To study, however, the incidence of costs due to bad debt, Penman (2013) elaborates these ratios, which directly relate these costs to credit losses (5) and sales (7) and, moreover, the bad debt reserves, useful for a write down in receivables, with gross receivables (6):

Diagnostic: Bad debt expense/ Actual credit losses (5)

Diagnostic: Bad debt reserves/ Accounts receivables (gross) (6)

Diagnostic: Bad debt expense/ Sales (7)

4.3.2. *Diagnostics to Detect Manipulation of Core Expenses*

The recording of expenses can also be subject to manipulation, for this reason Penman (2013) outlines a research method to analyze specific determinants that could alert the analyst about the presence of Earnings management. In particular, he suggests to:

1. Investigate Changes in the Net Operating Assets with Normalized Asset Turnover.

The manipulation of operating income always leaves a trace: in fact, changes in operating income imply changes in the NOA, although, as previously seen, this does not change only as a result of manipulations but can follow the normal business trend. Penman (2013) defines NOA as: $NOA = Sales / Asset\ turnover$. Recalling that $ATO = Sales / Total\ Assets$.

$$\begin{aligned} \text{We determine the } Normalized\ OI &= Free\ cash\ flow + \Delta Normalized\ NOA \\ &= Free\ cash\ flow + \Delta Sales / Normal\ ATO \end{aligned}$$

This is the normalized version of the equation seen in the first part of the section. The normalized ATO is calculated from average asset turnovers over past years or from comparable firms with similar operations and accounting policies (Penman,2013).

Then the diagnostics in this case is given by:

$$Diagnostic: (Normalized\ OI) / OI$$

If this ratio is different from 1.0, it would be appropriate to conduct a deeper analysis on this aspect (Penman, 2013). This is the case in which, for example, an increase in NOA (through new investments in warehouses or raw materials, higher credits and an increase in accrual) is not followed by an increase in sales revenues, thereby reducing the free component cash flow and, consequently, the Normalized OI (which in case of manipulation would be less than the disclosed one).

2. Investigate Changes in Asset Turnover.

Manipulation of operating expenses always changes both profit margin (PM) and ATO, but in opposite directions: Lower expenses mean higher income to sales but, as net operating assets increase, lower expenses also mean lower sales to net operating assets. So, a change in ATO may indicate manipulation. And if firms are using manipulation to increase or

maintain profit margins, the corresponding decrease in ATO will signal a subsequent decrease in future profit margins as the accounting reverses.

The manipulation of operating expenses determines a contextual variation in PM and in the ATO, but in opposite directions. In fact, lower costs imply a higher sales profit margin, but as NOA increases, we must always consider the fact that these lower expenses imply lower sales to NOA. As a result, a change in ATO could be useful in identifying potential manipulation. Indeed, companies may have implemented EM to maintain or increase the PM, in the event that this increase in PM corresponds to a decrease in the ATO. In particular, Penman (2013) observes the relationship between the variations of the RNOA and those of the PM compared to the different variations of ATO (Penman, 2013) and notes that an increase in the RNOA for the current period is followed, in most cases, by its decrease in the subsequent period, but this decrease will likely be greater if the company presents a small change in its ATO. Obviously, this relationship cannot be understood by going to check the quality of the accounting methods used by the company, but it concerns a general analysis of the disclosure quality. Therefore, Penman (2013) suggests analyzing the changes in ATO, comparing them with changes in sales revenues. But above all paying attention to cases in which PMs increase or remain constant while the ATO decreases. This may want to cover up a situation of decline, which the company tries to hide by manipulating the ATO, to try to keep the profit margin and the RNOA at previous levels. In addition, according to Penman (2013) it might be good to dwell on the case where the sharp increases in NOA are followed by very low or negative changes in the ATO (Penman, 2013).

3. Investigate Line Items Directly

a. *Challenge Depreciation and Amortization Expense.*

A low current depreciation rate most of the times implies asset write-downs in the future, usually through restructuring charges or losses at the time of asset disposal; conversely, a too high depreciation or amortization applied to the assets results in later gains from their disposal (Penman, 2013).

Penman analyzes this aspect starting from defining the “Adjusted EBITDA”:

$$\begin{aligned} \text{Adjusted EBITDA} &= \text{OI (before tax)} + \text{Depreciation and Amortization} \\ &\quad - \text{Normal capital expense} \end{aligned}$$

The diagnostic developed in this regard, compares the *adjusted* EBITDA with respect to EBIT, which is based on the depreciation charge reported in the income statement:

$$\text{Diagnostic: } (\text{Adjusted EBITDA}) / \text{EBIT}$$

Normal capital expense is approximated by the average capital expenditure over past years or, to accommodate growth, normal depreciation and amortization for the level of sales, calculated from past (Depreciation + Amortization)-to-sales ratios. Another suggested Diagnostic is the following:

$$\text{Diagnostic: } \text{Depreciation} / \text{Capital expenditures}$$

If this ratio is less than 1.0, an increase in the depreciation charge is likely to occur in the future (Penman, 2013).

Some analysts use particular models in order to understand which could be the best depreciation rate to be adopted in order to avoid future write-downs or losses on assets. For example, if there is an excess of production capacity in a sector, these models estimate that you will have to devalue the plant, unless the current depreciation charge is adjusted to reflect the cost of excess capacity. It is good to adjust the depreciation rate even if technological innovation is expected to cause obsolescence of the plants. Therefore, a depreciation rate able to reflect these estimates turns out to produce higher information quality data on which to rely on and conduct analysis (Penman,2013).

On the other hand, Penman (2013), states that there are some other analysts that consider EBITDA as a measure of income deriving from operational management to conduct an earning analysis. But this leads to a low-quality measure of value added, as it includes depreciation, which basically capture the loss in the value of the assets. So, EBITDA is not a tool to be used to identify added value, unless we consider the adjusted EBITDA that uses normal capital charge (Penman, 2013).

b. *Analysis of Total Accruals.*

As previously stated, the operating cash flow component is $\text{CFO} = \text{OI} - \text{Operating Accruals}$; for which another diagnostic is developed as follows:

Diagnostic: CFO / OI

Since cash flow from operations (CFO) are not easily affected by accounting manipulations, most of the changes of the operating income are carried out through the soft component of the accruals and therefore unjustified accruals will have an impact on this ratio. The cash flow from operations can also be compared to the net operating assets:

Diagnostic: CFO / NOA,

which in the presence of manipulation decreases due to the increased NOA value.

