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**WHICH TYPE OF M&A DEAL CREATE VALUE FOR THE
SHAREHOLDERS AND FOR THE FIRM**

Author: Andrea CORTE SUALON

Under the supervision of Patrick LEGLAND

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ABSTRACT

In a period where M&A activity has reached its all-time maximum level, it is more than ever important to investigate how these transactions may impact the value of a firm. This paper will explore the most significant metrics in order to measure value creation, both for the shareholders and for the firm in general, in the context of M&A, and will provide as well an analysis of the shortcomings and advantages of each indicator. The paper will moreover enumerate the determinants of a deal (such as hostile vs friendly, type of offerings and more) and analyze their impact on value creation. After having summarized the literature on value creation based on the different types of deals (horizontal, vertical and more), the paper will connect theory with practice analyzing a recent case study. The paper will apply all of the concepts detailed in the previous section to the relevant deal, and will draw conclusions on how appropriate are the indicators in order to measure value creation.

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LIST OF ABBREVIATIONS

CAPM	Capital Pricing Asset Model
CoD	Cost of Debt
EPS	Earnings per Share
FTC	Federal Trade Commission
M&A	Mergers and Acquisitions
MoE	Merger of Equals
P/E	Price to Earnings Ratio
PMI	Post Merger Integration
ROCE	Return on Capital Employed
ROE	Return on Equity
TSVA	Total Shareholder Value Added
WACC	Weighted Average Cost of Capital

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1. INTRODUCTION

1.1 RELEVANCE OF THE TOPIC

At the time when we are writing this paper, M&A activity is at its maximum by any historical standard. 2021 was the record year of all time highs, registering a huge boost in the value and volume of deals. The former increased by 60 percent, reaching a \$5.5 trillion aggregated value. The latter went up 26 percent, to over 60,000 transactions (source: Statista).

Nonetheless, there is large consensus among researchers and practitioners regarding value destruction in M&A transactions. “The case against mergers”, published in October 1995 in Business Week, proved that 65% of major M&A deals destroyed value for bidder’s shareholders. This has been the first of a long series of studies aimed at showing the dangers of M&A activity – especially for bidding shareholders. The most recent of these studies has been conducted by Jeffery M. Weirens and Mark Sirower, which enlarged the sample of “the case against mergers” including deals from 1995 to January 2022, arriving to the same result: most of M&A deals destroy value for the bidding firm and shareholders.

However, among this sample the volatility of results is very high, and M&A remains a very powerful tool to pursue many strategic objectives in a very short time frame. If used well, it can lead to a solid competitive advantage: examples are many, such as Disney or Amazon. At the time we are writing this paper, the latter is the global leader in e-commerce and growing in many segments, and it has consolidated its leading position also thanks to a well developed M&A strategy: since its inception it has executed 87 full acquisitions.

1.2 RESEARCH QUESTION

Nonetheless, examples are numerous also on the flip side of the coin, with many illustrations of M&A deals that not only failed to create value, but also dragged well established companies into bankruptcy. We decided then to perform a review of the research literature with the goal of outlining a theoretical framework of what contributed towards value creation and

destruction in M&A, and ultimately to apply it to a case study. The paper was hence developed with the ultimate goal of answering the question:

Which type of M&A deal create value for shareholders and the firm in general?

1.3 STRUCTURE OF THE PAPER

The paper will have the following structure: chapter 2 will give an overview of M&A in general, giving a basic definition of it based on the type of offerings and goods exchanges. It will moreover give an overview about its current and past trends, analyzing the merger waves which took place in the past. After that, it will provide a summary of the theories of why companies engage in M&A activity. Chapter 3 will deep dive into value creation: it will firstly provide the literature review on M&A value creation in general and will analyze the reasons why so many deals fail to create value. After that, it will report the soundest indicators to measure value creation, enumerating their advantages and disadvantages, and it will analyze the different types of deals (eg: horizontal, vertical ...): after explaining the rationale of each type of deal, we will report the literature review regarding value creation or destruction on that specific type of deal. Chapter 4 will focus on our case study of reference, Microsoft's \$19 billion acquisition of Nuance.

2 M&A CONTEXT

2.1 M&A DEFINITION

An M&A transaction can have different names based on numerous factors, such as the means of payment or what is subject to the transaction (such as shares or assets). A simple classification is provided in the table below:

		Consideration offered	
		Cash	Shares
Type of Transaction	Assets	Acquisition of Assets	Contribution of Assets
	Shares	Acquisition of Shares	Share exchange/merger

[Table 1: Classification of M&A transaction]

In a contribution of assets, a target contributes its assets and liabilities (part or all fo them) to a bidder in exchange for the bidder’s shares.

In a contribution of shares, a target exchange its shares for the bidder’s share: in this case the two companies continue to exist, but the target becomes a subsidiary of the bidder. This result is most commonly achieved by a share exchange offer.

Vernimmen defines a legal merger as “a combination of the assets and liabilities of two or more companies into a single legal entity” [Venimmen, Mergers and Demergers, p. 821].

The mean of payment (that is, cash of shares) represents a huge strategic tradeoff both for the target and the bidder, and the recent financial literature agrees with the fact that this choice has also an implication for the outcome of the value creation of the deal. Indeed, in the study of 2022 quoted in the introduction, Sirower and Weirens found that stock transaction underperform on average cash transaction – that is, if an M&A transaction is executed by a cash exchange, it has more chance to create value (we will analyze in the next chapter this topic in more detail). In case the companies opt for a share to share exchange, they can decide whether to arrange an exchange ratio based on fixed share of fixed value.

CASH VS STOCK OFFERINGS

We outline the trade-off of the payment consideration below. A bidder might prefer to pay an acquisition in cash because (Damodaran, 1996):

- It will most likely boost the bidder's EPS: EPS is defined as $\frac{\text{Net Income Fully Diluted}}{\text{\# of shares}}$; as a result of an acquisition paid in cash (provided that the target has a positive Net Income), the numerator increases and the denominator doesn't change. This is just an approximation, given that to measure precisely EPS accretion the analyst should factor in also the cost of debt raised to finance the acquisition after tax.
- It will not dilute the bidder's shareholders: the ownership structure won't be affected by a cash acquisition.
- It doesn't want to share the upsides of the acquisition with the target's shareholders: if the bidder really believes that the acquisition is going to create value, it prefers not to give shares of the combined entity to the target's shareholders in order to fully capture the value created.

On the other hand, a bidder might not want to pay an acquisition in cash because:

- It might deteriorate the combined financial leverage: the higher the size of the target compared to the size of the bidder, the more this statement is true. We identified financial leverage as one of the factors that can have an impact on value creation in M&A deals (the details will be discussed in the next chapter).
- It might incur an opportunity cost: if the bidder's management feels that its stock is overvalued on capital markets compared to the target's stock, then stock is a cheaper currency compared than cash.
- It wants the target to be involved in the success of the merger: if the target has a stake in the combined entity, it will be committed to achieve the best execution of the merger, given that in case the deal will be value destructive it will share the downside with the bidder.
- It will incur in additional taxation, while for a stock deal taxation will be postponed to when the investor will sell the shares.

The pros and cons of making an acquisition offering shares are symmetrical. In addition, the combined entity can benefit largely from the increase of the size of its market cap (not reached in a cash deal): this is specific to the case where this size is sufficient for the company to be included in market index, which results in a huge increase of demand of the company stock (by mutual funds, insurance funds etc.) (Dallocchio et al., 2015). Mixed offerings also do exist, with the advantage of the possibility of combining pros and cons of the factors analyzed.

2.2 HISTORY OF MERGERS

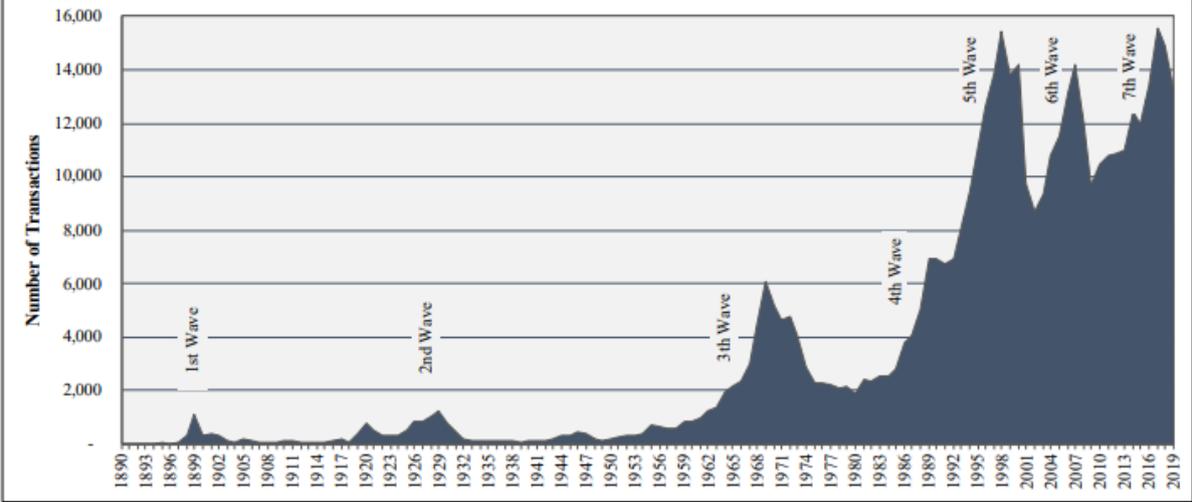
Historically, M&A activity has not happened uniformly over time but it has been condensed in specific time periods – the M&A Waves. These started in the US in the end of the XIX century, becoming later a global phenomenon spreading in Europe, Asia and all over the world.

M. Mitchell et J. H. Mulherin (1996) investigated the causes of what triggers period with strong M&A activity and arrive at the following conclusion. M&A waves are caused by a combination of different factors, including:

- Economic activity: M&A as an “industry” has a beta larger than 1, thus meaning that it moves in line with the economy but with larger volatility. For example, in periods with large growth driven by a strong demand, companies will engage in M&A in order to fill this demand gap as fast as possible.
- Technological changes: that can create new champions, new competitors and even new industries (eg: the internet).
- Regulatory changes: that again can incentivize companies to pursue more aggressive M&A and even to tap into new industries (for example, bankassurance was born as a sector thanks to a new regulation that allowed American banks to tap into the insurance industry).

J. Harford (2005) adds that these 3 are necessary but not sufficient conditions: in order to trigger a merger wave, the macroeconomic conditions must allow for a large amount of capital liquidity availability.

Reserachers identify in the recent history 6 merger waves, all characterized by different peculiarities. We will analyze them in this section, including the factors that triggered them and caused their end. Figure 1 below illustrates the M&A activity by dealcount from 1890 to 2019.



[Figure 1: Historical M&A activity; Source: IMAA (2020)]

1st WAVE

The first wave happened from 1897 to 1904 and it has been defined as the “horizontal mergers wave”. Neil Fligstein estimated that 78% of all the mergers that have been executed in this wave were characterized as horizontal ones. For this reason, this wave is also called as the “wave of monopolies”, as this strong activity resulted in a huge industry concentration. The trigger of this wave was of legal nature, as new laws that made it easier to raise capital were passed. This phenomenon was localized only in the US and ended due to the combination of a weak banking system (which posed an end to the ease of capital raise) and to a bear stock market in 1904.

2nd WAVE

The second merger wave happened from 1916 to 1929, and it was defined by G. Stigler as the “Oligopoly Wave”. This wave saw again high activity of industry consolidation, but in a more controlled way than the 1st wave, creating oligopolies and not monopolies. In this wave

vertical mergers were more common than horizontal mergers as a result of the 1914 Clayton Act, a US antimonopoly law that made it illegal for a company to acquire stock in another company if this would have reduced significantly the competitive landscape of the industry. The wave was triggered by the after WW1 economic boom and was stopped in 1929 with the Wall Street crisis.

3rd WAVE

From 1965 to 1969, it is defined as the “conglomerate merger wave”. In fact, the Federal Trade Commission (FTC) estimated that 80% of all the mergers executed in this 5 years were aimed at creating conglomerates. The wave was triggered by two factors: an extraordinary booming economy in the US, with growth rates never seen after the 2nd world war, and again legal factor. In detail, according to P. A. Gaughan (2011), what determined the 3rd wave to be the “conglomerates” one was the Celler-Kefauver act (1950), which provided a stricter enforcement of the precedent anti-monopolistic Clayton Act, and this pushed many large companies to diversify rather than pursuing horizontal mergers (the latter would have been challenged and stopped). H. Servaes (1996) finds that the average business segment where every US listed company was operating evolved from 1.74, prior to the start of the wave, to 2.70, at the end of the wave.

4th WAVE

From 1984 to 1989, the fourth wave has become famous for being at the same time the “hostile mergers wave” and the “megamerger wave”. The former name was given because it saw a high number of hostile takeovers, that is mergers without the approval of the target’s management. An implication of this was the popularity of corporate raiders, who were orchestrating these operations, and investment bankers, who were hired increasingly and registered unprecedented advisory fees. The name “megamerger waves” was due to the increasing share of deals larger than \$100 million among the overall M&A activity, and especially in certain sectors such as Oil & Gas or Healthcare. This wave was characterized by a massive use of debt and saw the rise of the LBO that gained great popularity among dealmakers. The wave ended due to the recession at the beginning of the 90s.

5th WAVE

From 1992 to 1999, this wave was driven by three factors: a massive growth in the aggregate demand, which pushed companies to search for inorganic growth in order to fulfil the demand as fast as possible; strong bull markets, who incentivized bidders to complete these acquisitions with equity (rather than with debt as in the previous wave), and helped fueling the “managerial hubris” that is one of the main motives of why companies engage in M&A; radical innovation, that pushed the activity especially in certain sectors such as communication (due to the rise of internet). This was the first truly international wave, as strong M&A activity was registered also in Europe and APAC. It ended with the explosion of the dot com bubble in the 2000, and resulted in huge losses for the shareholders of the bidding companies (P. A. Gaughan (2011)).

6th WAVE

From 2002 to 2008, this wave was fuelled mainly by the macroeconomic environment. Indeed, the wave was triggered by the low interest rate as a result of the 9/11 attacks. This triggered a low cost of debt, which had a good effect on financing, hence favouring certain sectors such as housing, construction services and Private Equity in general. The wave ended with the global financial crisis of 2008.

2.3 M&A RATIONALE

The reasons of why a company might decide to engage in M&A are multiples. Many industry practitioners and researchers have proposed different classifications of the rationale of mergers activity. Table 2 proposes a summary of them, classified on two metrics:

- whether the focus is in the interests of the shareholders or managers, and
- based on where the net gains are originated (or, if not originated, where the wealth transfers take place)

Focus on shareholders' interests	Net gains through synergies	Efficiency theory
	Wealth transfers from customers	Monopoly theory
	Wealth transfers from target's shareholders	Raider theory
	Net gains through private information	Valuation theory
Focus on managers' interests		Empire-building theory

Table 2: merger rationale classifications (Trautwein, 1990, p. 284)

a. Efficiency theory: synergies

Calipha, Tarba & Brock define synergies as “the ability of two or more business units to create greater value by combining their businesses rather than each working apart” (Calipha, Tarba & Brock, 2010). Intuitively speaking, this should represent the most common reason of why M&A should happen: an increase in efficiency of the combined entity larger than the sum of the two separated firms, or

$$1 + 1 = 3$$

Practically speaking, most of the mergers whose rational was “synergy creation” fails to deliver the expected synergies after the execution of the deal. There exists different types of synergies. We will use for the sake of simplicity Trautwein’s (1990) classification in 3 categories: operational, financial and managerial.