However, even the operating cash flow component can be exposed to manipulation, so, as recommended by the fundamental analysis, it is also important to be focused on the parameters concerning this aspect. For example, the amortization, which is not a cash flow, but it certainly comes from a cash outflow that occurred in a previous period to make the investment. Same investment that is needed to maintain cash flows from operations. So, referring to the free cash flow, it must be conceived as operating cash flow - cash investments to generate operating cash flows. In this sense there could be manipulation in consideration of depreciation to increase cash flows. But also, by delaying payments, or by reducing R&D or advertising costs (Penman, 2013).

c. Challenge Individual Accruals

As mentioned above, accruals are the component that most facilitates any earnings management as it constitutes the “soft” part of operating income and includes prepaid expenses, deferred revenue and accrued expense. For each accrual (excluding depreciation and amortization) a diagnostic can be calculated:

Diagnostic: Accrual / Δ Sales

In this case it is good to pay attention to the accruals that greatly increase the operating result when this situation corresponds to an almost zero variation in sales, lower than in the past, or even negative. If the $\Delta\%$ of sales revenues is zero or negative, this diagnostic tool does not work, but a comparison between the accruals and the change in sales can still be effective (Penman, 2013).

d. *Analysis of other expenses that depends on estimates.*

Penman (2013) also develops diagnostic tools to analyze the impact of other items with respect to the total costs that derive from operational management, namely:

Diagnostic: Pension expense / Total operating expense

Diagnostic: Other postemployment expenses / Total operating expense

Pension and post-employment costs can be manipulated by changing the actuarial estimates of expected payouts and discount rates for the liabilities, or by changing the expected return on the asset level. (Penman, 2013).

e. *Tax analysis.*

Actual tax rates usually converge over time to the legal rate. To calculate the incidence of taxes relating to operational management compared to operating income, this ratio can be used:

Diagnostic: Operating tax expense / OI before taxes

In particular, Penman (2013) suggests it is very important to identify the tax component that is subject to the estimates, that is represented by the deferred tax. If this varies at a different rate from that of sales, a check should be carried out (Penman, 2013). The company could manipulate the estimates by increasing the deferred taxes to obtain an increase in profit, in particular those relating to the depreciation: if these prove to be too high (compared to those of similar firms), or with respect to the investment growth, the company may have reported low depreciation expenses, following a too generous estimate on the useful life of the assets. (Penman, 2013, p. 610).

4. Study the balance sheet items directly.

Penman (2013) highlights some balance sheet items could be the direct object of Earnings management. If the residual values of the operating assets recorded in the financial statements are too high, they may be written down in the future, also reducing the RNOA (Penman, 2013). Particularly suspicious are:

- Assets whose residual value is higher than the market value;
- Assets susceptible to nontypical capitalization of expenses, such as start-up costs, advertising and promotion, customer acquisition and product development costs, and software development costs.
- Intangible assets whose carrying values and amortization rates are subject to estimate, like software costs and intangible assets acquired in acquisitions
- Assets entered at “Fair Value”. This value is the result of estimate, uncertain and in the worst case, even distorted.

The residual values of liabilities deriving from operational management should also be examined, in particular:

- Estimated liabilities such as pension liabilities, liabilities relating to employment contracts, deferred revenue; observe the trend of these passive items with respect to the total liabilities inherent to the total operating liabilities. Proceeding with the examination of the estimates on the liabilities deriving from the guarantees granted on the products (for any claim from customers) two diagnostics can be calculated:

Diagnostic: Warranty expense / Actual warranty claim

Diagnostic: Warranty expense / Sales

- Off-balance-sheet liabilities reported in the footnotes and may include guarantees on loans, assignment of receivables or payables, purchase commitments, liabilities relating to ongoing disputes, liabilities of environmental liability for product pollution.
- Off-balance-sheet liabilities such as loan guarantees, recourse for assigned receivables or debt, purchase commitments, contingent liabilities for lawsuits and regulatory penalties, and contingent obligations from off-balance-sheet special purpose entities

The lack of attention on of these items, or in any case the formulation of distorted estimates, has a negative impact on the quality of the disclosure, with the risk of occurrence of “Earnings Surprises” (Penman, 2013).

4.3.3. Diagnostics to Detect Manipulation of Unusual Items

Unusual items are isolated from the company’s core income to improve the quality of information regarding the earnings shown in the financial statements. They are excluded when forecasting, because they are considered to be low quality for this purpose. But in any case, the

analyst must consider the possibility that these could have some future implications. This could happen with estimated restructuring charges and impairments. Firms may decide to restructure in the future but will include an estimate of the cost in current income, along with an estimated liability in the balance sheet. And they may overestimate the liability, take a bath, and bleed back income to income statements in the future as actual expenses are less than anticipated. The estimates of any merger costs are also subject to potential analysis. In fact, the companies could overestimate these costs and then bring these estimates to a later period to increase future profits and make the merger appear much more convenient than it is (Penman, 2013).

With the diagnostics treated so far, Penman (2013) aims to answer the third of the five questions asked at the beginning of the discussion on the GAAP application quality, that is the one about firms using accounting methods and estimates to alter income. The fourth question, concerning transaction quality, deals with firms' timing or structuring transactions to manipulate income. Specifically:

- **Core revenue timing:** when the sales revenue is recorded in the current period through the delivery of the products, in order to increase the operating profit. In fact, GAAP requires that revenues are recorded after the delivery of the products and after the performing of services (as already mentioned before). In this case it is appropriate to pay attention to unexpected increases in sales and deliveries of goods, especially in the last quarter of the year when it is more likely that management wants to meet investors' expectations;
- **Core revenue structuring:** many techniques have been implemented to "package" revenues and increase results, thus making the form to prevail over substance. Penman (2013) states some of these cases like:
 - Transactions between related parties and those "other than arm's length"; for example, shipping equipment to an affiliate that does not need the equipment and books it as plant, while the shipper books it as revenue;
 - Structuring lease transactions to qualify as sales-type leases.
 - Swapping inventory in barter transactions.
- **Core Expense Timing:** in this case, the period in which the costs are reported can be subject to manipulation to increase the profit, for example in the case of R&D and advertising costs Penman suggests using these specific ratios:

Diagnostic: R&D expense / Sales

Diagnostic: Advertising expense / Sales

If too low, they could indicate an attempt to increase profits by smoothing R&D and advertising costs and shifting them to future years. In this case, Penman suggests observing the trend of these ratios over a broad time horizon, trying to identify the situations in which profits have been increased by reducing R&D or advertising costs.

- **Releasing hidden reserves:** This is the creation of hidden reserves through a “conservative” accounting policy, and as already seen in the previous section, this practice is known as “cookie-jar accounting”. As a result, reserves are created and released in moments that are not very profitable for the company in order to reduce volatility in financial results, giving investors an impression of financial stability of the firm. A particular case is that of the “LIFO dipping” technique, which provides for a reduction in inventories through the LIFO method and the release of hidden reserves when the profits deriving from the liquidation of these inventories are realized (Penman, 2013).
- Organizational Manipulation: Off-Balance-Sheet Operations

These operations of manipulation of items external to the balance sheet are called “shell” and their creation is known as “shell game”.

- R&D Partnership: when a company sets up the so-called “shell” company in order to bear the costs of research and development. The original company may actually do the research but then charge the R&D partnership, creating revenue for itself to offset its R&D expenditures.
- Pension funds: pension funds are technically owned by employees, but the companies could use their "overfunding" to pay the costs deriving from operational expenses, which would otherwise be charged to the income statement (Penman,2013).

In conclusion, what needs to be clear is that Penman’s approach to the quality disclosure analysis does not aim to solve the problem of the EM. The diagnostics suggested by his analysis must be taken as an instrument functional to raise some “red flags” on the quality of the information reported. This turns to be extremely useful in case of time consuming/ costly analysis.

Therefore, once the approach is applied, the analyst can decide whether to proceed or not with a further research throughout some multivariate models, in case of particularly suspicious situations.

In the next section we apply some of the diagnostics tools described in this chapter, to the parties involved in a stock for stock M&A deal that has been recently closed. Specifically, we will drill through the financial statements of the two companies, by applying Penman's model, firstly assuming the acquirer's perspective and, finally, the target's one.

5. Penman's method applied to a stock- for- stock M&A's deal

This last section will provide an application of Penman's approach to a real case of M&A deal closed in 2019. Firstly, we apply it on the acquirer's side going through the reclassification of the balance sheet in order to highlight and separate the operating section. Thereafter, we do the same for evaluating the target's side to check if there could be some possibility of EM from both the perspectives.

This specific approach reveals itself to be particularly useful from an investor's point of view, because it allows to drill through the accounting's details that characterize a particular process like an M&A, in order to understand if there could be a possibility that this accounting will reverse in the future, causing a drop in the share price of the combined company.

The empirical analysis is conducted by taking in consideration a US M&A deal happened recently in order to apply the diagnostic instruments suggested by Penman (2013) on a quarterly basis. This is because quarterly data are available just for the most recent period in the latest annual report.

In particular, we choose the case, being consistent to what has been already stated in the first section, in which the M&A transaction is a stock deal in order to understand if there could be the suspicion of manipulation especially from the bidder's perspective. Therefore, we run the analysis taking into consideration all the four quarters of 2019 for having a comprehensive view on the point, from the period preceding the deal to the period in which the process was concluded. This allows us to understand whether the acquirer tried to manipulate earning or not with the scope of increasing its market share price and therefore to exchange a fewer number of stocks with the target company. In addition, as it has been already stated before, a higher share price would minimize the likelihood of earnings dilution.

This analysis does not aim to solve the problem of EM, either to being accusatory towards one company or another. The main scope is just to provide the investors and other players in the

market, a ground to start with, in order to raise some red flag in case of some potentially suspicious situations as a preview for further checks.

The M&A deal that we consider for applying the analysis involves two important companies in the US Communication Services' sector: T-Mobile USA, Inc. and Sprint Corporation. It was on July 2019 that Trump administration signed off on \$59bn deal to create one of the largest US mobile providers (Platt E., 2019), respectively the third and the fourth largest companies in US in their industry. T-Mobile US, Inc., founded in 1994 under the name of VoiceStream Wireless PCS by J.W. Stanton, is the third-largest wireless carrier in the United States, with headquarters in Washington, US. The Merger has been completed on April 1, 2020 with T-Mobile now having the total ownership in Sprint, making Sprint a subsidiary of T-Mobile until the Sprint brand is totally absorbed.

As far as the analysis is concerned, we pick this specific deal for two main reasons:

1. The M&A transaction is very recent and therefore we have the possibility to apply the main diagnostic tools directly on the 2019's different quarters, since the deal has been signed off on July 2019 and completed just at the beginning of 2020. This is why it makes sense to take into consideration the whole 2019 timeframe (note that the Q1 interim report for 2020 is not out yet);
2. Secondly, to show that Penman's method can be applied to any combined company the investor might want to invest in, or any player in the market that is interested in that specific firm, in order to generate a first impression and investigate the potential presence of EM.

5.1. Application of diagnostics to the acquirer company (T- Mobile US)

Before proceeding with the direct calculation of diagnostics, we apply Penman's approach to analyze the accruals, which represents the main tool for the manipulation of results. For this reason, a reclassification of the financial statements is carried out first, to identify the operating component, in order to be aware of the change in the NOA and analyze the possible presence of manipulation, establishing to what extent this can have an influence on the operating result. Therefore, we reclassify the operating part of T-Mobile US, Inc., balance sheet following Penman's specific approach to calculate the NOA for the period *Q418-Q419*, that is the one in which the M&A transaction under analysis has taken place.

Table 1: T-Mobile US, Inc. Reformulated Balance Sheet

Reformulated balance sheet (Operating section)	Q1	Q2	Q3	Q4	Q418
\$ Millions					
Working Cash (estimated 2% of revenues)	166	169	172	174	164
Acc. Receivables less allowances for doubtful accounts	1,749	1,817	1,822	1,888	1,769
Inventories	1,261	998	801	964	1,084
Prepaid expenses and other current assets	4,280	4,176	4,162	4,925	4,214
PPE, net	21,464	21,847	22,098	21,984	23,359
Goodwill	1,901	1,901	1,930	1,930	1,901
Identifiable Intangible assets	35,618	36,430	36,442	36,465	35,559
Deferred income taxes and other assets	13,006	13,907	14,326	14,522	3,368
Total operating assets	79,445	81,245	81,753	82,852	71,418
Accounts payable and accrued liabilities	7,330	7,260	6,406	6,746	7,741
Deferred revenues	665	620	608	631	698
Deferred taxes	4,925	5,090	5,296	5,607	4,472
Other current liabilities	1,129	1,564	1,883	1,673	787
Operating lease liabilities	9,339	10,145	10,614	10,539	0
Total operating liabilities	23,388	24,679	24,807	25,196	13,698
NET OPERATING ASSETS (Op. assets - Op. liabilities)	56,057	56,566	56,946	57,656	57,720

After this reclassification we obtain the NOA as the difference between operating assets and operating liabilities and we do it for all the quarters, so that we can calculate the RNOA for the quarters 3 and 4 and make a comparison between the two. In fact, we consider the relationship seen in the previous section, $OI = C - I + \Delta NOA$, from which we note that any increases in operating income could be due to an increase in NOA, being the component of free cash flow (C-I) much more complex to manipulate. More specifically, as it has already been stated, an increase in NOA creates operating income and a higher current $RNOA_0$ but results in a high NOA_0 that becomes the base for next year's RNOA: $RNOA_1 = OI_1 / NOA_0$. Accordingly, $RNOA_1$ declines if NOA_0 has been inflated (Penman, 2013). Therefore, I proceed by applying this reasoning to the case as follows:

$$RNOA_{Q4} = \frac{OI_{Q4}}{NOA_{Q3}} = \frac{5,722}{56,946} = 0.10 \Rightarrow 10\%$$

$$RNOA_{Q3} = \frac{OI_{Q3}}{NOA_{Q2}} = \frac{4,488}{56,566} = 0.08 \Rightarrow 8\%$$

In this case RNOA increases from quarter 3 to quarter 4 and so we cannot say from this first analysis that NOA was subject to manipulation.

Going further with the analysis we know that the aforementioned equation $OI = C-I+ \Delta NOA$, can be written as $OI = C-I+ \text{Operating Accruals}$. Even in this case, being the operating cash flow the most difficult to be managed, a potential inflation in the operating income could derive from the manipulation in the operating accrual part. Therefore, if we rewrite the equation as $\text{Cash flow from operations} = OI - \text{Operating accruals}$, we can investigate the soft component through the diagnostic CFO / OI by observing the trend of this ratio for the time horizon of Q418 to Q419. I calculated the ratios as follows:

$$\frac{CFO_{Q4\ 2018}}{OI_{Q4\ 2018}} = \frac{3,899}{5,309} = 0.73$$

And for 2019,

$$\frac{CFO_{Q1}}{OI_{Q1}} = \frac{1,392}{1,476} = 0.94$$

$$\frac{CFO_{Q2}}{OI_{Q2}} = \frac{3,539}{1,541} = 2.29$$

$$\frac{CFO_{Q3}}{OI_{Q3}} = \frac{5,287}{1,471} = 3.60$$

$$\frac{CFO_{Q4}}{OI_{Q4}} = \frac{6,824}{1,234} = 5.53$$

By looking at the trend, we observe that the ratio increases over the period considered, but as explained before if earnings were manipulated by boosting the OI, this would have decreased the diagnostic over the timeframe. But this is not the case.