OPERATIONAL SYNERGIES

Operational synergies are achieved when the combined entity is run more efficiently than the two single companies. We distinguish two sub-categories of operational synergies: costs and revenues synergies.

Cost synergies are the most taken into account by practitioners because they are the easiest to implement. Most common examples include economies of scale (variable cost reduced due to an increase in capacity), the elimination of redundancies (eg: centralizing administrative functions, or the elimination of one headquarter, or simply reducing headcount), increased

bargaining power with supplier due to the increase of the size of orders (which translates in lower prices), economies of scope (if sharable inputs, joint production of two products is less costly than the separate production of the two of them).

Revenue synergies are usually harder to estimate and to implement, given their nature. Revenue synergies happens when the combined entity revenues are larger than the sum of the revenues of the two companies. Again, these can take many forms, including bundling of offering (the customer values more two products combined rather than two products bought singularly),

MANAGERIAL SYNERGIES

Managerial synergies refer to the improvements that a company managed by inadequate executives might register if a change of management occurs. The only argument here is that the bidder will be able to better manage the target's asset compared to the previous management.

FINANCIAL SYNERGIES

Financial synergies are achieved when the combined entity registers a cost of capital that is lower than the weighted average of the cost of capital of the two single entities. This can be achieved in various ways.

Firstly, there is an inverse correlation between cost of debt and size of the company: hence in theory, everything else equal, the combined entity should benefit from lower negative interests on its external debt.

In addition, in some cases the needs of external financing might be completely eliminated in a merger. A significant merger might create an internal capital market, and cash surplus of one division might compensate cash deficit of another division, eliminating the need to go for external financing.

Finally, some companies might achieve diversification through M&A, and this in theory should reduce the cost of debt of the combined entity given that it should be perceived as safer by the lender. This is a recurrent rationale in the case of conglomerate mergers.

Even if in theory these reasonings might sound solid, we will see in the next chapter that in practice most of the synergies are not achieved.

b. Monopoly Theory

Also referred to as collusive synergies, these are wealth gains transferred from the customers to the bidder's shareholders. These gains are achieved as a result of the increased market pricing of the combined entity that, thanks to the acquisition, reduced the competition in the industry, and hence have now an increased market power.

Even though by a theoretical point of view the collusive synergies might make sense for certain industries, in practice in the latest decades it has been very rare to achieve them in the most developed markets due to Antitrust regulations and their push towards customer protection.

c. Net Gains Via Private Information

According to the *Valuation Theory*, bidders might engage in M&A also just because they feel they identified a target that is underpriced according to their set of information. It is important to note that this theory does not go against the semi strong efficient market hypothesis, given that the bidder in this case might exploit also private information.

d. Managerial Hubris

Marris was the first to propose in 1964 the "Empire Building Theory", followed by Jensen in 1986. The intuition of their theories is the following: management compensation is related to the size of a company. Hence, managers are more likely to pursue M&A regardless of the impact on profitability and net income, as revenues will be the main metric that will determine their salary. Balzer, in a paper published in 2000, adds the "prestige" factor, directly related to the company size (and not to its profitability) that managers can achieve faster through inorganic growth, regardless of whether the deal is convenient or not for shareholders.

Hubris is hence an important reason of why companies engage in M&A: because the decision makers, the managers, want to increase their prestige and inorganic growth is one of the fastest way to achieve that. It is also interesting to note that historically managers are overly optimistic regarding their abilities, and this translate in premia too high offered to target shareholders [Black, 1989].

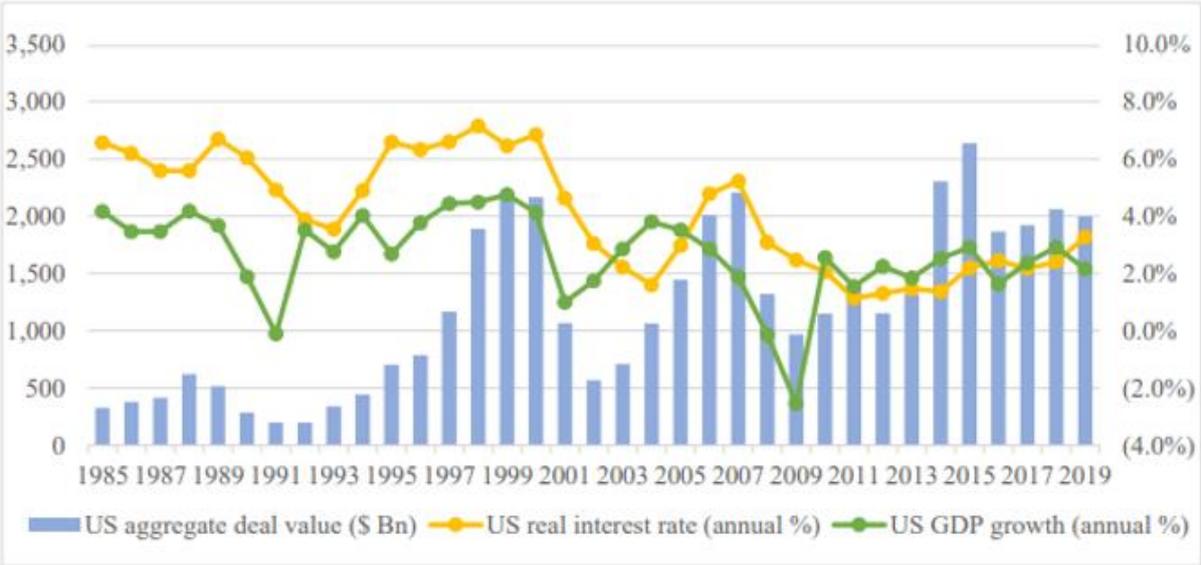
e. Disturbance theory

Elaborated by Gort in its paper published in 1969, this theory aims at explaining M&A as a macroeconomic phenomenon and says that merger waves are caused by exogenous factors that “disturbs” companies. These factors, that for example could include technological changes or liberalization, increase sensibly the macroeconomic uncertainty and induce hence a change in the valuation that company owners see in their own and other businesses. This generates “asymmetry” in company valuations and hence creates a merger wave.

2.4 IMPACT OF INTEREST RATES ON M&A ACTIVITY

Two of the most important determinants of M&A activity are interest rates and GDP growth. Regarding interest rates, M&A activity is negatively correlated with them (increase in interest rates decrease mergers and acquisitions). On the contrary, M&A is highly correlated with the economic cycle (it has a “beta larger than 1”).

The chart below shows the relation between M&A activity (aggregate USD value and not dealcount), the real interest rate and the GDP growth, all in the US territory.



[Figure 2: Correlation between M&A activity, real interest rates and GDP growth in the US from 1985 to 2019; Sources: Inaa Institute and The World Bank]

3. VALUE CREATION

3.1 LITERATURE REVIEW

Having outlined in the previous chapters the reasons why companies engage in M&A, may them be rational or not, and having described the various types of M&A deals, we deep dive in this chapter to the core of this paper: value creation.

Many studies have been conducted since the paper “the case against mergers” has been published in 1995, most of them arriving to the same conclusions. There is agreement among researchers and practitioners that M&A creates significant value for the target shareholders. Researchers who try to quantify this value arrive at different numbers, arriving up to 30% (depending also on the macroeconomic conditions of the period when the sample has been taken). There is agreement also regarding the bidder’s shareholders returns: M&A is on average value destructive or, at best, value neutral for them. Mark Syrower published in 1997 “The Synergy Trap”, where he finds that 2 out of 3 mergers are value destructive for the bidder’s shareholders. In his study updated in 2022 and published in “The Synergy Solution”, he finds the same results for the most recent decades: bidder’s shareholders register on average a -1.6% return after announcement of an M&A deal, and one year after they register a -2.1% return. Nonetheless, volatility is very high inside this sample, and M&A remains one of the most powerful tools that companies have to beat competition and gain a sustainable competitive advantage, with many cases of companies which established themselves as industry leaders thanks to a successful M&A strategy (such as Amazon, which at the time we are writing this paper has executed 87 acquisitions).

This chapter will have hence the following structure: section 3.2 will define what is value creation and will outline the most relevant indicators in order to measure it, both market based, accounting based and economic based. Section 3.3 will define the features that contributes towards value creation and destruction in an M&A deal. Finally, Section 3.4 will define which type of deals are value creative and which one are value destructive.

3.2 WHY SO MANY MERGERS DESTROY VALUE

Before deep diving into metrics and factors of value creation, we would like to analyze in this sub-section the reasons of why so many mergers destroy value and fail to deliver the synergies expected.

M&A creates value at aggregate level

First of all, it is important to highlight that, even if the bidder's shareholders experience negative or, at best, neutral returns due to M&A activity, the target's shareholder experience large wealth gains, which are on average larger than 20% (Sirower et al., 2022). Hence, the question comes naturally: does M&A create overall value for the economy? Since the average size of the bidder is larger than the average size of the target, do the positive returns of the latter compensate for the negative ones of the former, or is M&A an activity that is inefficient for the macroeconomic environment?

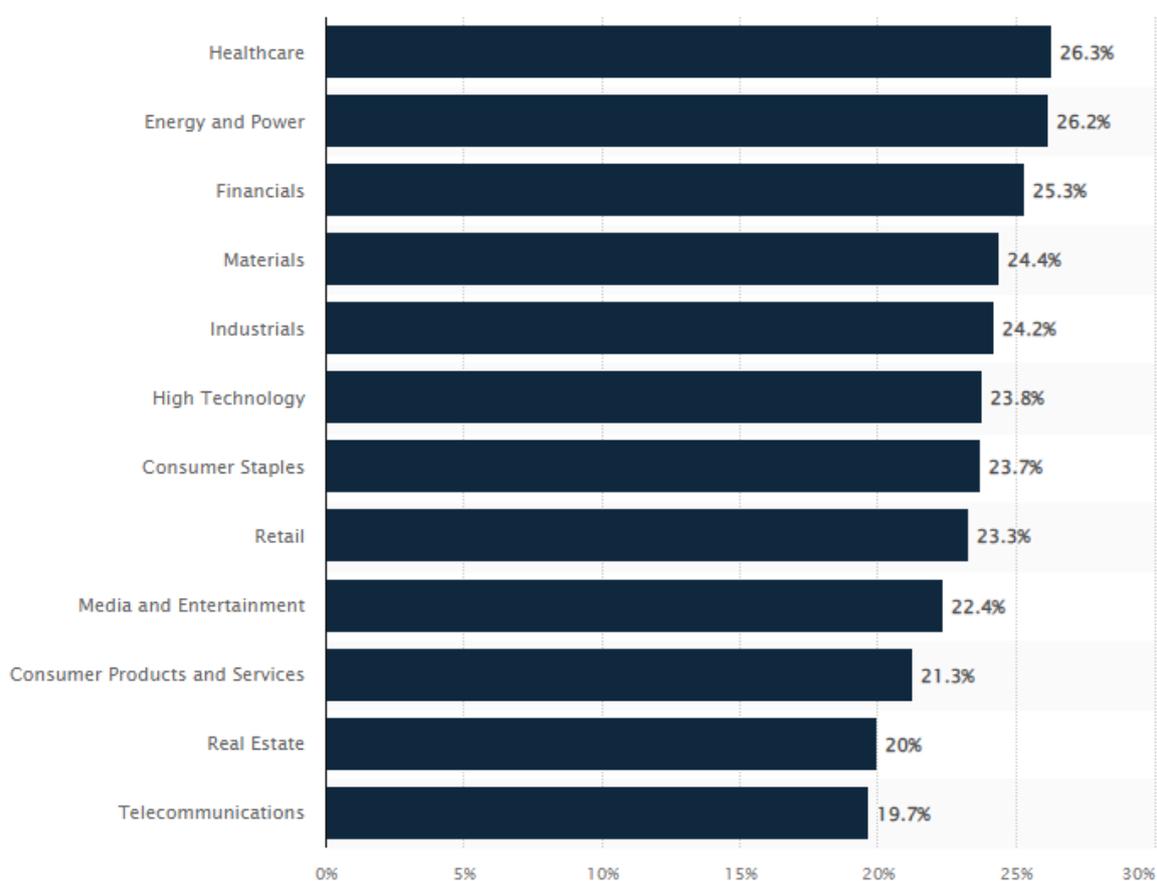
This question has been investigated by many researchers such as Sirower et Wereins (2022), who all agree on the conclusions: the empirical evidence shows that the value creation of the seller is larger than the average value destruction of the bidder, hence pointing to the fact that M&A creates value at the aggregate macroeconomic level. They also calculated using a sample of 1267 deals from 1998 to 2018 the TSVVA (Total Shareholder Value Added) at announcement of the deals, and measured it to be on average significantly positive (that is, the weighted average return of seller and bidder is larger than zero): another piece of evidence of the overall value enhancing of M&A for the economic system.

Summarizing, M&A activity means on average large gains for the company being acquired and small but relevant losses for the company pursuing the acquisition. And we can suppose that the latter are not anticipated, given that the bidder is the one orchestrating the deal. The reasons why such a high percentage of deals (2 out of 3 according to a report published by BCG in 2013) result in value destruction for the bidding company and its shareholders are reported in the following sub-sections.

Very High Premium Offered

To close an M&A deal, a bidder needs to pay a control premium in addition to the market value of the target at the day of announcement. This premium reflects the value of being able to control the company, in addition to the many usual rights such as dividend etc.

Premia offered in deals vary from industry to industry, but they amount to an average of +23% (Statista, 2022). Figure 1 represents the average premia by industry for all the US transaction announced in 2018. The premia are calculated on the average 4 prior weeks undisturbed price prior to announcement.



[Figure 3: average premium to 4 week target stock price by industry in the US in 2018;

Source: Statista]

At a first consideration, we will be able to anticipate that a deal will be value destructive for the bidder's shareholder if

$$\text{Premium offered} > \text{Present Value of Synergies}$$

This is just a simplified formula that will be analyzed in a more comprehensive way in the next section, but it is useful to see that a higher premium offered by the bidder translates in a higher cost of capital requirement: everything else equal, the return that the combined entity needs to deliver has now increased.

The first reason of why M&A deals fail to create value for so many bidders is that the premia offered are too high, and they finally end to increase too much the cost of capital required by the combined entity. The reasons for that have been investigated by many researchers. Sirower and Weirens (2022) suggest that bidding managers fail to understand the performance trajectory already priced in the stand-alone company. This means that sometimes performance improvement is already expected and priced in a stand-alone company, but the bidder fails to recognize that and counts it as synergies.

In a report published by McKinsey in 2011, R. Dobbs, B. Huyett and T. Koller suggest that the reasons for that might be connected both to the screening and bidding process for the acquisition of target. Regarding the former, they criticize the traditional target screening process followed by executives, according to which they screen targets inside a portfolio of "good performing companies". In fact, value creation would be achieved in an easier way if managers would screen also financially weak companies, as in this case there would be more room for improvement and hence value creation.

Another reason proposed by the same authors is related to the bidding process and has the roots of its reasoning to the "best owner principle", according to which each business has a different value depending on its owner. Hence, instead of focusing on themselves and analyzing what is the maximum bid they can afford based on the synergies created, bidders should focus on competitors, and analyze what is the maximum they can pay for the target. Following this approach, the average level of premia offered would decrease.

One last explanation offered by the same paper is related to the valuation part of M&A. Bidders indeed don't take fully into account the downside risk of an acquisition, and hence overestimate the expected value of the outcome of the deal. Indeed it is incorrect to value

only the standalone target, as this assumes that in a worst case scenario the acquisition will be worth zero. This is incorrect because M&A is full of examples of negative spillover effects, where a negative acquisition dragged down an entire organization. Bidder should hence consider also the risk of bankruptcy on its own cash flow when valuing a target.

Another confirmation of this fallacy is rooted in a financial metric used to measure ex-ante the risk of an M&A deal, the Shareholder Value at Risk (SVAR). The formula is reported below:

$$\text{SVAR} = \frac{\text{Premium paid}}{\text{Bidder Market Capitalization}}$$

This ratio hence is a measure of risk in a scenario where the deal has a negative outcome, as it shows how much of the bidder's shareholders wealth is wasted if synergies are not achieved (the higher the ratio, the higher the value destruction). But again, as reported by Sirower et al. (2022), this ratio can only obtain value larger than zero (by definition premium cannot be negative), hence implicating that in the worst case scenario the value that the transaction will destroy will be equal to the premium paid. Nonetheless, as explained before, this is not a realistic view, as the financial literature is filled with case studies where a wrong acquisition dragged in bankruptcy also the bidder. Hence, this represents again an underestimation of risk during an M&A transaction, given that the downside risk is only partially taken into account, and this translates in the overestimation of the fair premium that needs to be paid to acquire the control of a target.

Finally, a last explanation is proposed by Jensen (1986), and is related to managerial hubris: executives are overly optimistic about their ability to achieve synergies, and hence justify too easily premia that in the end they will not be able to cover with the deal execution.

Weak Strategic Rationale

Another reason of why M&A deals fails to deliver value to the bidder so often is that too frequently they are executed with a poor strategic rationale. The financial literature brings numerous examples about that, and one of the most relevant contribution has been made by M. H. Evans (1999) which enumerates the following strategic and financial motives to engage in M&A that turns out to be fallacies.

- a) Improving earnings: buying a company with the sole purpose of increasing the earnings is a fallacy. While it might be true that earnings will increase, this doesn't automatically leads to an increase in the firm value given the fact that the capital invested increased and the risk profile of the combined entity might be different than the one of the bidder pre deal. Hence, an increase in earnings could also lead to a decrease in the return on capital invested.
- b) Cheap target: buying a company with the sole rationale of its undervaluation on the stock market is very dangerous and leads most of the times to value destruction, as reported by Evans. Bidders should be very careful about this, not only because of the difficulties of executing a turnaround of distressed companies, but also because of larger problems connected with PMI that they would face in this case.
- c) Competitive advantage: engaging in M&A with the purpose of catching up on the competitors towards whom you are lagging should raise serious concerns, according to M. H. Evans. While this strategy could work in the short term, it won't correct the structural problems that made the bidding company lose the competitive advantage in the first place. Hence, M&A alone also in this case cannot maintain alone a competitive advantage in the long term.

Failing To Focus On Competitor's Reaction

Companies might engage in M&A with a very clear and sound strategic intent. But if they focus only on self-assessment and fail to anticipate the competitor's reaction, M&A could ultimately have even a negative outcome, as suggested by Porter (1979).

One of the most relevant examples related to this fallacy is Quaker's acquisition of Snapple, the natural fruit drink producer. The transaction was executed at a valuation of \$1.7 billion in November 1994, and less than 3 years later in March 1997, Quaker decided to sell Snapple for \$300 million, registering a more than 80% value destruction and entering in the records as one of the most relevant M&A value destructive deals.

Although the reasons of why this famous deal ended up being a failure are multiples, ranging from PMI to overpayment to managerial hubris, one of them is that the acquirer focused only on self assessment completely neglecting the competitors' reactions. Indeed, the new

strategy put in place by the combined entity for the acquired brand was to twist completely the distribution strategy, starting to sell it in “hot channels” such as supermarkets and large retailers as it saw an opportunity to conquer shelf space. What the bidder didn’t anticipate was, on the other hand, Coca Cola and PepsiCo’s reactions, which increased immediately marketing expenditure in order not to lose shelf space.

POST MERGER INTEGRATION

“A good PMI will not save a bad deal, but a bad PMI will destroy a good deal”

[M. Sirower and J. M. Weirens]

BCG published in 2015 the “Corporate Leaders M&A Survey”, where seasoned-M&A executives were interviewed about their experience in dealmaking. At the question related to deal failure, the most quoted motive was PMI (in detail poor cultural fit, difficult integration). In the survey of Forbes 500 CFOs conducted in 2010, when asked to identify the pitfalls in achieving synergies after having engaged in M&A, among the 10 most voted options 5 were related to PMI (with incompatible cultures and inability to manage targets being the two most voted ones). Oliver Wyman published in 2008 a report in Business Week where it illustrates that 40% of deals fail due to PMI issues.

Interestingly, PMI appears to be the most common reason why M&A doesn’t deliver the promised value according to multiple sources and surveys, but at the same time is the most unstructured process in M&A (compared to, for example, due diligence). Indeed, less than 40% of the respondents of the “Corporate Leaders M&A Survey” have a standardized process for PMI.

3.3 INDICATORS OF VALUE CREATION

The financial literature is filled with multiple indicators of value creation, with some of them having gained popularity in different historical periods. We will follow Vernimmen’s

classification in his publication “Measuring Value Creation” (2000), which divides them in three categories:

- Accounting based indicators: among these we find the EPS, one of the most appreciated by the industry professionals (but beware of that: as we will analyze later, EPS has little to do with value creation), as well as accounting ratios such as ROE. The main downside of these indicators is, ironically, that they are accounting based: this means that they can easily be manipulated by managers and that they are backward looking, not revealing a lot of information about the future value creation.
- Economic indicators: among these we will analyze the two most popular in the financial industry, the NPV and EVA. This category of indicators was created to defeat the shortcomings of the accounting based ones: while calculating profitability, they factor in risk, hence being a more reliable source of value creation. They present as well some shortcomings, the most relevant of which is represented by the fact that they are more complex to calculate.
- Market based indicators: we will analyze the Total Shareholder Value (TSV), the Market Value Added (MVA) and event studies, introduced by Fama et al. in 1969. Using these indicators we can immediately measure the value created to the shareholders and the firm by M&A in the short term. They present however downsides in its application as well, especially the fact that they are based on the relatively heavy assumption of strong market efficiency.

Table 4 below summarizes the criteria that will be analyzed in the next session, outlining the main downsides and advantages of each of these indicators.

	Economic criteria			Market criteria		Accounting criteria		
Ratio	Net present value	Economic profit	Cash flow return on investment	Market value added	Total shareholder return	Earning per Share	Accounting rates of return	Equity per share
Acronym	NPV	EVA	CFROI	MVA	TSR	EPS	ROE, ROCE	
Strengths	The best criterion	Simple indicator leading to the concept of weighted average cost of capital	Not restricted to just one year.	Astoundingly simple. Reflects the total rather than annual value created.	Represents shareholder return in the medium to long term	Historical data. Simple.	Simple concepts.	
Weaknesses	Difficult to calculate for an external analyst	Restricted to one year. Difficult to evaluate changes over a period of time.	Complex calculations.	Subject to market volatility. Difficult to apply to unlisted companies.	Calculated over too short a period. Subject to market volatility.	Does not factor in risks. Easily manipulated. Does not factor in the cost of equity.	Accounting measures, thus does not factor in risks. Restricted to one year. To be significant, must be compared with the required rate of returns.	Little connection with value creation.

[Table 3: summary of most relevant value creation indicators by category; Source: “Measuring Value Creation”, P. Vernimmen]

3.3.1 ACCOUNTING BASED INDICATORS

As mentioned in the introduction of the chapter, we include in this categories the classic accounting ratios (such as ROE, ROCE and more), as well as the widely used EPS. The main strength of this category of indicators is that they are usually fairly simple to compute, most of the times requiring only the calculation of a simple ratio. The tradeoffs of this simplicity are many, resulting in some significant downsides:

- First of all, the fact that they are “accounting based” means that they can easily be manipulated by management, and this generally suggests that an improvement in an accounting based indicator doesn’t necessarily imply value creation. A simple example could be, in a scenario like the one of today (2022) with rising costs, a manager of a manufacturing company that decides to change the inventory calculation model from LIFO to FIFO. This simple modification of an accounting policy should have no impact on the company value, of course its competitive positioning is not impacted at all by the way it records its inventory. Nonetheless this would result in an improvements of accounting ratios, such as EPS and ROE.
- Second, they are backward looking: accounting based indicators measure only past performance, and they fail to release any information regarding future performance.

For example, company in which a very bad news has just been released (eg: impossibility to sell in an important market due to new regulations) might suffer a great value destruction. Nonetheless, in the very short term accounting indicators might not change at all due to the new change in the activity of the business, hence registering a lagging.

EPS: EARNINGS PER SHARE

Earnings per share are calculated with the following straightforward formula:

$$\text{EPS} = \frac{\text{Net Income Fully Diluted}}{\text{\# of shares outstanding}}$$

This ratio has been one of the most popular ones used to measure the outcome of M&A deals. Nonetheless, as we will see, an M&A deal that is EPS accretive does not imply value creation and viceversa, an M&A deal EPS dilutive can be value creative.

First of all, we will define what are the features for an M&A deal for being EPS accretive or dilutive. In an all cash financed transaction, the deal is EPS accretive if:

$$\frac{\text{Earnings of Target}}{\text{Share Price of Target}} > \text{CoD of Bidder} * (1 - t)$$

Where the first term of the equation is the reverse of the target P/E. It is interesting to note that, in a scenario like the ones of the past recent years, where generalized interest rates have been close to the 0%, it is very easy to satisfy the equation reported above. Just to make an example, if we assume the term on the right to be 3% (cost of debt after tax), the bidder should acquire a target with a P/E of more than 33.3 to do a EPS dilutive transaction. A P/E of 33.3 is impressively high and gives a first red flag regarding the (false) equation “EPS accretion = value creation”, given that in an all-cash transaction EPS accretion would be too easy to obtain in a scenario with low interest rates.

In an all stock financed transaction, the deal will be EPS accretive only if:

$$\frac{P}{E} \text{ of Bidder} > \frac{P}{E} \text{ of Target}$$

Which makes intuitively sense, given that P/E is the indicator of how expensive is a stock (for a given level of earnings, how much should I pay to acquire stock X) and here we are discussing the example where the transaction is only financed with stock.

The main advantage of the EPS is hence that it is fairly easy to compute, both because it is based on historical data easy to obtain as an external analyst, and because its formula is a simple ratio. On the other hand, earnings can be manipulated very easily by managers (we saw previously the example of FIFO vs LIFO for inventories and their impact on earnings) but, most importantly, there is no correlation between EPS accretion and value creation in M&A.

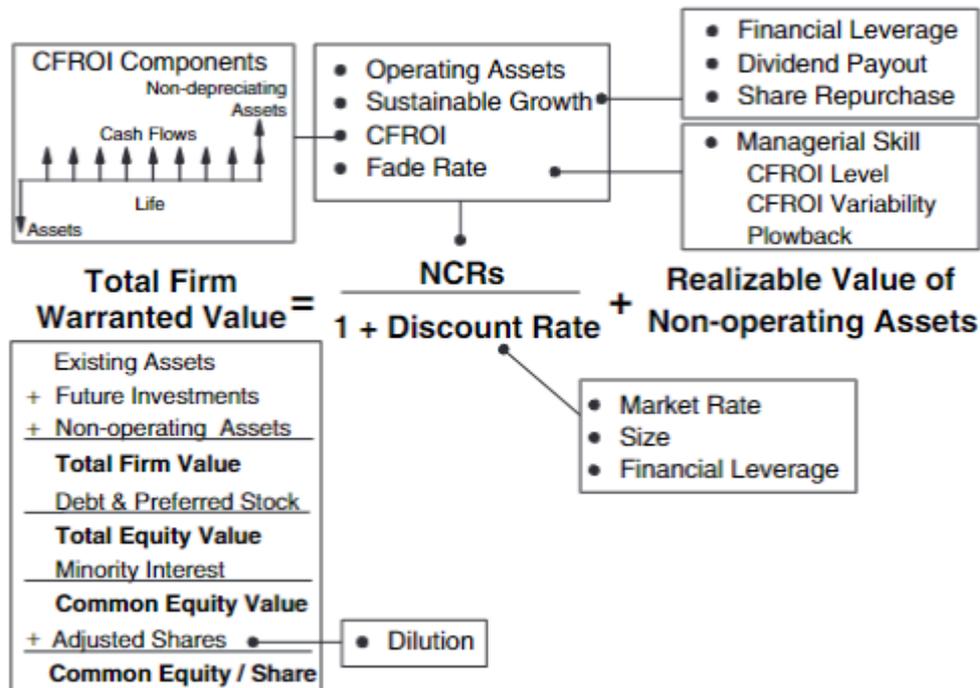
CASH FLOW RETURN ON INVESTMENT (CFROI)

Another accounting based valuation metric is the Cash Flow Return on Investment, or CFROI. In its basic formulation, it can be approximated to the formula below:

$$CFROI \approx \frac{EBITDA}{Capital\ Employed}$$

The formula above can be a good approximation of CFROI in industries where the depreciation registered in the income statement doesn't coincide with the real depreciation of the asset in real life (P. Vernimmen).

A more comprehensive definition of CFROI is given by B. J. Madden in his publication "CFROI Valuation" (1999). In its most complete version, this valuation method is a particular type of Discounted Cash Flow (DCF), that hence gives to the estimation of the total value of the firm. Exhibit 4 below shows CFROI and all its component:



[Figure 4: CFROI valuation map, Source: B. J. Madden, "CFROI Valuation", 1999]

Where NCRs are Net Cash Receipts. Hence, from the equation above, it is straightforward to see whether an acquisition created value a posteriori: after having discounted the firm NCRs by the firm's discount rate, you compare the value obtained to the price paid. If you paid less than the value obtained with the CFROI method, the deal was value creative for shareholders.

M. H. Evans argues that, although CFROI might sound theoretically compelling, by a practical point of view it presents certain disadvantages. The first of these is represented by the estimation of the future cash flows, which might be practically very hard to do, especially for an external analyst analyzing the company as a potential target. Another downside is that it suffers from the IRR assumption problem. Indeed, 2 companies with the same NPV and hence which will create the same value, will be valued differently using the CFROI indicator if they have cash flows in different periods of time (and this would be wrong, given that the NPV of the two companies is the same). This is a downside because it could make managers exclude projects that have the potential to be value creative.

ROE VS COE

A common accounting based metric to measure shareholder returns is the Return on Equity (ROE), which is expressed as the ratio between Net Income Fully Diluted and Book Value of Equity. Then, given a certain level of ROE reached in a firm, some practitioners argue that there is shareholder value creation if $ROE > \text{Cost of Equity (COE)}$. We will see that this is not always the case.

ROE can be decomposed using the dupont formula in the following equation:

$$ROE = \frac{\text{Net Income}}{\text{Revenues}} * \frac{\text{Revenues}}{\text{Average Total Assets}} * \frac{\text{Average Total Assets}}{\text{Average Total Equity}}$$

Where the 1st, 2nd and 3rd fraction represent respectively the net profit margin, the return on assets (ROA) and the financial leverage.