On the same line we drill down into the equation and we challenge it using the diagnostic that compares the cash flow from operations with the Net Operating Assets, being aware that if the ratio decreases over the period this could be a red flag for the investors because it would mean that the NOA has increased. We compute the ratios for the same period considered before:

$$\frac{CFO_{Q4\ 2018}}{NOA_{Q4\ 2018}} = \frac{3,899}{57,720} = 0.08$$

And for 2019,

$$\frac{CFO_{Q1}}{NOA_{Q1}} = \frac{1,392}{56,057} = 0.03$$

$$\frac{CFO_{Q2}}{NOA_{Q2}} = \frac{3,539}{56,556} = 0.06$$

$$\frac{CFO_{Q3}}{NOA_{Q3}} = \frac{5,287}{56,946} = 0.09$$

$$\frac{CFO_{Q4}}{NOA_{Q4}} = \frac{6,824}{57,656} = 0.12$$

In this case we notice a decrease in the ratio just for the first time slot considered, that is the transition period that goes from the last quarter of 2018 to the first quarter in 2019. This could also represent an attempt of manipulation from the acquirer's side during the period in which the M&A deal was announced.

- *Investigate changes in Assets Turnover in relation to the Profit Margin*

Penman (2013) suggests also analyzing the variations of the ATO (= Sales / Average total asset) in relation to profit margin, paying particular attention to the cases in which we observe a decrease in the ATO in a given period of time and a simultaneous increase in the profit margin. This could reveal an attempt to maintain or increase profit margins which, in absence of manipulation, would be much lower (Penman, 2013). We then proceed with the analysis of the trend that the ATO and the PM assume respectively, taking as reference the period 2019 (considering all the quarters). We know that,

$$ATO = \frac{Sales}{Average\ Total\ Assets} = \frac{Sales}{(Tot\ Assets_{t-1} + Tot\ Assets_t)/2}$$

$$ATO_{Q1} = \frac{11,080}{((72,468 + 83,073)/2)} = 0.14$$

$$ATO_{Q2} = \frac{10,979}{((83,073 + 84,788)/2)} = 0.13$$

$$ATO_{Q3} = \frac{11,061}{((84,788 + 86,109)/2)} = 0.13$$

$$ATO_{Q4} = \frac{11,878}{((86,109 + 86,921)/ 2)} = 0.14$$

Then we calculate the profit margins for the same period,

$$PM = \frac{Net\ Profit}{Revenues} = \frac{(Revenues - COGS)}{Revenues}$$

$$PM_{Q1} = \frac{(8,277 - 1,546)}{8,277} = 0.81 \Rightarrow 81\%$$

$$PM_{Q2} = \frac{(8,426 - 1,649)}{8,426} = 0.80 \Rightarrow 80\%$$

$$PM_{Q3} = \frac{(8,583 - 1,733)}{8,583} = 0.80 \Rightarrow 80\%$$

$$PM_{Q4} = \frac{(8,708 - 1,694)}{8,708} = 0.81 \Rightarrow 81\%$$

Summing up the results, we observe a constant trend in the period under analysis, meaning that we have a decrease in the Asset turnover in the transition between Q1 and Q2 and we can tell the same for the profit margin in the same period. As well as in the transition between the third and the fourth quarter an increase in the ATO is matched with an increase in the PM. Therefore, we cannot conclude that there has been some manipulation in these specific figures (see *Table 2*).

Table 2 Comparison between ATO and PM

	Q1	Q2	Q3	Q4
ATO	0.14	0.13	0.13	0.14
PM	81%	80%	80%	81%

- *Diagnostics to Detect manipulation of Sales*

We now focus on investigating a figure that could probably be subject to EM, that is represented by the sales, fundamental component in order to sustain a competitive advantage overtime for any type of business.

As argued by Penman, revenues are correctly recorded in the income statement if they represent an appropriate estimate of the sales that will actually occur (Penman, 2013). In particular, we are going to compare the net revenues ($\text{Net sales} = \text{Cash from sales} + \Delta \text{Net accounts receivable} - \Delta \text{Allowance for sales returns and discounts} - \text{Unearned revenue}$) with all the items that appear in the corresponding calculation, and we observe the trend of the various ratios for the four quarters in 2019. Since the “cash from sales” component does not easily lend itself to EM, what could possibly increase the value of these revenues shown in the income statement is the manipulation of the account receivables, unearned revenue and allowances for sale returns and discounts (Penman, 2013).

The calculation of the components within the equation could be compromised by the lack of precise information provided by financial statements prepared in the 10-K form. Therefore, however, we proceed with the comparison of net sales with all the items that appear in the equation by means of the diagnostics developed by Penman (2013):

$$\text{Diagnostic: Net sales/ Cash from sales} \quad (1)$$

$$\text{Diagnostic: Net sales/ Net accounts receivable} \quad (2)$$

$$\text{Diagnostic: Net sales/ Allowance for sales returns and discounts} \quad (3)$$

$$\text{Diagnostic: Net sales/ Unearned revenue} \quad (4)$$

Starting from these ratios, we know that, if there was manipulation, this would affect the accounts receivable by increasing them (and by reducing the allowances) or the deferred revenue (or unearned revenue) which would go down. Consequently, in the presence of EM, the first ratio which compares the net sales with the cash generated by them increases, due to the higher revenues reported in the income statement; at the same time the second ratio decreases, due to the higher net accounts receivable. The third ratio would increase if the allowances are reduced in order to boost the account receivables. Finally, the fourth ratio should increase due to the lower deferred revenues recognized in the period. Therefore, we summarize the results in the table below for the quarters in 2019 (see *Table 3*):

Table 3 Diagnostics to detect manipulated sales

	Q1	Q2	Q3	Q4
Net Sales/ Cash from sales	1.75	2.08	1.73	1.82
Net Sales/ Net Accounts Rec.	1.44	1.27	1.57	1.48
Net Sales/ Allowances	19.41	17.98	22.40	21.76
Net Sales/ Unearned Revenue	3.79	3.71	4.72	4.41

In line with what it has been stated before, we observe that the first diagnostic increases substantially in the transaction between the first and the second quarter and between the third and the fourth one. This is interestingly followed by a decrease in the second ratio for the same period. Therefore, this could be interpreted as another red flag to conduct further analysis on this point. Regarding the third ratio, it increases significantly just in the transaction period between the second quarter and the third one, but we can say this is not relevant since the allowances are kept constant for that period and did not decrease as an attempt to boost the accounts receivables. Sticking to the fourth ratio, we observe that it is subject to an increase because the unearned revenues decrease between the second and the third quarter. Therefore, another check could be added to what has been shown above, in the sense that we can compare the variation in the net sales for that period to the variation in *unearned revenues* for the same timeframe. We do as follow,

$$\Delta\% \text{ Net Sales} = \left[\frac{(\text{Net Sales}_{Q3} - \text{Net Sales}_{Q2})}{\text{Net Sales}_{Q2}} \right] * 100$$

$$\Delta\% \text{ Net Sales} = \left[\frac{(2,867 - 2,302)}{2,302} \right] * 100 = 24.54\%$$

$$\Delta\% \text{ Unearned revenues} = \left[\frac{(\text{Unearned revenues}_{Q3} - \text{Unearned revenues}_{Q2})}{\text{Unearned revenues}_{Q2}} \right] * 100$$

$$\Delta\% \text{ Unearned revenues} = \left[\frac{(1,608 - 620)}{620} \right] * 100 = -1.94\%$$

We observe that the two percentage variations go into opposite directions, so this is considered as a starting point to conduct further analysis on this aspect, since it could also be that unearned revenues may have been reduced in order to increase the net sales.