From the decomposition above, we can see why the ROE vs COE valuation metric is a fallacy. Indeed ROE is the product of 3 terms, two of them operational (net profit margin and return on assets), and one of them financial (the financial leverage). Hence, the management can easily boost the company's ROE just increasing its financial leverage and without increasing any operational metric of performance. This will translate in higher returns but also into higher risks, but the ROE indicator would signal only the former and not the latter.

On top of that, looking at the first formulation of ROE (Net Income to Equity ratio), it is evident how easily the outcome of this formula can be manipulated. Net income, the last line of the income statement, can be manipulated very easily also by changing the accounting policies (which of course don't have an impact on the intrinsic value of the company). Also the denominator can be easily changed by manager, such as with discretionary share buyback programs.

Hence, the reader should beware to the ROE vs COE argument, as we saw that is not a reliable indicator to measure value creation.

ROCE VS WACC

The Return on Capital Employed (ROCE) measures the company's profitability compared to all of its capital employed (and not only the equity like in the ROE). ROCE's formula is reported below:

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}}$$

Where EBIT is as always the Earnings Before Interest and Taxes, and Capital Employed is total assets minus current liabilities (that is, long term liabilities and equity, or the entirety of the financing base of the company).

On the other hand, the Weighted Average Cost of Capital (WACC) is defined as follows:

$$\text{WACC} = \frac{E}{V} * Ke + \frac{D}{V} * Kd * (1 - t)$$

Where, for a given firm, E is the market value of its equity, D is its long term debt, V is the total firm value (that is, D+E), Ke is its cost of equity, Kd is its cost of debt and t is the firm tax rate. As we can see from the formula above (and as suggested by its name), the WACC is the weighted average of the cost of financing of the firm (where the cost of debt benefits from the negative interest tax shield).

Hence, if ROCE > WACC it means that management is creating value for the overall firm, given that the return on all the capital employed is larger than the cost of capital used. Conversely to the ROE vs COE methodology, ROCE is widely known to present very few downsides and is widely used by practitioners to measure value creation with only a few exception (such as the banking or insurance sector).

3.3.2 MARKET BASED INDICATORS

The second category of value creation indicators is the market based one. Inside this, we will analyze the two most relevant according to researchers and practitioners: Total Shareholder Value (TSR) and Market Value Added (MVA). The peculiarity of these indicators is that, since they are based on returns calculated on the stock market, they are forward-looking (compared to the accounting based which are completely backward looking). This feature present both advantages and disadvantages. Among the upsides there is the fact that they allow investors to “anticipate” the value creation that a company will register, or will be expected to register. On the other hand, there might be huge differences between the outcome of market based indicators and accounting based ones for the same company. Let us consider a successful company for which a very negative news (ie: exclusion from an important market in the future)

has just been released: in this case market value indicators would assume negative values signalling value destruction, as they will anticipate the future market exclusion. Conversely, the company might remain profitable for a long time period after the announcement, and indeed accounting based indicators would continue to register “value creation”.

An additional downside is that sometimes market based indicators can be skewed by the fact that markets might be more volatile in other period than others. As we will see later, this disadvantage can be solved by taking into account larger time periods (eg: 5 years) while computing the indicators.

TOTAL SHAREHOLDER VALUE (TSV)

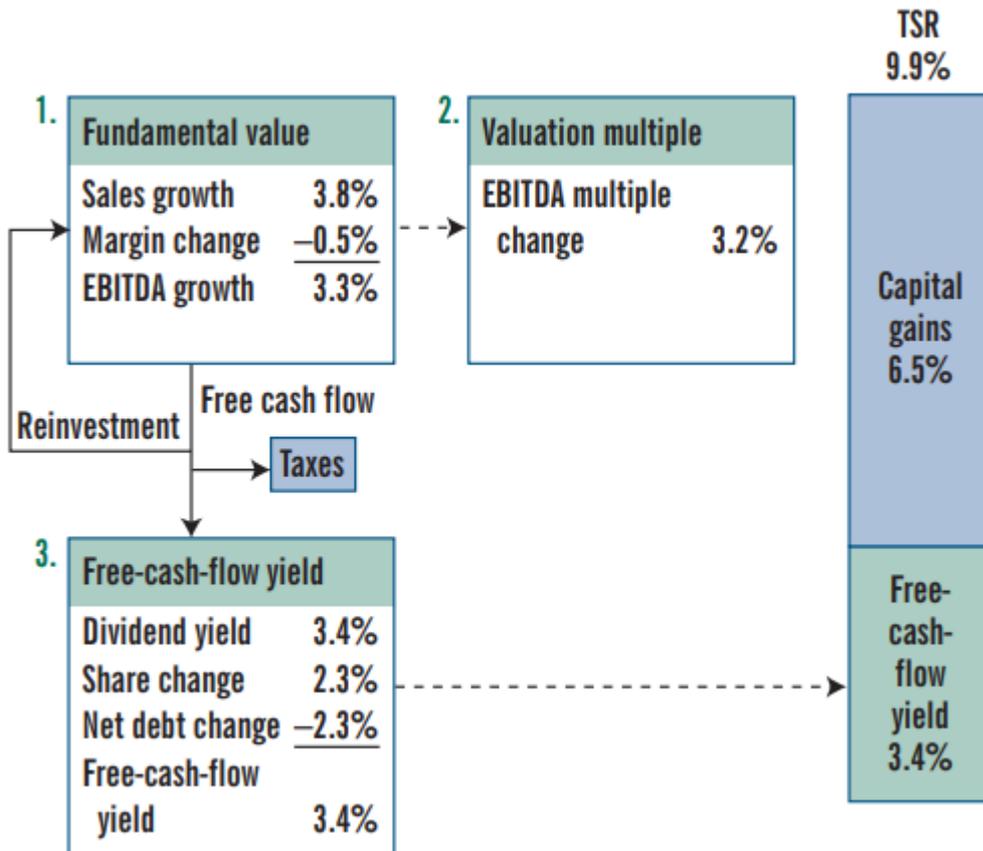
The total shareholder return for a given time period is the return of a shareholder which bought the stock at the beginning of the period and sold it at the end of it, including the dividends reinvested at the company’s internal rate of return:

$$TSR = \frac{\text{Dividends} + \text{Share Appreciation}}{\text{Share Price at beginning}}$$

It is hence influenced by three factors, as analyzed in the BCG report “the next frontier” published in 2004:

- Free Cash Flow optimization: FCF is directly related to the TSR; examples of choices that can improve the Total Shareholder Return include debt repayment, share buybacks and dividend yield.
- Financial market expectations: everything else equal (eg: no change in fundamental value or in the company’s cash flows), improving the investor’s expectations will result in an immediate increase of the company stock price, that will increase the numerator of the previous formula and hence improve the TSR for the company.
- Fundamental Value: an improvement in fundamental value will result in an increase in the share price and hence in an increase in the company’s TSR. This can be obtained in different ways, such as improving the margins, enhancing the revenues, reducing the cost of capital employed etc.

Figure 5 below shows the TSR decomposition model elaborated by BCG, illustrating the different value drivers of this indicator. Numbers in the figure are only for illustrative purposes.



[Figure 5: TSR decomposition model; Source: BCG publications, 2004]

Looking again at the TSR formula, we want to highlight the main downside of this indicator: financial markets can experience periods of very high volatility (especially certain sectors, such as tech) and hence the indicator could be easily skewed. The solution to this disadvantage is proposed by Vernimmen (2000), who proposes to utilize longer time periods to compute the TSR ratio (eg: 5 to 7 years). In this case, the short term fluctuations that the market often experiences would be smoothed by time.

MARKET VALUE ADDED (MVA)

Another indicator appreciated by industry practitioners and researchers is the Market Value Added (MVA), which is calculated with the following formula:

$$MVA = EV - K$$

Where:

- EV represents the Enterprise Value of the company, that is the sum of its market capitalization and its net financial debt.
- K represents the invested capital of the company, that is its book value of equity and its net financial debt.

We can hence further simplify the formula eliminating the net financial debt, and obtaining the MVA final formulation:

$$MVA = \text{Market Capitalization} - \text{BV of Equity}$$

We can now see the explanatory power of this indicator, which measures the ability of the firm to generate extra returns in addition to the capital invested. Hence, a high MVA means that the management is creating value, given that the company is valued more than the invested capital.

This formula presents two major downsides:

- In bull markets, where stock prices generally tend to rally, MVA might be positively skewed and overestimate the effective value created
- In normal markets, MVA might underestimate the value created by the management as it doesn't take into account the dividend distribution. This applies especially to industries with high payout ratios.

EVENT STUDY

The event study methodology, introduced in the financial literature by Fama et Al. in 1969, aims at monitoring the value created by an M&A deal measuring the stock price oscillation at the announcement of the deal. In detail, as proposed by Bosecke (2009), it is possible to measure the value created by M&A measuring the abnormal returns registered by the stock price at announcement.

This methodology is of course based on the assumption that financial markets are perfectly efficient: hence, as soon as an M&A deal is revealed to the public, investors can anticipate

immediately the outcome of the deal (eg: new synergies, improvements of cash flow, ...) and the new stock pricing reflect whether the deal created or destroyed value.

The formula to calculate the abnormal returns in these short term event studies is the following:

$$AR = R_t - E(R_t)$$

Where R_t is the actual return registered in the time period that we are observing, and $E(R_t)$ is the expected return of the stock, ie the return that the stock would have obtained without the announcement of the M&A deal.

Regarding the time period T, Sirower and Weirens (2022) suggest to pick a relatively short interval which starts from the undisturbed stock price (pre-rumours) and ends with the fully corrected price (after announcement of the deal details). An example of time period used by practitioners could be [-10;+10] days compared to deal announcement, but this could vary a lot. Indeed, a downside of this methodology is that in many transaction there is a leak of information, where the market is informed of the deal before the official announcement, with the consequence that it might be difficult to identify the real “undisturbed stock price”.

Given that R_t is the actual return registered, the only factor that needs to be estimated in the formula is $E(R_t)$. We can estimate the expected return of the stock in normal times using many methods, such as measuring the return of peers for the same time period. The most theoretically sound option, as suggested by Bosecke (2009), is to estimate it using the CAPM formula:

$$E(R_t) = \alpha_i + \beta_i * R_m + \varepsilon_i$$

Where β_i measures the correlation between the stock of the bidding company and the overall stock market, R_m measures the return of the overall stock market in our interval time period and ε_i represents the error term with zero mean.

After having defined this, there are two methods to calculate the aggregate abnormal returns:

- CAR (cumulative aggregate abnormal returns): it is just the sum of all the abnormal returns for the period of the event study:

$$CAR = \sum AR$$

- BHAR (buy and hold abnormal returns): the return of an investor that buy the portfolio at inception of the event study and holds it until the end minus the return of a buy and hold “undistrurbed” portfolio (that is, the control one, where there is no exceptional announcement)

$$\text{BHAR} = \pi (1+r) - \pi [1+ E(r)]$$

Both CAR and BHAR presents their downsides. While Fama (1998) argues that CAR is the best methodology to measure the abnormal returns, Barber and Lyon (1997) argue that BHAR should be picked as the preferred one as it reflects the condition of the long term investors.

An additional downside of this methodology is that it is based on a too strong assumption, that is that financial markets are perfect. As we discussed in the previous section, the outcome of an M&A transaction is influenced by numerous factor including Post Merger Integration orchestrated by management, and it is very unlikely that individuals could anticipate the outcome of this long and complex process.

3.3.3 ECONOMIC BASED INDICATORS

Our last category of value creation indicators is the ones of the economic based. These aims at solving the main downside of the accounting based ones: they indeed combine profitability measures with risk, giving a more comprehensive view of the performance of a business. We will analyze the two most theoretically sound indicators according to practitioners and researchers: the Net Present Value (NPV) and the Economic Value Added (EVA).

NET PRESENT VALUE (NPV)

The reader should be already familiar with the concept of Net Present Value, according to which a company values its investments in a new project with the following way: the sum of the future benefits of the projects, discounted at an appropriate interest rate which reflects its riskiness, minus the cost of implementing the project. This equation leads to a value that, if is positive signals that the project is value creative and hence should be undertaken and,

conversely, if it's negative signals value destruction, suggesting that the management shouldn't undertake the project.

This same "corporate finance textbook" approach to value potential projects inside companies can be used to value potential mergers or acquisitions, substituting the price of implementing the project with the price paid to shareholders to acquire the target.

The NPV formula is, in this case, the following:

$$NPV = \sum \frac{FB}{1+r} - P_0$$

Where FB represents the Financial Benefit of the target every year, r its risk adjusted discount rate and P₀ its purchase price.

NPV is the most compelling and theoretically sound method to measure value creation in an acquisition according to many scholars such as P. Vernimmen. Nonetheless, obvious downsides arise in practice with the use of this methodology, the most important of which regards the estimation of the future financial benefits. Ex-ante this represents a great challenge, especially for external analysts trying to estimate the value of a potential target and which has access to a limited amount of confidential target-specific information.

ECONOMIC VALUE ADDED (EVA)

Economic Value Added (EVA) gained popularity thanks to the consulting firm Stern Stewart, which registered it as a trademark. It can be formulated in two different formulas:

$$EVA = NOPAT - \text{Capital Charge}$$

Where NOPAT refers to Net Operating Profit After Tax (excluding also charges on capital), or EBIT*(1-t), and Capital Charge is equal to (Invested Capital * WACC).

EVA's second formulation is the following:

$$\text{EVA} = \text{Capital Employed} * (\text{ROCE} - \text{WACC})$$

From this second formula, the economic intuition of the EVA formula is evident: ROCE – WACC measures the spread between the return on capital and its cost of financing, and multiplying this spread by the overall capital employed we obtain the economic profit of the firm.

The main advantage of this indicator is hence that, while calculating profitability, it factors in the risk of a business. In addition, EVA can be calculated both on the overall firm and to its single divisions, having the advantage of giving an overview of the economic profit of each business unit.

On the other hand, the indicator presents as well numerous downsides. First of all, its calculation requires many adjustments that can make it very long and costly for a firm to adopt this valuation metric from scratch. Indeed, while computing the EVA, managers need to transform accounting numbers into economic ones. This translates into many adjustments as reported by M. H. Evans, such as R&D (expensed in accounting measures, capitalized in EVA), deferred taxes and many more. This consideration leads us to the second downsides: many adjustments means that managers can easily “game” the EVA calculation, manipulating it.

Another criticism has been expressed by A. Damodaran (2001), who wrote that “EVA is skewed towards assets in place rather than future growth” (A. Damodaran, 2001). The meaning of this sentence is that a manager who gets evaluated only by EVA could be incentivized to reduce capital invested in order to maximize the metric, with the evident downside that using this approach in the long term will sacrifice future growth opportunities.

3.4 FEATURES OF VALUE CREATION

When engaging in M&A, dealmakers confront themselves with a multitude of choices regarding the setup of the deal: how to announce the deal? Should the acquisition be paid in cash or stock? Should it take the form of a friendly or hostile takeover? And many more.

We will analyze below the academic literature and research regarding the effects of choosing between these multiple trade-off of features, with a main focus on value creation on deals.

CASH OR STOCK

We already explained in section 2 that , when financing an acquisition, a bidder has to decide whether to pay in cash or stock, and that the “best” decision depends on a number of factors related to the context of the acquisition, such as the size of the target and the bidder’s financial leverage and so on.