- *Diagnostics to Challenge Depreciation and Amortization Expenses*

Finally, for the last analysis on the acquirer company's side we challenge depreciation and amortization expense starting from the equation mentioned in the previous section, that is:

Adjusted EBITDA= OI + Depreciation and amortization – Normal Capital expense

Specifically, I consider the Adjusted EBITDA (non-GAAP financial measure) reported in the financial statements and I compare it with the operating income (EBIT) of each quarter of 2019. This is done in order to check if depreciation and amortization expenses have been reduced or increased too much during the period. We compute the diagnostics to check this reasoning, but we observe a constant overall trend in the ratio, therefore we cannot really take it as a red flag on depreciation and amortization's side.

$$\frac{\text{Adjusted EBITDA}_{Q1}}{\text{EBIT}_{Q1}} = \frac{3,284}{1,476} = 2.22$$

$$\frac{\text{Adjusted EBITDA}_{Q2}}{\text{EBIT}_{Q2}} = \frac{3,461}{1,541} = 2.25$$

$$\frac{\text{Adjusted EBITDA}_{Q3}}{\text{EBIT}_{Q3}} = \frac{3,396}{1,471} = 2.30$$

$$\frac{\text{Adjusted EBITDA}_{Q4}}{\text{EBIT}_{Q4}} = \frac{3,242}{1,234} = 2.63$$

Going on with the analysis I calculate the capital expense from the equation stated before (Capital expense = Adjusted EBITDA-OI-Depreciation and Amortization) to challenge the figures and trying to understand whether the trend in the ratio is constant or not. Firstly, it is important to check if the ratio is higher than 1, because if this was not the case a higher depreciation expense would be likely to occur in the future.

$$\frac{\text{D\&A}_{Q1}}{\text{Capital Expense}_{Q1}} = \frac{1,600}{208} = 7.70$$

$$\frac{\text{D\&A}_{Q2}}{\text{Capital Expense}_{Q2}} = \frac{1,585}{335} = 4.73$$

$$\frac{\text{D\&A}_{Q3}}{\text{Capital Expense}_{Q3}} = \frac{1,655}{270} = 6.13$$

$$\frac{\text{D\&A}_{Q4}}{\text{Capital Expense}_{Q4}} = \frac{1,776}{232} = 7.66$$

From the calculations we notice that the ratio is always higher than 1, but it assumes a trend that is not constant overtime. The most evident change in the ratio is registered between the first and the second quarter because of higher capital expenses. Indeed, these higher capital expenses are followed by an increase in depreciation and amortization during the third quarter, meaning that this could be considered as another red flag for detecting a potential manipulation.

5.2. Application of diagnostics to the Target company (Sprint Corporation)

In this section we repeat the analysis applied before but assuming another point of view: the one of the target company involved in the M&A deal, that in this case is Sprint Corporation. Due to the limited information disclosed in the 10-Q financial statement of the target company, we could not apply all the diagnostic tools used before with acquirer company. But on the one hand, this is something related to the quality of disclosure that company decide to adopt. On the other hand, it is also a drawback of Penman's approach, in the sense that it is not always completely applicable and effective when the information reported in the financial statement is not exhaustive.

We start by reclassifying the balance sheet for Sprint Corporation, isolating the operating section. We follow Penman's approach to calculate the NOA for the period 2019, in which the M&A deal has been signed off (see *Table 4*).

Note that for this company we apply all the diagnostic tools referring to the quarters from Q2 to Q4 due to the fact that the information about revenues and other relevant figures was not complete for the first quarter.

Table 4: Sprint Corporation, Reformulated Balance Sheet

Reformulated balance sheet (Operating section)	Q1	Q2	Q3	Q4
<i>\$ Millions</i>				
Working Cash (estimated 2% of revenues)	N/A	111	105	108
Acc. Receivables less allowances for doubtful accounts	3,554	3,558	3,723	3,873
Inventories	999	726	963	1,117
Prepaid expenses and other current assets	1,289	1,436	1,197	1,224
PPE, net	21,201	20,556	20,562	20,827
Goodwill	4,598	4,598	4,598	4,598
Identifiable Intangible assets	43,234	42,999	42,894	42,410
Total operating assets	74,875	73,984	74,042	74,157

Accounts payable	3,961	3,672	3,918	3,396
Accrued liabilities	3,597	3,048	3,198	3,335
Deferred taxes	7,556	7,563	7,489	7,038
Current operating lease liabilities	0	1,680	1,835	1,860
Long-term operating lease liabilities	0	5,913	5,667	5,423
Total operating liabilities	15,114	21,876	22,107	21,052
NET OPERATING ASSETS (Op. assets - Op. liabilities)	59,761	52,108	51,935	53,105

With the calculation of NOA, as the difference between the operating asset and the operating liabilities we can now observe the trend assumed by the RNOA during the last two quarters of 2019. Similarly, as before, we do the following:

$$RNOA_{Q4} = \frac{OI_{Q4}}{NOA_{Q3}} = \frac{758}{51,935} = 0.015 \Rightarrow 1.5\%$$

$$RNOA_{Q3} = \frac{OI_{Q3}}{NOA_{Q2}} = \frac{692}{52,108} = 0.013 \Rightarrow 1.3\%$$

Consistently to the previous reasoning, we observe that the ratio increases during the period of analysis and therefore we cannot really state that the NOA of the year before has been inflated by means of manipulation because it does show an evident increase.

Going further with the analysis we apply the diagnostic explained before started from the equation that sees the cash from operation as the algebraic sum between the operating income and the operating accruals. So, we apply the same diagnostics as has been done before:

$$\frac{CFO_{Q2}}{OI_{Q2}} = \frac{2,244}{455} = 4.93$$

$$\frac{CFO_{Q3}}{OI_{Q3}} = \frac{4,810}{692} = 6.95$$

$$\frac{CFO_{Q4}}{OI_{Q4}} = \frac{6,765}{758} = 8.92$$

By examining the ratio, we observe that the “hard” component, that is the cash flow from operations, increases and this cause an increase in the whole ratio overtime. Whereas if earnings were manipulated by inflating the OI, this would have decreased the diagnostic over the timeframe. So, we cannot say that there is any red flag that could be raised from this specific analysis.

Drilling through the equation, we investigate it using the diagnostic that compares the cash flow from operations with the NOA and by computing the ratios we observe that they increase overtime. This means that the NOA has not been increased simply because there is also a substantial positive change for the cash flow from operations.

$$\frac{CFO_{Q2}}{NOA_{Q2}} = \frac{2,244}{52,108} = 0.04$$

$$\frac{CFO_{Q3}}{NOA_{Q3}} = \frac{4,810}{51,935} = 0.09$$

$$\frac{CFO_{Q4}}{NOA_{Q4}} = \frac{6,765}{53,105} = 0.13$$

- *Investigate changes in Assets Turnover in relation to the Profit Margin*

We investigate the variations of the ATO (= Sales / Average total asset) in relation to profit margin (see *Table 5*), focusing on the cases in which a decrease in the Asset turnover ratio is followed by an increase in the profit margin. By summing up the results in the table below, we observe that the asset turnover decreases between the second and the third quarter, whereas the profit margin is subject to a relatively high increase. This could be interpreted as an attempt to increase the profit margin in a period in which the M&A deal was in process of completion. This because of a decrease in ATO means that the revenues were not enough to maintain the asset turnover of the previous year. Therefore, the fact that the PM increased raises some suspicion of potential EM.

Table 5: Comparison between ATO and PM

	Q2	Q3	Q4
ATO	0.064	0.059	0.062
PM	69.26%	77.72%	68.28%

• *Diagnostics to Detect manipulation of Sales*

As final analysis we investigate the sales item for the target company. Once again, we compute the ratios having as numerator the net revenues (Net sales = Cash from sales + Δ Net accounts receivable - Δ Allowance for sales returns and discounts - Unearned revenue), and as denominator the different items that appear in the mentioned equation. We observe the trend of the various diagnostics over the period that goes from the second to the fourth quarter. As Penman (2013) noticed, the calculation of the components within the equation could be compromised by the lack of precise information. In the specific case, it was not possible for me to find details for the calculation of the unearned revenues of Sprint Corporation's financial statements prepared in the 10-Q form. Therefore, however, we proceed with the comparison of net revenues with the other items that appear in the calculation by means of the diagnostics developed by Penman:

Diagnostic: Net sales/ Cash from sales (1)

Diagnostic: Net sales/ Net accounts receivable (2)

Diagnostic: Net sales/ Allowance for sales returns and discounts (3)

Keeping that in mind, in the presence of EM, the first ratio which compares the net revenues with the cash generated by them increases, due to the higher revenues reported in the income statement; at the same time the second ratio decreases due to the higher net accounts receivable and the third ratio should increase as well. Therefore, the calculation of our ratios for the period considered are summarized below (see *Table 6*):

Table 6 Diagnostics to detect manipulated sales

	Q2	Q3	Q4
Net Sales/ Cash from sales	1.67	1.83	2.54
Net Sales/ Net Accounts Rec.	2.29	2.09	2.09
Net Sales/ Allowances	11.06	10.46	10.45

Overall, we can say there is just one point in time in which we observe an antithetical behavior between the first and the second ratio. That is the transitional period among the second and the third quarter. This could raise some question on the potential application of EM.

Moreover, we cannot confirm the same attitude when it comes to shifting from the third to the fourth quarter because even if the first ratio increases the second one remains constant, giving quite low doubt for EM presence.

5.3. Comparison of results for the acquirer and the target and limitations

To conclude we can finally compare the results of the application of Penman's approach on the two different parties in the M&A deal. To have an exhaustive overview on the perspectives assumed it is important to wrap everything up by going to show all the specific diagnostics used for the analysis and scrutinize the fields in which we found a ground of suspicion of EM. Therefore, we do that by summarizing the output in the following table (See *Table 7*):

Table 7 Comparison of results

Diagnostics	Potential EM (Acquirer)	Potential EM (Target)
$\frac{CFO}{OI}$	No	No
$\frac{CFO}{NOA}$	Yes Between the 4 th 2018 and 1 st 2019	No
<i>ATO vs PM</i>	No	Yes Between 2 nd and 3 rd quarters
$\frac{Net\ Sales}{Cash\ from\ sales}$ vs $\frac{Net\ Sales}{Net\ Accounts\ Receivables}$	Yes Between the 1 st and 2 nd & 3 rd and 4 th	Yes Between the 1 st and 2 nd
$\frac{Net\ Sales}{Unearned\ revenues}$	Yes Between the 2 nd and 3 rd quarters	N/A
$\frac{Adjusted\ EBITDA}{EBIT}$	No	N/A
$\frac{D\&A}{Capital\ Expense}$	Yes Between the 1 st and 2 nd quarters	N/A

By looking at results we cannot really establish which company between the acquirer and the target has raised more suspicion of EM with its accounting, simply because of a lack of disclosure from the target's side. This is also the field in which the method of analysis used finds its biggest limitations. In fact, for example, it was not possible to compute the last three ratios reported in the table above because we could not find the adjusted EBITDA item in the target's financial reports. As a consequence, the last diagnostic (D&A/Capital expense) is

missing for the target, because we could not calculate the capital expense item through backward induction from the equation for the calculation of the adjusted EBITDA that we have seen in the previous section.

Overall it is interesting to observe that for all the time framework under analysis – which for the acquirer it comprehends figures from the Q4 2018 to the Q4 2019 and for the target it goes from the Q2 to Q4 2019 – the part in which a potential red flag could be raised is the period that goes from the last quarter in 2018 to the third one in 2019. This is an important insight because the time slot considered has been also the one in which an increase in the stock price of the acquirer was registered. Of course, we have to be aware that this could happen for many different reasons and that could be simply attributable to a better performance of the company in that specific period of time. Moreover, this is still coherent with the main aim of Penman’s approach that does not mean to appoint a certain behavior of the ratios under analysis as an EM evidence. It just wants to make the investor aware that no potential manipulation should be excluded before sharing some risks and “putting money” in a new combined company because accounting could reverse in the future.

6. Conclusion

This thesis aims to analyze how stock-for-stock M&A influence the use of income increasing EM in the period prior to such a merger or acquisition. This examination is done by performing computations of some diagnostics developed by Penman (2013) on a recent case of M&A deal announced on 2018 and closed in 2020.

Over the last decades M&As have become a widespread growth strategy adopted by companies. This could happen for many reasons and the most cited motive is the creation of synergies, that aims to enhance the value for shareholders, investors and all the players involved in the “game”. Koller et al. (2015) identified six “Archetypes” in which an M&A should fit in order to create value. Firstly, it should be functional to improve the performance of the target company; secondly, it should lead to consolidation for removing the excess capacity from a specific industry; thirdly, it should create or accelerate market access for the target or bidder’s products/services. Moreover, it is important that a firm involved in an M&A deal leads to a faster acquisition of skills or technologies and at a lower cost compared to the internal development of these factors; that allows the players involved to exploit a business scalability or that facilitates a bidder to pick winners target than competitors would do.

According to Bruner (2002), an *“investment is successful if it does anything other than destroy value”*. In Bruner’s words an M&A deal destroys value when it “does not pay”, therefore revealing itself not as profitable as it was estimated to be. This may happen for various reasons, one of them could be attributable to the EM phenomenon.

Schipper (1989) conceives EM as the targeted manipulation of disclosure in the financial reporting process by managers or shareholders having a particular interest in the company, with the aim of obtaining personal gain, in contrast to what should be the merely neutral function of this process (Schipper, 1989). According to Healy & Wahlen (1999), there is EM when “managers use judgment in financial reporting and in structuring transactions to alter financial reports either to mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers”. When analysts make forecasts, they rely on the information reported in the financial statements. Therefore, they deal with a corporate disclosure and with accounting policies that are not always appropriate for the development of estimates that reflect the real value of the company. Indeed, the information transmitted may be artificial or incomplete. Over the years, this has led to an increasing attention by researchers towards the willingness to unmask these manipulative practices, through the implementation of progressively more interesting methods.

Literature shows that suggest that being involved in a stock-for-stock M&A deal gives participants incentives to apply EM practice, so that the acquirer is able to pay less for the target. As highlighted by Erickson and Wang (1999), the higher the price of the acquiring firm's stock on the agreement date, the fewer the number of shares that must be issued to purchase the target firm. This mechanism provides several incentives for the acquiring firm to attempt to increase its share price pre-merger for at least three reasons: to minimize the likelihood of earnings dilution and voting power reduction in order to keep the control over the target, particularly manager-shareholders and, clearly to lower the cost of acquiring the target firm (Erickson and Wang, 1999).

Among the different methods to investigate the potential presence of EM, particular interest within this thesis was addressed to a more pragmatic approach developed by Penman (2013). It provides some diagnostics tools that result to be challenging towards the different items of the firms' financial disclosure, by means of comparison of the ratios throughout a certain time framework.