Sudi Sudarsanam (2003) finds that cash financed acquisition creates more value than stock for stock acquisitions. Its finding is confirmed by many other studies, the most recent being the one carried on by Sirower and Wereins (2022) where they conclude that Stock deals underperform cash deals. In their full sample of 1267 deals analyzed, the average return at announcement and after one year are respectively -1.6% and -2.1%. Dividing the sample into all cash (257 deals) versus all stock (451 deals) transactions, they discover a huge gap of returns of cash versus stock deals: +1.8% vs -2.9% at announcement, and +3.8% vs -5.7% after one year. Even more interestingly, this gap in performance is not justified, at least at first sight, by overpayment: the average premium offered to the target of the full sample is +30.1%, with +31.1% being the premium of the all-cash transaction, and +28.2% being the premium of the all-stock transactions.

The academic literature is homogeneous regarding the conclusion of the impact of means of payment: there is evidence that stock payments underperform cash payments, and this is not explained by an overpayment (given that premia offered in cash are higher than premia offered in stock).

What are the reasons for that? The authors of the different papers don’t find an empirical explanation but we can dare a couple of economic intuitions. These are to be reconnected to

the motives of why companies decide in the first place to finance an acquisition with cash or stock.

We have defined in Section 2 that a bidder might prefer to finance an acquisition with cash if it feels that its company stock is underpriced in the financial markets. Reasons for this might be multiple, such as an important research developed not announced yet. On the other hand, if the managers feel that their stock is overpriced compared to competitors, they will prefer to finance an acquisition paying with stock as it is a currency relatively cheaper than cash. Hence, one first explanation of the cash overperformance compared to stock might be implicit in this decision process, and not necessarily dependent on the outcome of the merger: indeed if a manager pays in stock it will signal to the markets that its stock is overpriced, and investors might review their valuation and forecasts about the company. On the other hand, if the bidder knows that there is a feature regarding the company that is not public yet and will increase the stock price, it will pay in cash and then, once the catalyst will be activated (eg: the company wins the patent, or the development of the drug becomes public), the combined entity will register a positive return, not necessarily related to the positive outcome of the M&A deal.

Another explanation might be reconnected to the “financial leverage” motive related to cash vs stock financing. As mentioned in the previous section, when the size of the target is very similar to the size of the bidder, the latter might prefer to finance the acquisition in stock in order not to deteriorate too much its financial leverage. Many studies highlight that PMI is one of the most common reasons why M&A deals fail to deliver their synergies and ultimately destroy value. Oliver Wyman in 2008 published a report in Business Week Survey where merger-seasoned executives were interviewed, and 40% of them blamed PMI as the most common factor of why their deal wasn’t successful. Connecting the dots, we obtain our second explanation: large deals are the most challenging ones in term of PMI, and are at the same time the ones where manager are highly incentivized to pay in stock in order not to deteriorate the bidder’s financial leverage, so that’s why the market might perceive them as “more risky”.

	<i>Target</i>	<i>Bidder</i>
All cash	30.2	0.7
All equity	15.1	-1.1
Cash or equity	27.6	0.7
Cash and equity	23.8	0.3
Convertible	11.7	1.8
Convertibles and equity	10.1	-0.4

[Table 4: average returns to shareholders, 1955 to 1985, in UK M&A; Source: J. Franks, R. Harris and C. Mayer, "Means of payment in takeovers: Results for the UK and USA]

FRIENDLY VS HOSTILE TAKEOVER

A bidder can engage in M&A both with a friendly and an hostile approach. When the management of the target is against the deal, the acquisition is defined as an Hostile Takeover. In the US the latter usually takes form with a *Tender Offer*, where the bidder makes an offer directly to the target's shareholder without the support of the target's management.

Many studies, including the one carried out by Sudi Sudarsadam in 2003, found empirical evidence that tender offers (that is, hostile takeovers) generate larger returns to the bidder than friendly bids, both in the US and in the UK market. At first, these results should look as anti-intuitive: in order to gain control in an hostile takeover, the bidder has to offer higher premia to convince the target's shareholder to sell their stake and high bonuses to fire the old management once the deal is executed, and this should contribute negatively to the value creation of the merger. Loderer and Martin (1992) arrive to the same conclusion, finding again empirical evidence that acquirers in tender offers register higher returns than acquirers in friendly offers.

Sudi Sudarsan (2003) gives an explanation to this counter-intuitive phenomenon. This intuition is strictly related to the nature of the hostile takeover, where the bidder has to fight more than normal to obtain the approval, it has to pay higher premia to convince target's shareholders to go against its management, it has to go through a more lengthy and painful process of deal closing. The fact that, even with all these downsides connected to this type of offer, the bidder still decides to undertake the acquisition, it signals that the deal is driven by a greater corporate purpose, that the two companies can really generate more value together

as a single entity rather than separately. And indeed this is what the final result suggests: the performance of these type of deal is higher than peers, and justify hence the higher premia required to close the deal.

ANNOUNCEMENT DAY REACTION

“Initial market response is a fairly reliable predictor of how the deal is going to turn out”

[Gregg Jarrell, former chief economist at the SEC]

Extensive research has been made on the company stock market reaction after the announcement, and the view about that is homogeneous: empirical evidence shows that the announcement day stock reaction is a predictor of the returns of the deal. Among the most relevant contributions there is the study of Sirower and Wereins, published firstly in “The synergy trap” in 1992 and then updated in 2022 in “The synergy solution” and, not surprisingly, results don’t change. In their full sample of acquisition executed from 1995 to 2018, they divided the mergers that had a positive effect on the bidder’s share price from the ones that had a negative effect on its stock. After studying these two portfolios, they find empirical evidence of the following (Sirower et al., 2022):

- a) There is persistence between long term returns and initial reaction after the merger is announced: 65% of the deals who registered a negative initial reaction at deal announcement continued to register negative returns one year after; regarding the portfolio of deals that registered positive returns, 57% of them was still registering positive returns one year after.
- b) The trajectory tend to become more extreme in the long term: the average return of the portfolio with negative initial reaction was -7.8% at announcement, while one year after the return of the same portfolio of bidders was -9.1%. Likewise, the portfolio of bidders with positive return registered a +7.7% at announcement on average, which after one year increased to a +8.4%.

Not only there is evidence then that the initial reaction of the bidder stock price is a strong predictor of the deal’s performance in future, but there is also evidence that in the long term this initial reaction is going to be amplified.

An explanation in addition to the under-reaction theories such as momentum and drift is also proposed by the authors of the study: with a negative stock price reaction when a company announces the deal, employees tend to start towards the merger with a low morale (also due to monetary reasons such as stock compensations that lose value due to the stock price decrease).

RELATIVE SIZE OF TARGET COMPARED TO BIDDER

Does size has an impact on M&A value creation? The literature seems to be homogeneous regarding that, as most of the empirical evidence points in the same direction. Kenneth Hogholm (2016) finds in his study a negative relationship between the size of the deal and the bidder's abnormal returns. Similarly, both Hitt. et al. (2012) and Alhenawi and Stilwell (2017) find that the deals that are most successful are the ones where the size of the bidder is relatively larger compared to the size of the target, and find in detail that merger of equals are the ones that performe worst.

After the discussion in the previous sections about the reasons why M&A deals fail, these findings should create no surprise: as the target is smaller compared to the bidder, it will be easier to integrate it into the combined entity, hence minimizing the PMI risk that is one of the major causes of why M&A deals fail to deliver value.

PRIVATE VS PUBLIC TARGET

Historically, there has been a general consensus inside the financial literature towards a larger value destruction for the bidder's shareholders when they engage in an acquisition of a public target. The first to report empirical evidence regarding that is Travlos (1987), followed by Martin and Loderer (1990), Betton et al. (2008) and many more, all with homogeneous consensus on their conclusions: M&A deals tend to be more value creative when the target is a private company (compared to a publicly listed target). Our main intuition regarding this empirical evidence is twofold and can be explained by:

- Size: again, publicly listed companies are on average larger than private companies, hence the reasoning behind this resembles the ones of the “size” subsection. Since one of the major reasons of why M&A deals fail is related to PMI issues, acquiring private companies means acquiring on average smaller targets, hence facing less PMI downsides at the deal execution.
- Premium: a second weaker explanation reconnects to the overpayment theory of why M&A is value destructive for so many deals, that is because premia paid by the bidding firms are too high. Private targets can by this point of view provide an advantage, given that the price of their equity is more blurred compared to publicly listed companies, and hence it is more easier to avoid overpayment (especially during bull stock markets periods)

Nonetheless, G. Alexandridid et Al. (2016) find new evidence regarding the subject. They analyze M&A deals from 1990 to 2015, and divide this sample into different time periods, the last one being after the financial crisis (2010 to 2015). Their findings suggest that value creation for public M&A deals changed after the financial crisis, as the bidder’s abnormal return evolved from an average of -1.08% (before crisis) to +1.05% (after crisis). They provide furthermore an intuition of which should be the causes of this change that they empirically measured, summarizing the motives into two categories that were modified by the global financial crisis of 2009:

- Increase in corporate governance quality: due to the larger attention given to investments in public companies, and by the larger amount of independent directors elected into boards as a result of the global financial crisis (80% of independent directors present in the board of public bidders vs 65% of them prior to the financial crisis). The result of this is a deeper analysis of the consequences of M&A deals (but only for public companies)
- Decrease in managerial hubris: the financial crisis had a relevant impact in reducing the managerial overconfidence, which results in excessive deal making and excessive premia due to the managerial overestimation of synergy-achievement. Alexandridid et Al. (2016) not only explain this qualitatively, but they also provide empirical evidence studying the execution of stock options by manager: pre 2009, management tended

to delay stock options execution signalling more optimistic view about their capacities, and hence higher degrees of managerial hubris, than after 2009.

3.5 TYPE OF DEALS AND VALUE CREATION

After having analyzed the proper metrics and features of value creation that are relevant to look for in a transaction, we will focus now in this section of the paper on the various type of deals and whether there is empirical evidence if they are value creative or not.

The next sections will follow then the following structure: for each type of deal, a brief overview will be made, focusing on the definition and on the possible rationale of why that type of deal is executed. After that, the value determiners will be analyzed, and it will be reported the empirical evidence on whether in the past that type of deal created or destroyed value.

3.5.1 HORIZONTAL MERGERS

DEFINITION

A purely horizontal merger is one where two firms that sell the same product or service are involved. We include in this category also “related merger” (not purely horizontal ones) following S. Sudarsanam’s definition: a related merger is one “Where firms selling products that are not identical in terms of end-use but nevertheless share certain commonalities, such as technology, markets, marketing channels, branding or knowledge base are involved” (S. Sudarsanam, 2003).

Horizontal mergers are the first category of deals that we are analyzing because they are the ones where the rationale for value creation is most powerful. We can divide the sources of value creation (hence the rationale for horizontal mergers) into three categories: cost savings, revenues enhancing, growth opportunities.

RATIONALE

- Cost savings: cost savings are categories of synergies that are most preferred by practitioners, given that they are the ones that are most easily achievable given their relatively easy implementation. Cost savings in horizontal mergers can be of different nature. *Scale economies* can be easily reached in different departments such as

production (due to increased utilization rate of machines), but also in logistics, sales and distribution and R&D due to the optimization of these departments. Other value sources that can increase cost savings are learning economies, economies of scope (that again can be reached in different departments such as distribution, production, logistic, ...) and reduction of excess capacity.

- Revenues enhancement: the first theoretical source of value creation in this category is the increased market power of the combined entity. Indeed, when conducting horizontal M&A, the bidder is acquiring what before was a competitor. The combined entity finds itself then in a scenario where competition is lower, hence can benefit from increased market power which translates in higher prices charged to the consumer. Another options to achieve revenue enhancements are network externalities that, conversely to the increased market power which translates in higher prices, have as a consequence an increase in quantity sold (eg: social networks).
- Growth opportunities: horizontal mergers can create value due to new growth opportunities, that can be reached due to the development of both new capabilities and resources on one hand, and new products or market in the other hand.

Table 5 provides a breakdown of the sources of value creation in horizontal mergers.

<i>Category</i>	<i>Type of value sources</i>
Revenue enhancement	<ul style="list-style-type: none"> • Increased market power • Network externalities • Leveraging marketing resources and capabilities
Cost savings	<ul style="list-style-type: none"> • Reduction of excess capacity • Scale economies in production, marketing, sales and distribution, logistics, branding, R & D • Scope economies in branding, marketing, distribution, production, logistics • Learning economies
New growth opportunities	<ul style="list-style-type: none"> • Creating new capabilities and resources • Creating new products, markets, processes

[Table 5: breakdown of value creation sources in horizontal mergers, S. Sudarsanam (2003)]

EMPIRICAL EVIDENCE

Empirical evidence is heterogeneous regarding value creation in horizontal M&A, as there is no definitive consensus among researchers regarding that.

Mueller (1973) found that firms who engage in horizontal M&A end up losing market share in the long term compared to competitors who did not engage in M&A. The explanation to this could be the same that we reported in the section “feature of value creation”, where we wrote that “poor strategic rationale” results in value destruction. An example of a poor strategic rationale was “gaining competitive advantage”: indeed, the fact that a company lost competitive advantage is the symptom of a major problem (eg: declining product quality) that cannot be fixed in the long term by only doing horizontal M&A in order to reduce competition. This might be a temporary solution in the short term, but the problem, if not fixed properly, will emerge again in the medium to long term.

Even more interestingly, Eckbo finds empirical evidence of the collusion hypothesis, according to which horizontal M&A creates wealth for the competitors as they benefit as well from the decrease in competition. Even worse, when there is an antitrust blockage of the deal, these gains for the competitors are not reversed.

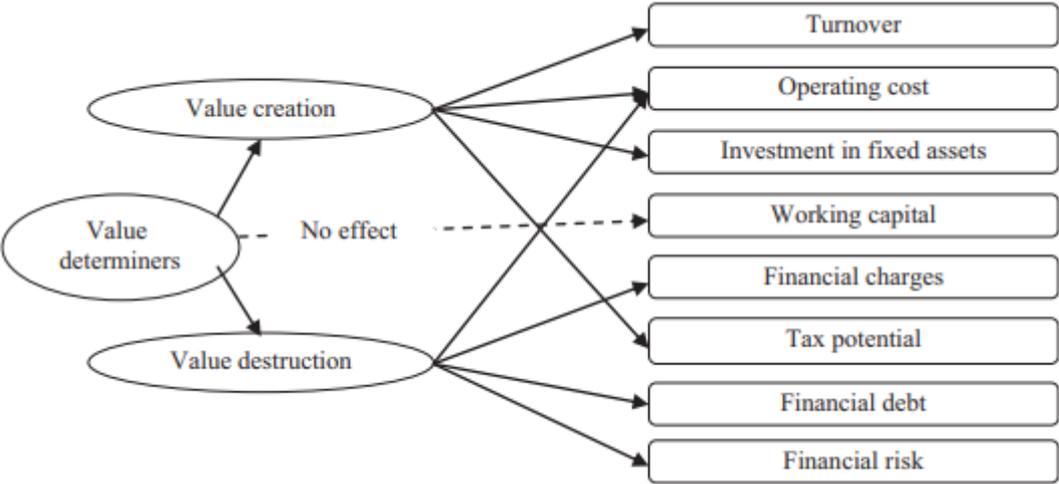
Another research whose conclusions are in favour of Mueller’s findings is the one of M. Walker (1997), where he arrives to the conclusion that firms that the performance of firm who engage in horizontal merger end up being lower in the medium term to the “peers” who did not engage in M&A.

Conversely, Singh and Anand find positive results regarding horizontal merger: in their work, they measure shareholder performance in various type of M&A deals, and they find that horizontal mergers outperform the diversifying ones in term of returns.