Specifically, I applied this method to a real case of M&A deal closed in 2019, which has seen involved two important firms in the US Communication Services' sector: T-Mobile USA, Inc., and Sprint Corporation. The main reason why I have chosen this specific deal is that I needed to study a very recent M&A transaction in order to apply the main diagnostic tools directly on the 2019's different quarters and in fact, this deal has been signed off on July 2019 and completed just at the beginning of 2020. Another reason is found in the extent to which I wanted to show that Penman's method can be applied to any combined company the investor might want to invest in, or any player in the market that is interested in that specific firm, in order to generate a first impression and investigate the potential presence of EM.

Firstly, this study provides the application of Penman's approach to the acquirer's side going through the reclassification of the balance sheet in order to highlight and separate the operating section. Thereafter it provides the same for evaluating the target's side, to check if there could be some possibility of EM from both the perspectives. From the first analysis implemented on the acquirer's figures I found that the period in which a possible red flag on potential accrual manipulation is mostly the one between the last quarter in 2018 to the third quarter in 2019, that is also the initial period in which the M&A was announced. Therefore, this could be seen as a possible attempt of income manipulation. On the target's side, I did not find such a strong potential suspicious situation, because of a lack of disclosure in its financial statements for the period under analysis.

It is important to clarify that Penman' approach to the quality disclosure analysis does not aim to solve the problem of the EM. The diagnostics suggested by his analysis must be taken as an instrument functional to raise some "red flags" on the quality of the information reported. This turns to be extremely useful in case of time consuming/ costly analysis.

Therefore, once the approach is applied, the analyst can decide whether to proceed or not with a further research throughout some multivariate models, in case of particularly suspicious situations.

However, this does not come without any limitations. In fact, it is important to be aware that it would be impossible to have total disclosure transparency in the communication between managers and investors. Furthermore, this method does not take into account various qualitative aspects peculiar to the individual company. The most evident restriction derives from the fact that it is not fully applicable in the event that, from the financial statements, there is no detailed disclosure for each item to be analyzed. Indeed, in our specific case it was not possible to challenge all the figures from the target's perspective.

The main problem of this model is to evaluate how reliable it is, as it is still little applied and known compared to purely statistical methods, widely discussed in the literature. An alternative solution could be to implement these diagnostics not only by making a comparison of a company's performance compared to that of previous years, but also by processing an analysis on a sample of companies belonging to the same sector. This is to assess the method's ability to identify the potential presence of manipulation, but above all the business areas most exposed to this risk.

References

- Agrawal, A., & Mandelker, G. N. (1987). Managerial incentives and corporate investment and financing decisions. *The journal of finance*, 42(4), 823-837.
- Arkan, T. (2015). The effects of earning Management Techniques, Net Income and cash Flow on Stock Price. *Finanse, Rynki Finansowe, Ubezpieczenia nr 74, t. 2*, 245-258.
- Asquith, P., Bruner, R., Mullins Jr., D., 1983. The gains to bidding firms from mergers. *Journal of Financial Economics* 11, 121–139.
- Bahreini, Bansal, R., Finck, & Firouzgar. (2019, August). Done deal? Why many large transactions fail to cross the finish line. Retrieved from McKinsey&Company: <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/done-deal-why-many-large-transactions-fail-to-cross-the-finish-line>
- Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on EM. *Contemporary accounting research*, 15(1), 1-24.
- Bedi, S., & Vij, S. (2017, July). Nuances of Mergers and Acquisitions. Jalandhar , INDIA: DAVU School of Business (DSB).
- Beekhuis, L. (2017, June 20). Real EM & Mergers and Acquisitions. *Real Earnings Management by Acquiring Firms prior to stock-for-stock mergers*. Amsterdam: Amsterdam Business School.
- Berkovitch, E., & Narayanan, M. P. (1993). Motives for takeovers: An empirical investigation. *Journal of Financial and Quantitative analysis*, 28(3), 347-362.
- Botsari, A., & Goh, L. EM Ahead of M&A: Can Corporate Governance Make The Difference?
- Botsari, A., & Meeks, G. (2008). Do acquirers manage earnings prior to a share for share bid?. *Journal of Business Finance & Accounting*, 35(5-6), 633-670.
- Bragg, S., 2017. Accounting Tools: Accounting CPE Courses & Books.

Retrieved from: <https://www.accountingtools.com/articles/net-operating-assets-definition-and-usage.html?rq=net%20operating%20asset>

- Bruner, R. (1988). The Use of Excess Cash and Debt Capacity as a Motive for Merger. *Journal of Financial and Quantitative Analysis*, 23(2), 199-217.
- Bruner, R. F. (2002). Does M&A Pay? *Journal of Applied Finance*.
- Bruner, R. F., & Perella, J. R. (2004). *Applied mergers and acquisitions* (Vol. 173). John Wiley & Sons.
- Bruner, R. F. (2005). Where M&A Strays and Where it Pays. In R. F. Bruner, *Deals from Hell* (pp. 22-25). Elsevier.
- Burgstahler, D. C., Hail, L., & Leuz, C. (2006). The importance of reporting incentives: EM in European private and public firms. *The accounting review*, 81(5), 983-1016.
- Campbell, A., & Goold, M. (1995). Corporate strategy: The quest for parenting advantage. *Harvard business review*, 73(2), 120-132.
- Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and accrual-based EM in the pre-and post-Sarbanes-Oxley periods. *The accounting review*, 83(3), 757-787.
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting EM. *Accounting review*, 193-225.
- DeLong, G. L. (2003), Does Long-Term Performance of Mergers Match Market Expectations? Evidence from the US Banking Industry, *Financial Management*, 32, (2)
- Demirag, I., Sudarsanam, S., & Wright, M. (2000). Corporate governance: overview and research agenda. *The British Accounting Review*, 32(4), 341-354.
- DePamphilis, D. M. (2018). *Merger, Acquisitions, and Other Restructuring Activities* , Ninth Edition. Los Angeles, CA, United States: Elsevier Inc.

- Dopuch, N., & Simunic, D. (1982, June). Competition in auditing: An assessment. In *Fourth Symposium on auditing research* (Vol. 401, p. 405). Urbana, IL: University of Illinois.
- Easterwood, C. M. (1998). Takeovers and incentives for EM: an empirical analysis. *Journal of Applied Business Research (JABR)*, 14(1), 29-48.
- Erickson, M., & Wang, S. W. (1999). EM by acquiring firms in stock for stock mergers. *Journal of Accounting and Economics*, 27(2), 149-176.
- Fama, E.F. and M.C Jensen (1983), "Separation of Ownership and Control", *Journal of Law and Economics*, 26 (June): 301-325.
- Fields, T. D., Lys, T. Z., & Vincent, L. (2001). Empirical research on accounting choice. *Journal of accounting and economics*, 31(1-3), 255-307.
- Geiger, M. A., North, D. S., & O'Connell, B. T. (2005). The auditor-to-client revolving door and EM. *Journal of Accounting, Auditing & Finance*, 20(1), 1-26.
- Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). *The economic implications of corporate financial reporting*. *Journal of accounting and economics*, 40(1-3), 3-73.
- Hargrave, M. (2019, May 3). *Investopedia*. Retrieved from Mergers and Acquisitions: <https://www.investopedia.com/terms/m/merger.asp>.
- Healy, P. M., & Wahlen, J. M. (1999). *A review of the EM literature and its implications for standard setting*. *Accounting horizons*, 13(4), 365-383.
- Houston, J.F.; James, C. M. and Ryngaert Michael D., (2001), Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders. *Journal of Financial Economics*, 60, (2-3), 285-331.
- Iannotta, G. (2010). *Investment Banking, A Guide to Underwriting and Advisory Services*. Milano: Springer.
- Jensen, M.C. (1993), "The Modern Industrial Revolution, Exit, and the Failure of Internal

- Control Systems”, *Journal of Finance*, 48: 831-880.
- Jensen, M. C., & Meckling, W. (1976). *Theory of the firm: managerial behavior, agency costs and ownership structure* *En: Journal of Finance Economics*, 3.
- Leuz, C., Nanda, D., & Wysocki, P. D. (2003). EM and investor protection: an international comparison. *Journal of financial economics*, 69(3), 505-527.
- Levitt A. (1998). *The numbers game. Securities and Exchange Commission, Remarks by Chair Arthur Levitt at New York University Center of Law and Business*. Retrieved from: <https://www.sec.gov/news/speech/speecharchive/1998/spch220.txt>.
- Levitt A. (2000). *Speech by SEC Chairman: Renewing the Covenant with Investors game. Securities and Exchange Commission, Remarks by Chair Arthur Levitt at New York University Center of Law and Business*. Retrieved from: <https://www.sec.gov/news/speech/spch370.htm>.
- Li, F., Rider, E., & Moore, E. (2009). *Accrual based EM, real transactions manipulation and expectations management: US and international evidence*. Unpublished Manuscript, USA.
- Lim, J. H., & Chang, J. H. (2017). EM of mergers and acquisitions of target candidates and deal withdrawn. *Journal of Applied Business Research (JABR)*, 33(3), 467-474.
- Louis, H. (2004). EM and the market performance of acquiring firms. *Journal of financial economics*, 74(1), 121-148.
- Karim, M. A., Sarkar, S., & Zhang, S. (2016). EM surrounding M&A: Role of economic development and investor protection. *Advances in accounting*, 35, 207-215.
- Koh, K., Matsumoto, D. A., & Rajgopal, S. (2008). Meeting or beating analyst expectations in the post-scandals’ world: Changes in stock market rewards and managerial actions. *Contemporary Accounting Research*, 25(4), 1067-1098.

- Koller, T., Goedhart, M., & Wessels, D. (2015). *VALUATION, Measuring and Managing The Value of Companies*. United States of America: McKinsey and Company, Wiley.
- Koutsouris, E. EM during the 1997-2001 M&A wave: a study on US stock for stock transactions.
- Kuepper, J., 2018. Fundamental vs. Technical Analysis: What's the Difference?. *Investopedia*. Retrieved from: <https://www.investopedia.com/university/technical/techanalysis2.asp>
- Marquardt, C. A., & Wiedman, C. I. (2004). How are earnings managed? An examination of specific accruals. *Contemporary Accounting Research*, 21(2), 461-491.
- Marquardt, C. A., & Wiedman, C. I. (2004). The effect of EM on the value relevance of accounting information. *Journal of Business Finance & Accounting*, 31(3-4), 297-332.
- McLetchie, J., & West, A. (2010). Beyond risk avoidance: A McKinsey perspective on creating transformational value from mergers. Perspectives on merger integration. *Mc Kinsey&Co*. Retrieved from: https://www.mckinsey.com/client_service/organization/latest_thinking/~/_media/1002A11EEA4045899124B917EAC7404C.ashx.
- Mohanram, P. S. (2003). How to manage EM. *Accounting World*, 10(1), 1-12.
- Morck, R., Shleifer, A. and R.W. Vishny (1988), "Management Ownership and Market Valuation: An Empirical Analysis", *Journal of Financial Economics*, 20: 293-315.
- Moskovicz, A. (2018). Mergers and Acquisitions: A Complete and Updated Overview. *THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT*.
- Mukherjee, T. K., Kiyamaz, H., & Baker, H. K. (2004). Merger Motives and Target Valuation: A Survey of Evidence from CFOs. *JOURNAL OF APPLIED FINANCE*.
- Penman, S. H. (2013). Analysis of the Quality of Financial Statements. In M.-H. Education (Ed.), *Financial Statement Analysis and Security Valuation* (Fifth Edition ed., pp. 590-622). New York: McGraw-Hill Education.

- Petitt, B. S., & Ferris, K. R. (2013). *Valuation for Mergers and Acquisitions, Second Edition* .
New Jersey, USA: Pearson Education, Inc.
- Platt E. et al., 2019. T-Mobile and Sprint clinch US approval for merger.
Retrieved from: <https://www.ft.com/content/048a149a-af00-11e9-8030-530adfa879c2>
- Riccardo, A., 2016. *Le dinamiche dell'earnings managment nel mercato italiano*. Retrieved
from: <https://tesi.luiss.it/16707/1/657531.pdf>.
- Ronen, J., & Yaari, V. (2008). *EM* (Vol. 372). New York: Springer US.
- Rosenstein, S., & Wyatt, J. G. (1990). Outside directors, board independence, and shareholder
wealth. *Journal of financial economics*, 26(2), 175-191.
- Roychowdhury, S. (2006). EM through real activities manipulation. *Journal of accounting and
economics*, 42(3), 335-370.
- Schipper, K. (1989). EM. *Accounting horizons*, 3(4), 91.
- Shuto, A. (2007). Executive compensation and EM: Empirical evidence from Japan. *Journal of
International Accounting, Auditing and Taxation*, 16(1), 1-26.
- Skinner, D. J., & Sloan, R. G. (2002). Earnings surprises, growth expectations, and stock returns
or don't let an earnings torpedo sink your portfolio. *Review of accounting studies*, 7(2-
3), 289-312.
- Sprint Corporation (2019). Form 10-Q for the Quarter Ended June 30, 2019.
- Sprint Corporation (2019). Form 10-Q for the Quarter Ended September 30, 2019.
- Sprint Corporation (2019). Form 10-Q for the Quarter Ended December 31, 2019.
- Stulz, R. (1988), "Managerial Control of Voting Rights: Financing Policies and the Market for
Corporate Control", *Journal of Financial Economics*, 20: 25-54.
- Teoh, S. H., Welch, I., & Wong, T. J. (1998). EM and the long-run market performance of
initial public offerings. *The journal of finance*, 53(6), 1935-1974.

Teoh, S. H., Welch, I., & Wong, T. J. (1998). EM and the underperformance of seasoned equity offerings. *Journal of Financial economics*, 50(1), 63-99.

T-Mobile US, Inc. (2019). Form 10-Q for the Quarter Ended March 31, 2019.

T-Mobile US, Inc. (2019). Form 10-Q for the Quarter Ended June 30, 2019.

T-Mobile US, Inc. (2019). Form 10-Q for the Quarter Ended September 30, 2019.

T-Mobile US, Inc. (2019). Form 10-K for the Year Ended December 31, 2019.

Watts R., Jerold L., Zimmerman L. (1986), Positive accounting theory, *Prentice–Hall Inc.*

You, V., R. Caves, M. Smith, and J. Henry, 1986. “Mergers and bidders’ wealth: Managerial and strategic factors”. *Lacy Glenn Thomas III, ed., The Economics of Strategic Planning: Essays in Honor of Joel Dean, Lexington Books*, 201-221.

Yuth, C., & Ergun, U. (2015). Accounting Quality Models: A Comprehensive Literature Review. *International Journal of Economics, Commerce and Management*, 3(5), 33-66.