In their research of 2017, Tao et al. decide to focus on the risk: they find that compared to all the other type of deals, horizontal M&A has a +18% probability of being stopped by antitrust authorities, and when this happens it destroys value for shareholders.

Motta et Tarantino (2017) find that if operational efficiencies are not achieved, horizontal M&A leads to reduction of incentives of innovations, which has very dangerous consequences on the competitive advantage of the combined entity in the long term.

A very important contribution regarding the sources of value creation and destruction in horizontal M&A has been given by M. Hibrahimi et H. Meghouar (2018). The two researchers analyzed a sample of 90 French mergers from 2005 to 2014. After having divided the sample into two sub-samples, the ones that ex post created value for shareholders and the ones which destroyed value, they decided to test 8 accounting indicators on the two different samples, in order to identify whether these indicators can be associated with value creation or destruction. Their findings are summarized below in figure 6.



[Figure 6: value determiners in horizontal M&A; Source: M. Hibrahimi et H. Meghouar, 2018]

Their conclusions are the following: the horizontal deals that created value did so because they achieved an increase in turnover, a decrease in operating costs, a lower need of investment in fixed assets and a tax optimization.

The increase of efficiency in the working capital use (eg: inventories, offsetting accounts receivables with accounts payable as a result of merger) had no impact on value creation on the study of M. Hibraimi et al.

Among the deals which destroyed value, the two researchers find the following similarities: they all fail to implement cost synergies, they fail to properly take into account financial risk and ends up taking excessive financial debt and excessive financial charges.

Concluding our section: horizontal mergers might sound theoretically a good option for a bidder as they benefit from many sources of value creation. Nonetheless, the practice is very different than the theory: the empirical evidence leads to mixed outcomes, failing to outline a clear conclusion on whether horizontal M&A create or destroy value. There is agreement on the fact that the “revenue enhancements” rationale ends up not being satisfied on average, and that horizontal M&A performs anyways better than “diversifying” acquisitions.

3.5.2 VERTICAL MERGERS

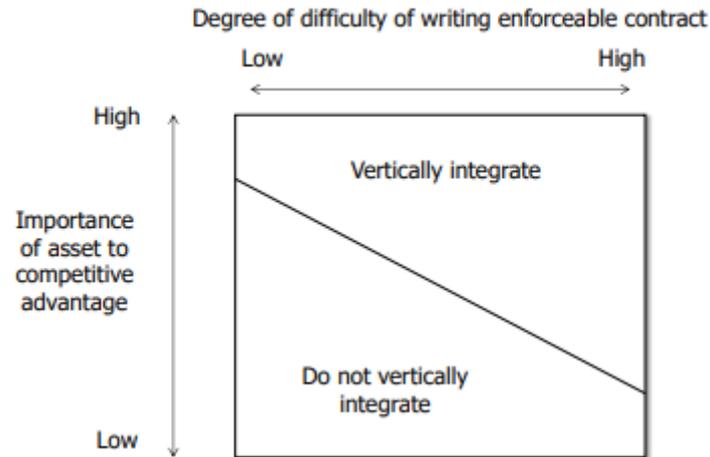
DEFINITION

Another important category of acquisitions is the one categorized as “vertical mergers”, that are indeed executed in order to pursue vertical integration. T. Kono defines vertical integration as “The practice whereby the market mechanism is replaced by internal transactions”. In practice, a merger where there is an integration at the level of the supply chain process is a vertical merger. The vertical integration can take two different forms:

- Backward/upstream integration: if involves raw materials, components or the manufacturing side in general
- Forward/downstream integration: if involves the distribution, sales or service department

RATIONALE

The decision of engaging in vertical integration, and hence in vertical M&A, arises from the “make or buy” tradeoff that was introduced by corporate strategy. The final decision depends on a high number of factors, that Ramon Casadesus et Masanell summarize in the following two: the degree of difficulty of writing enforceable contract (the higher it is, the better it is to vertically integrate) and the importance of the asset in order to obtain competitive advantage (the higher it is, the better it is to vertically integrate). Figure 7 below illustrates the matrix that takes into account these two components:



[Figure 7: vertical integration matrix; Source: Ramon Casadesus – Masanell]

More in detail, the “make or buy” tradeoff presents a large amount of costs and benefits that are specular, and managers should decide to engage in vertical M&A only when the benefits are obviously larger than the costs. These can take the form of both coordination and technical efficiencies. Examples of cost of vertical integration include a reduction of the flexibility of the bidder, an increase of its fixed costs, an increase of its monitoring costs and many more.

On the other hand, the advantages of vertical integration include a lower reliance on external parties, a higher control on the material supplied, a reduction in asymmetry information, a reduction in the company variable costs, and many more. A summary of the main advantages and costs of vertical integration, whose detailed analysis goes beyond the scope of this paper, is reported below in table 6.

<i>Benefits of vertical integration</i>	<i>Costs of vertical integration</i>
<p>Technical efficiencies</p> <ul style="list-style-type: none"> • More control over quality and delivery of inputs • Premium for branded products avoided if unbranded inputs are internally made • Greater control over coordinating production flows through vertical chains • Leakage of private information to supplier and possibly rivals avoided 	<ul style="list-style-type: none"> • Absence of market discipline makes internal production inefficient and costly • Small production volume reduces opportunity for scale and learning economies • Efficiency effects of division of labour and specialization foregone • Incentive to keep up with new technology diminished • Risk in disposal of residual assets where asset lives exceed project life
<p>Coordination efficiencies</p> <ul style="list-style-type: none"> • Small numbers bargaining, when suppliers are too few, avoided • Incomplete contracts avoided • Scope for opportunism reduced through long-term relationships within firm, closer monitoring, organizational culture • Monitoring supplier performance easier since information asymmetry reduced • Contract enforcement costs minimized • Disputes resolved through administrative fiat and costly litigation avoided • Free-riding by distributors on the reputation of the manufacturers avoided 	<ul style="list-style-type: none"> • Internal agency monitoring costs not insignificant • Incentive structure for managers may not match that in independent firms • Formal contracts replaced by implicit contracts with workers • Influence costs reduce capital allocation efficiency • Internal performance evaluation not free of opportunistic behaviour • Pricing internal supplies subject to opportunistic behaviour

[Table 6: pros and cons of vertical integration; Source: S. Sudarsanam]

EMPIRICAL EVIDENCE

Empirical evidence regarding value creation in vertical M&A is somewhat positive. Bausch and Fitz (2005) performed a meta analysis, integrating statistically the findings of 94 empirical studies. They use both market based indicators and accounting based ones, such as ROA and ROI, and find that vertical M&A creates significant value for target firms. Wansley et al. (1983) conduct their study in relative terms, and find that vertical mergers returns outperform significantly the diversifying ones. S. Sudarsanam defines another sub-category of vertical M&A, the “industry-blurring merger”, a type of vertical M&A that aims at mixing two industries with certain commonalities. The most common example is banking and assurance, that as of today is somewhat an industry where boundaries are blurred due to vertical M&A. The rationale behind these industry blurring mergers is revenue enhancement and cross-selling of products (the “one stop shop” rationale behind many mergers between banking and insurance companies). S. Sudarsanam finds that these types of deals are more risky than the normal vertical M&A, and they have an higher chance of destroying value for shareholders

and for the firm. The rationale for this is that customers might find too restrictive to have a single distribution channel for different products (eg: being client of the same bank and insurance means that the bank will sell you its specific insurance products, hence reducing the offering available to customers). The most famous example of industry-blurring merger that destroyed value is the AOL-Time Warner merger executed in 2001. This \$180+ billion transaction was aimed at creating the largest media and online services company worldwide. The bidder's shares, which at deal announcement in 2000 were trading at a price of \$57, fell at a minimum of \$9.64 in 2002, signalling one of the greatest failure in the history of M&A.

3.5.3 CONGLOMERATES

DEFINITION

We define conglomeratization M&A when a company pursues M&A with the goal of acquiring a target that is operating in a different industry. These are hence deals aimed at increasing the diversification of the company. A company can become a conglomerate in different levels, depending on the number of diversified industries it is operating in. One of the most famous conglomerates is Tata Group, the Indian group that owns 30 companies across more than 10 industries: the conglomerate operates in consultancy services, automotive (tata motors), infrastructure (tata power), tourism and travel (Indian hotels) and many more industries. These type of deals became very popular during the third merger wave (1965 to 1969), where it has been registered an unprecedented M&A activity among unrelated companies, hence aimed at building conglomerates.

RATIONALE

Managers who pursue conglomerates deals argue that they will be value creative (hence the combined entity will be more efficient than the sum of the two single entities) as a result of three factors:

- Higher market power: could be a result of an increase in bargaining power due to the increase of the size of the company, as it was for example in horizontal mergers.

Nonetheless, the most relevant argument in conglomerates deals is cross- subsidizing. Indeed, a conglomerate could finance a loss making growing niche with one of its “cash cow” niche. Another famous example is the conglomerate that enters in a new oligopolistic industry, and squeezes out competitors by offering to customers prices that are lower than the industry marginal costs. By doing temporary so, competition gets squeezed out, and after a while the conglomerate can raise prices and become profitable with a weaker competition. Conglomerates are in theory the only entities that could do that as they could finance this temporary “loss making squeeze out strategy” with their profitable divisions. Obviously, this strategy relies on the assumption that the conglomerate is already well established and overall profitable.

- Internal capital markets: conglomerates with many different business units operating in different industries can benefit from financial synergies due to the creation of an internal capital market. Here, business unit with cash surplus can lend resources to business units with cash deficits, without the need to recur to external financing like competitors. This point as a competitive advantage is based on the assumption that the country where the conglomerate operates doesn't have an efficient capital market. It is interesting to note that the conglomerates that will benefit the most from this category of value creation driver will be the ones operating in emerging markets, where by definition capital markets presents the highest amount of frictions. This advantage of conglomerates comes with the cost of “politics”, where business units power is given by their influence and not necessarily by their contribution to the overall profitability of the conglomerate.
- Reduced financial risk: conglomerates offer (theoretically) many benefits in terms of reduction of financial risk. First of all, they are more diversified compared to fully focused firm, and this should reduce the overall company risk. In practice this reasoning is a common fallacy, as investors can diversify on their own buying shares in the stock market and, as a consequence, don't value conglomerates as “less risky” companies. A second theoretical advantage of conglomerates is that they have a more diversified income streams, and this should decrease the firm bankruptcy risk (as it is less exposed to market fluctuations). Another theoretical argument in favour of this type of M&A deals is that conglomerates benefit from a lower cost of financing: indeed, with the increase in size, they should be perceived as “safer” companies, hence

resulting in a higher debt capacity or lower cost of debt. Lastly, conglomerates can benefit from tax optimizations, as they can offset tax credits and debits among different business units.

EMPIRICAL EVIDENCE

We saw that by a theoretical point of view the motives for a company to engage in “diversifying M&A” are many, given that the advantages of having different business units under the same ownership seems to be many in terms of financial synergies, increased market power and so on. Nonetheless, the academics have an homogeneous view about the fact that diversification M&A destroys value on average, resulting in negative returns for the shareholders of the bidding entity. The latter is so widely recognized that as of today among industry practitioners it is common practice to apply a “conglomerate discount” when they are valuing an entity that is diversified into different industries. L. Shulman (2017) in his BCG report “How Premium Conglomerates Sustain Success” found that 55% of the conglomerates are valued using a discount. The way the conglomerate discount works is very simple: to value the combined entity, practitioners value the single business units, sum them and then discount it by a factor $(1-x\%)$ to reduce the enterprise value, only because of the fact that all the business units are under the same ownership.

Other empirical studies in favour of the value destruction of conglomerates include: Morck, Shleifer, and Vishny (1990), which finds that companies who engage in related acquisitions outperform companies who engage in “conglomeration” deals; Anand & Singh, which finds that M&A aimed at creating conglomerates underperform significantly horizontal and vertical M&A; Servaes (1979), which estimated the conglomerate discount to be 19% in the 60s and 6% in the 70s, and also positive correlated with the financial leverage of the conglomerate; Rajan, Servaes et Zingales (1993), which estimated the conglomerate discount to be in the interval [16% to 18%] for deals in the 80s, and positive correlated with the number of diversified industries in which the conglomerate operates.

The methodology used to measure this discount is what is defined as the “cross sectional test”, that is the abnormal (under-) return of the conglomerate versus the weighted return of a portfolio of peers operating in the same industries where the conglomerate is diversified.

The reasons of why these types of merger destroy value are multiple, but can be summarized in the following:

- PMI: In related mergers it is easier to engage in a successful PMI given that the bidder has already developed capabilities in the industry, while conglomerates might have less resources in order to integrate target in a new industry (Renneboog et Vansteenkiste, 2018)
- Cost of conglomerates: such as larger information and coordination costs, as well as the “influence” and “political” costs mentioned earlier, according to which funds in the business units might not be allocated based on contribution to the profitability of the overall conglomerate but based on the influence of the management of the business unit
- Lack of transferrable skills, and hence higher difficulty in achieving synergies or beating the competition and keeping the competitive advantage in the new industry where the conglomerate started to operate due to the diversifying M&A activity.

3.5.4 DIVESTURES

DEFINITION

Divestures can take different forms, such as carve-outs, spin-offs, demergers. In this subsection we aim to analyze the overall effects of M&A executed with the goal of corporate refocusing, hence we will group all of these M&A deal types into the “Divestures” definition.

We define divesture as the type of transaction where a company wants to sell part of its business, one entire business unit or give away some ownership of it. This operation can take form in different ways, but the final goal is always the same: the seller want to change the perception that the market has of its company, ultimately changing the ownership structure of one of its business units.

RATIONALE

A conglomerate might enter into a divesture process because of different strategic rationales. First of all, we need to classify this rationale into voluntary or non voluntary: in the latter case,

the conglomerate might be forced by market authorities (such as Antitrust in the USA) to sell one of its division in order to pursue additional M&A.

In the universe of voluntary divestitures, strategic rationale might take different forms. The most common, suggested by S. Sudarsanam, are reported below:

- Eliminate or reduce the conglomerate discount that the market is assigning to the company, hence increasing the overall market value of the conglomerate.
- Increase corporate refocusing: eliminating coordination, political and influence costs that are typical in large conglomerates, as well as negative synergies and increase the transparency that is perceived by external analysts.
- Raising cash in order to avoid a potential financial distress.
- Improving the incentive structure of managers, that can be inefficient in large conglomerates.
- A defence tool against an hostile takeover, named also as “selling the crown jewels”. In order to reduce the incentives of a bidder to do an hostile takeover, the target can threaten to sell its most profitable business units to another bidder.

EMPIRICAL EVIDENCE

The empirical evidence regarding divestitures tend to be homogeneous regarding the conclusions on value creation: divestitures result on average in value creation for shareholders and the firm, both in the short and in the long run. J. Mulherin et A. Boone (2000) find that divestitures creates significant value to the firm both in the short term (due to the increase in the stock price due to the announcement) and in the long term (resulting in an increase of the profit margin of the company of more than +30%). P. Cusatis et Al. (1994) demonstrate that the rationale of engaging in diversified M&A just to reduce the cost of debt is a fallacy, as the theory where creditors value smaller companies as riskier ones (and hence charging them higher interest rates) is valid only for companies with a market capitalization lower than \$500 millions.

Hite, Owers and Rogers (1987) studied the cumulative abnormal returns of buyers and sellers in sell-off announcement, using a event window of 2 days, and they find the CAR to be +1.7% for the divestor and +0.8% for the buyer. In 1995, John and Ofek repeat the same study

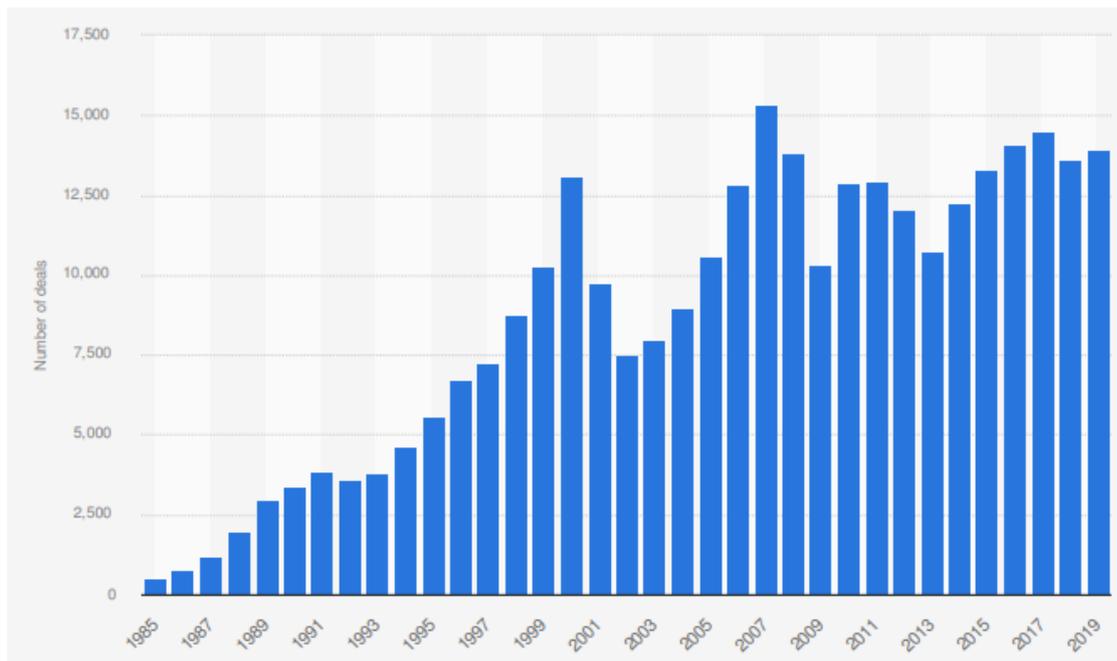
enlarging the sample (including acquisitions until 1989) and the event window to 3 days, and arrive to very similar conclusion: they estimate the CAR to be +1.5% for the divestor and +0.4% for the buyer. In the latter study, the researchers demonstrates also the rationale for this positive return: they divide the sample in sub-sample based on the “de-diversification” goal of the divestor, and they find that the deals aimed at refocusing are the ones that generate higher returns for the shareholders.

M. Sirower et J. Wereins (2022) arrive to the same result – that divestures are positively related with value creation – but give a warning to the public: divestures might not create value because they are the best type of M&A deal available, but because they are the correction of prior M&A mistakes. The theory that they suggest is a sort of “reversed survivorship bias”, in the sense that a conglomerates will be more incentivized to sell bad performing business units, hence firms involved in divestures are the ones where the upside potential is higher.

3.5.5 OTHER TYPES OF ACQUISITIONS

INTERNATIONALIZATION

Cross border acquisitions are a fairly recent trend that has experienced an unprecedented boom in the last three decades. In 1989, the deal count of cross border acquisitions was 2 941. Exactly 30 years later, in 2019, 13 872 cross border acquisition have been executed worldwide, a number that signals a very important growing trend inside the M&A industry. Figure 8 below shows the dealcount of cross border acquisitions, year by year from 1985 to 2019.



[Figure 8: Number of Cross-Border Acquisition worldwide from 1985 to 2019; Source: Institute for Mergers, Acquisitions and Alliances, Statista]

The rationale for M&A deals oriented at internationalization can be of two categories: company specific and due to macroeconomic factors.

Starting from the latter, macroeconomics factors can have a very important impact on the cross border M&A activity. Examples of these factors include the overall globalization, the creation of the European Monetary Union (which increased the international M&A activity among companies inside the European Union), programs of privatization launched by governments, and in general and most importantly the unification of the global markets.

Company specific factors can be many, but in general companies when have to decide whether to expand geographically via an acquisition or via other means (eg: Joint Ventures) use the OLI test (whether there will be advantages based on the Ownership, Location and Internationalization).

It is also worth noticing that, by a theroretical point of view, deals aimed at international expansions presents many difficulties and barriers. These include not only cultural differences (about managerial style and corporate organization), but also accounting, law and tax rules, as well as the fact that the political and economic environment of the countries of the bidder

and the target might be significantly different. Hence, all of these differences translate in a higher potential PMI risk.

Empirical evidence shows that cross border acquisitions tend to be value creative, but recent evidence is somewhat mixed. Bausch and Fritz (2005) conducted a meta study cross-checking 94 prior empirical studies. Using as metrics to measure performance both market based and accounting based indicators (eg ROA, ROI) they find that M&A aimed at internationalization is stringly correlated with value creation. Goergen and Renneboog (2003) study a sample of 56 european bidders that engaged in international M&A between 1993 and 2000, and find that, even though the initial market reaction is on average very positive for the bidder (+3.1% in an event window of 5 days), the abnormal return reverse very fast, reaching -0.4% after only 4 months. Conn and Connel (1990) found previously similar results for American and British bidders, where they measure the abnormal return of the bidder to be of -2.5% after only 6 months from the deal announcement.

4.1 CASE STUDY: MICROSOFT'S ACQUISITION OF NUANCE COMMUNICATIONS

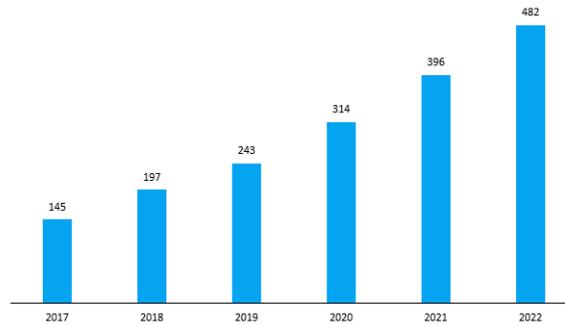
On the 12th of April 2021, Microsoft, the multinational technology company which became famous thanks to its computer software and personal computers, announced a friendly takeover offer on Nuance communication, the producer and distributor of speech recognition and artificial intelligence software. The deal was closed and executed almost one year later, on the 3rd march 2022, and with an Enterprise Value (EV) of \$19.7 billion represented the 2nd largest acquisition of Microsoft of all the time (Source: S&P Capital IQ).

We reported in the introduction of this paper that 2 out of 3 deals destroy value for the bidding firm, nonetheless M&A remains one of the most powerful tools for a company to pursue fast growth and hence retain a competitive advantage. We decided to analyze this transaction specifically for this reason: Microsoft has constantly been a market leader in the last two decades, and hence analyzing one of its largest deal could give us a privileged starting point on why in practice companies still engage in M&A.

In this chapter we will develop a case study of this recent acquisition: we will analyze the industry where the target is operating, the general overview and performance pre-deal of both target and bidder, the transaction details, the value creation analysis based on the indicators discussed in the previous section and the short term outcome of the transaction (given its very recent execution).

4.1 INDUSTRY OVERVIEW

The cloud computing industry has been growing steadily and at impressive rates in the past years. Figure 9 below represents the annual cloud spending worldwide: in the past 5 years this has registered a CAGR of more than +27%, reaching a market value of more than \$480 billion (Source: Gartner).



[Figure 9: Annual cloud spending worldwide in USD Billion; Source: Gartner (2022)]

The adoption of cloud services is as of today very large among enterprises, and is expected to continue to grow in the short term. As of today, 90% of all the large enterprises are adopting cloud services, a percentage that is expected to increase to 93% in the next two years. The growth is particularly impressive for small firms: only 60% of them has adopted cloud services as of today, but by 2023 this percentage of adopters is expected to reach 79%. Table 7 below summarizes the overall cloud adoption by corporate segments (based on size) today and in 2023 (forecasted) (Source: Gartner).

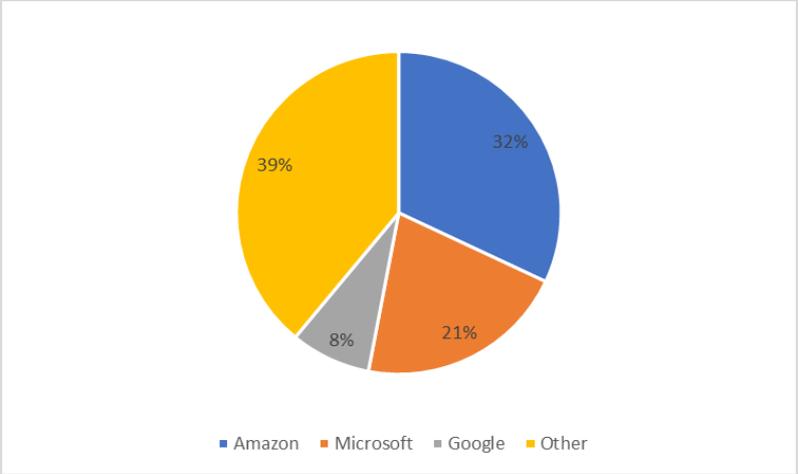
	2021	2023	Change
Small	60%	79%	19%
Mid-size	76%	84%	8%
Large	90%	93%	3%

[Table 7: adoption of cloud services, breakdown by company size; Source: Gartner (2022)]

The market of cloud services has always been in the past years a kind of oligopolistic industry, with only a few players dominating the scene. In detail, in the recent years only 3 players have been particularly active in the sector, with their cumulated markets shares always being larger than 60% of the whole industry:

- Amazon, the market leader thanks to its product Amazon Web Services (AWS).
- Microsoft, due to the product Microsoft Azure
- Google, with its product Google Cloud

Figure 10 below represents the breakdown of the markets shares of the top three players during the year 2021.



[Figure 10: breakdown of cloud market shares in 2021; Source: Gartner (2021)]

Aside the industry of cloud services, another relevant sector that shares some similarities with the former is the healthcare tech sector. In the last ten years it has registered a more modest +3.7% CAGR, growing from a market size of \$353 billion in 2011 to \$511 billion in 2021. More interestingly, this market growth is expected to register a sharp acceleration in the short term, with analyst consensus indicating that the market will reach a size of \$595 billion in 2023, implying an expected 2-year CAGR of +5.2%.

The target of our case study is Nuance, a very important player of the cloud services industry with a large exposure to the healthcare tech subsegment (more than 60% of its revenues are generated by healthcare clients).

4.2 NUANCE OVERVIEW

BUSINESS OVERVIEW

Nuance defines itself as “the market leader in conversational artificial intelligence and ambient clinical intelligence” (Nuance annual report, 2020). The company indeed is a producer

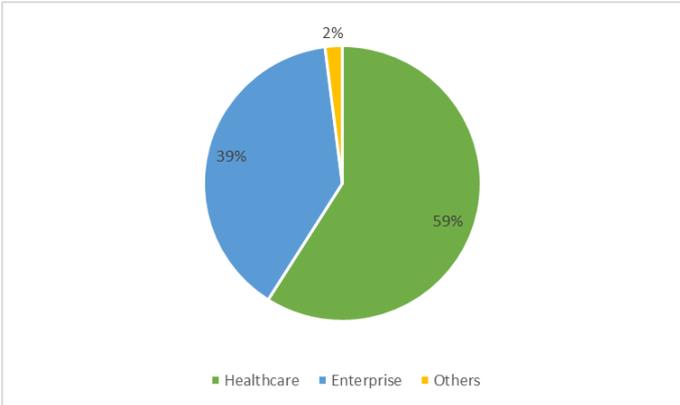
of many AI cognitive innovations, including speech recognition software. Nuance sells its products via its own sales force or via a network of resellers (3rd party).

Founded in 2005 in Burlington, Massachusetts, Nuance grew fast enlarging its product offering, also thanks to a well executed M&A activity, and in 2021 it had reached revenues of more than \$1.6 billion. By that year, more than 80% of fortune 500 companies partnered with Nuance, and its products were used by around 10.000 healthcare organizations all over the world (Source: Nuance annual report, 2020).

Before the deal, the company was operating in three segments:

- Healthcare: its most important business segment, representing around 60% of total revenues. Nuance offers via this segment products such as clinical speech recognition and medical transcription systems.
- Enterprise: the second largest segment, representing around 35% of revenues of Nuance. The company offers products that use conversational AI aimed at automating customer service and sales services in various types of enterprises
- Other: other products represented a very small percentage of the company’s total sales, usually not exceeding 2%. The most relevant product in this category use voicemail transcription services developed by Nuance.

Graph 11 below shows the revenues breakdown by category in FY 2021 (note that FY for Nuance ends on September 31st)



[Figure 11: Nuance revenue breakdown in FY2021; Source: Refinitiv]

As mentioned before, Nuance has been in recent years a very active player in the M&A field. In October 2019 Nuance executed a spin off of its division that created Artificial Intelligence products targeted at automotive clients, creating Cerence (now traded as a public company). In February 2021 Nuance bought Saykara, a “startup focused on developing a mobile AI assistant to automate clinical documentation for physicians” (Nuance press release, February 2021).

FINANCIAL OVERVIEW

Nuance was listed in 1995 on the Nasdaq. In recent years, the company has underperformed its index of reference, the Nasdaq Composite. Nonetheless, around the covid crisis the company reversed this trend, and Nuance started outperforming the Nasdaq index as shown in the figure below.



[Figure 12: Nuance vs Nasdaq stock price, 2017 to 2022; Source: Yahoo Finance]

We now provide details regarding the financial performance of Nuance for the 4 years prior to the deal execution:

Key Financials				
For the Fiscal Period Ending	12 months Sep-30-2018A	12 months Sep-30-2019A	12 months Sep-30-2020A	12 months Sep-30-2021A
<i>Currency: USD</i>	<i>USD</i>	<i>USD</i>	<i>USD</i>	<i>USD</i>
Total Revenue				
<i>Growth Over Prior Year</i>	1,567.6 (9.3%)	1,271.2 (18.9%)	1,283.8 1.0%	1,362.4 6.1%
Gross Profit				
<i>Margin %</i>	864.4 55.1%	768.5 60.5%	790.4 61.6%	853.1 62.6%
EBITDA				
<i>Margin %</i>	201.3 12.8%	177.1 13.9%	170.1 13.2%	186.7 13.7%
EBIT				
<i>Margin %</i>	51.5 3.3%	79.1 6.2%	79.1 6.2%	98.7 7.2%
Earnings from Cont. Ops.				
<i>Margin %</i>	(236.8) (15.1%)	(41.6) (3.3%)	(13.0) (1.0%)	(17.4) (1.3%)
Net Income				
<i>Margin %</i>	(159.9) (10.2%)	213.8 16.8%	21.4 1.7%	(26.7) (2.0%)
Fully Diluted EPS (USD)				
<i>Growth Over Prior Year</i>	(0.81) NM	(0.15) NM	(0.05) NM	(0.06) NM

Details regarding the balance sheet are the following (numbers are in million USD):

Balance Sheet				
Balance Sheet as of:	Reclassified Sep-30-2018	Reclassified Sep-30-2019	Reclassified Sep-30-2020	set-30-2021
<i>Currency</i>	<i>USD</i>	<i>USD</i>	<i>USD</i>	<i>USD</i>
ASSETS				
Total Cash & ST Investments	451.5	747.5	372.3	209.5
Total Receivables	347.9	299.4	224.3	234.9
Total Current Assets	928.6	1,255.2	736.0	603.5
Net Property, Plant & Equipment	153.5	121.2	242.1	229.3
Goodwill	3,247.1	2,127.9	2,120.5	2,155.3
Other	973.2	1,861.5	494.7	398.5
Total Assets	<u>5,302.4</u>	<u>5,365.8</u>	<u>3,593.3</u>	<u>3,386.7</u>
LIABILITIES				
Total Current Liabilities	764.2	1,845.1	986.1	928.3

Long-Term Debt	2,185.4	793.5	1,104.5	494.9
Other Non-Current Liabilities	1,399.5	2,399.1	1,344.9	1,256.8
Total Liabilities	3,584.9	3,192.6	2,449.4	1,751.7
Total Common Equity	1,717.5	2,155.0	1,143.9	1,634.9
Minority Interest	-	18.1	-	-
Total Equity	1,717.5	2,173.2	1,143.9	1,634.9
Total Liabilities And Equity	5,302.4	5,365.8	3,593.3	3,386.7

Details regarding additional key financial ratios (profitability, short term liquidity and long term solvency) are pasted below:

Key Financial Ratios				
For the Fiscal Period Ending	12 months Sep-30-2018	12 months Sep-30-2019	12 months Sep-30-2020	12 months Sep-30-2021
Profitability				
Return on Assets %	0.6%	0.9%	1.1%	1.8%
Return on Capital %	0.8%	1.2%	1.4%	2.3%
Return on Equity %	(13.0%)	(2.1%)	(0.8%)	(1.3%)
Return on Common Equity %	(13.0%)	(2.1%)	(0.8%)	(1.3%)
Short Term Liquidity				
Current Ratio	1.2x	0.7x	0.7x	0.7x
Quick Ratio	1.0x	0.6x	0.6x	0.5x
Cash Coverage Ratio	3.5x	3.8x	2.8x	2.7x
Long Term Solvency				
Total Debt/Equity	127.2%	89.1%	145.7%	59.8%
Total Debt/Capital	56.0%	47.1%	59.3%	37.4%
Net Debt/EBITDA	8.5x	6.6x	6.4x	3.6x

A few notes about Nuance pre deal:

- in the recent years the company size has been decreasing in terms of revenues. This is normal as the company engaged in 2019 in the spin-off of its automotive division (that in 2017 generated 15% of Nuance's overall revenues).
- Nonetheless, the company has been increasing its margin (EBIT margin from 3.3% in 2018 to 7.2% in 2021).

- Nuance has always registered a negative ROE in the past recent years, that increased becoming close to 0 after the sale of its automotive division.
- The company has moreover recently increased its R&D spending, reaching a ratio R&D/Sales of 16%.
- The company has a negative net working capital, but this is in line with the nature of its business model, given the high deferred revenues that the company registers.
- Nuance is a highly leveraged business, with a credit rating of BB- given by Standard & Poors at the deal's announcement.
- The majority of Nuance's assets are intangibles asset (again, not surprising given the nature of the business): the ratio Intangibles/Total fixed assets is 80%.

4.3 MICROSOFT OVERVIEW

BUSINESS OVERVIEW

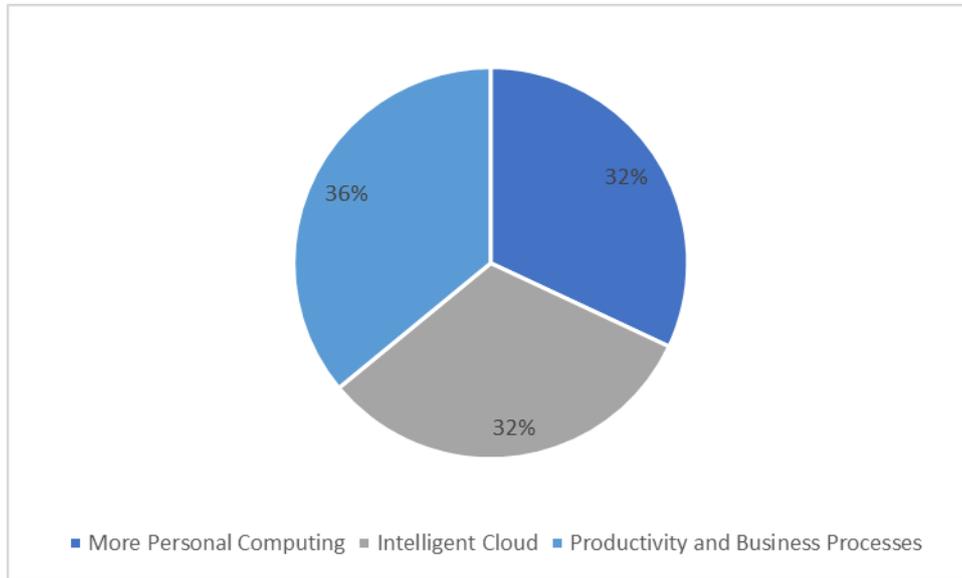
Founded in 1975 in Albuquerque, New Mexico, by Bill Gates and Paul Allen, as of today Microsoft employs more than 180.000 employees worldwide, and is the market leader in software worldwide.

The company operates in three segments:

- More Personal Computing: products and services related to computing experience (such as Windows and MSN), devices, gaming (such as Xbox) and search advertising (such as Bing). This segment generates between 30% and 35% of Microsoft's revenues.
- Intelligent Cloud: produces and sell "server products and cloud services", such as Microsoft Azure, and "Enterprises Services", such as Microsoft Consulting Services which gives support customers in using Microsoft's products. This segment generates between 30% and 35% of total revenues of the company.
- Productivity and Business Processes: a division that includes products targeted at both corporate and individual clients: examples include Skype, Microsoft Teams, Microsoft

Office, LinkedIn, Outlook and OneDrive. This division generates around 35% of total revenues of Microsoft.

Graph 13 below illustrates Microsoft’s revenues breakdown by segment during FY2020 (source: CapIQ and Microsoft annual report):

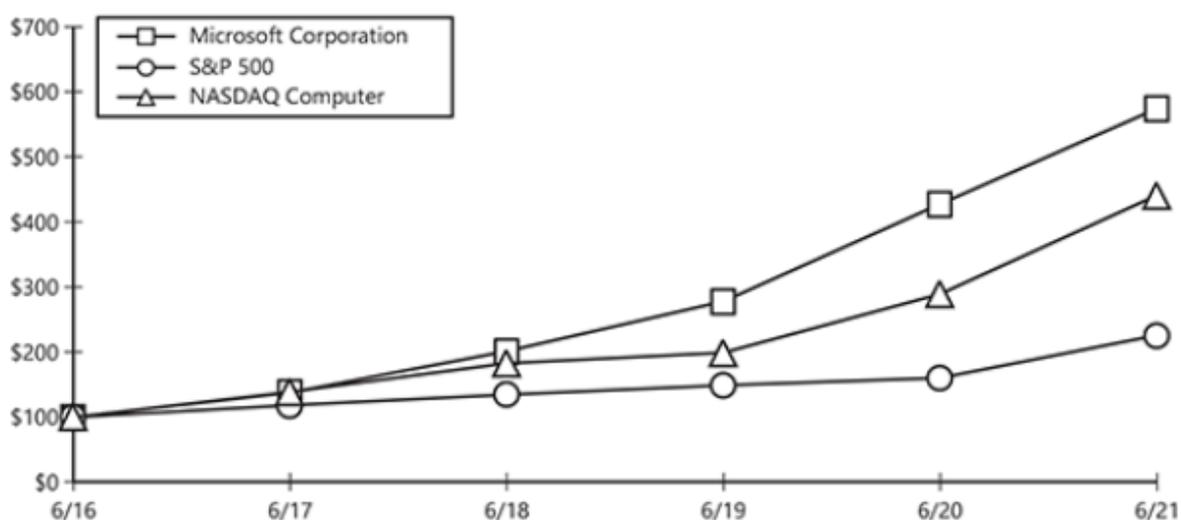


[Figure 13: Microsoft Revenue Breakdown by Segment in FY2020; Source: CapitalIQ, Microsoft 2020 Annual Report]

The company maintained the position of market leader in tech for decades also thanks to its M&A activity. Relevant examples include its 2011 acquisition of Skype, its 2018 GitHub’s acquisition or its 2016 LinkedIn takeover, which represents Microsoft’s largest transaction ever.

FINANCIAL OVERVIEW

In recent years, Microsoft has always been regarded as a market leader, and this is reflected also by its stock performance. Figure 14 below illustrates Microsoft’s stock price compared to two benchmark, the S&P500 and the NASDAQ Computer: Microsoft has massively overperformed these indexes of reference, registering from 2016 to 2021 a 5-year CAGR of +41.9% versus a +17.6% registered by the S&P500 and a +34.5% registered by the NASDAQ Computer.



[Figure 14: Microsoft stock VS S&P500 and NASDAQ from 2016 to 2021; Source: Microsoft annual report 2021]

We paste below the details regarding Microsoft’s financial performance 4 years prior to the deal execution:

Key Financials				
For the Fiscal Period Ending	12 months Jun-30-2018A	12 months Jun-30-2019A	12 months Jun-30-2020A	12 months Jun-30-2021A
USD Millions	USD	USD	USD	USD
Total Revenue	110,360.0	125,843.0	143,015.0	168,088.0
<i>Growth Over Prior Year</i>	14.3%	14.0%	13.6%	17.5%
Gross Profit	72,007.0	82,933.0	96,937.0	115,856.0
<i>Margin %</i>	65.2%	65.9%	67.8%	68.9%
EBITDA	44,958.0	54,559.0	65,445.0	80,816.0
<i>Margin %</i>	40.7%	43.4%	45.8%	48.1%
EBIT	35,058.0	42,959.0	53,145.0	69,916.0
<i>Margin %</i>	31.8%	34.1%	37.2%	41.6%
Earnings from Cont. Ops.	16,571.0	39,240.0	44,281.0	61,271.0
<i>Margin %</i>	15.0%	31.2%	31.0%	36.5%
Net Income	16,571.0	39,240.0	44,281.0	61,271.0
<i>Margin %</i>	15.0%	31.2%	31.0%	36.5%
Diluted EPS (USD)	2.13	5.06	5.76	8.05
<i>Growth Over Prior Year</i>	(34.5%)	137.6%	13.8%	39.8%

Details regarding Microsoft's balance sheet 4 years prior to deal execution are reported below:

Balance Sheet				
Balance Sheet as of:	giu-30-2018	giu-30-2019	giu-30-2020	giu-30-2021
USD Millions	USD	USD	USD	USD
ASSETS				
Total Cash & ST Investments	133,664.0	133,832.0	136,492.0	130,256.0
Total Receivables	26,481.0	29,524.0	32,011.0	38,043.0
Inventory	2,662.0	2,063.0	1,895.0	2,636.0
Other Current Assets	6,855.0	10,133.0	11,517.0	13,471.0
Total Current Assets	169,662.0	175,552.0	181,915.0	184,406.0
Net Property, Plant & Equipment	36,146.0	43,856.0	52,904.0	70,803.0
Long-term Investments	1,862.0	2,649.0	2,965.0	5,984.0
Goodwill	35,683.0	42,026.0	43,351.0	49,711.0
Other Intangibles	8,053.0	7,750.0	7,038.0	7,800.0
Accounts Receivable Long-Term	1,800.0	2,200.0	2,700.0	3,400.0
Deferred Tax Assets, LT	1,369.0	7,536.0	6,405.0	7,181.0
Other Long-Term Assets	4,273.0	4,987.0	4,033.0	4,494.0
Total Assets	<u>258,848.0</u>	<u>286,556.0</u>	<u>301,311.0</u>	<u>333,779.0</u>
LIABILITIES				
Total Current Liabilities	58,488.0	69,420.0	72,310.0	88,657.0
Long-Term Debt	72,242.0	66,662.0	59,578.0	50,074.0
Long-Term Leases	9,693.0	12,445.0	16,627.0	21,379.0
Unearned Revenue, Non-Current	3,815.0	4,530.0	3,180.0	2,616.0
Def. Tax Liability, Non-Curr.	541.0	233.0	204.0	198.0
Other Non-Current Liabilities	31,351.0	30,936.0	31,108.0	28,867.0
Total Liabilities	176,130.0	184,226.0	183,007.0	191,791.0
Common Stock	71,223.0	78,520.0	80,552.0	83,111.0
Additional Paid In Capital	-	-	-	-
Retained Earnings	13,682.0	24,150.0	34,566.0	57,055.0
Treasury Stock	-	-	-	-
Comprehensive Inc. and Other	(2,187.0)	(340.0)	3,186.0	1,822.0
Total Common Equity	82,718.0	102,330.0	118,304.0	141,988.0
Total Equity	<u>82,718.0</u>	<u>102,330.0</u>	<u>118,304.0</u>	<u>141,988.0</u>

Total Liabilities And Equity	<u>258,848.0</u>	<u>286,556.0</u>	<u>301,311.0</u>	<u>333,779.0</u>
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Details regarding key financial ratios are reported below:

Ratios				
For the Fiscal Period Ending	12 months Jun-30-2018	12 months Jun-30-2019	12 months Jun-30-2020	12 months Jun-30-2021
Profitability				
Return on Assets %	8.6%	9.8%	11.3%	13.8%
Return on Capital %	12.4%	15.0%	17.1%	20.6%
Return on Equity %	19.4%	42.4%	40.1%	47.1%
Return on Common Equity %	19.4%	42.4%	40.1%	47.1%
Short Term Liquidity				
Current Ratio	2.9x	2.5x	2.5x	2.1x
Quick Ratio	2.7x	2.4x	2.3x	1.9x
Long Term Solvency				
Total Debt/Equity	105.8%	84.5%	69.4%	57.9%
Total Debt/Capital	51.4%	45.8%	41.0%	36.7%
Net Debt/EBITDA	NM	NM	NM	NM

A few notes about the company financials:

- At the deal announcement, Microsoft was perceived by the market as one of the most solid companies worldwide, being one of the few companies with a perfect S&P Global Credit Rating of AAA.
- The company is highly profitable, having registered a ROE of 47% and 40% respectively in FY2021 and FY2020. Nonetheless, some of its divisions are still loss making, such as LinkedIn (acquired in 2016).
- Microsoft has the ability to adapt rapidly to market conditions, and this is shown by the fast changes in its revenue base. As an example, server products generated 20% of total revenue in 2015, while in 2021 they accounted for 60%.
- Microsoft has an impressive amount of available cash, and this is the reason why the “NFD” multiples are “N.M.” (non meaningful): because its net financial debt is lower than zero.
- Microsoft has a relevant amount of intangible assets: the ratio intangibles/fixed assets was 42% in FY2021.

To summarize: Microsoft is a company with very few consumer focused products (such as Xbox), which has a solid debt rating, stable Free Cash Flows and a huge pile of cash. Moreover, it has already demonstrated the ability of being able to change rapidly its source of revenues, and has been recently seeking to expand to the Cloud market. For this reason, the management announced a friendly takeover of Nuance in April 2021.

4.4 TRANSACTION OVERVIEW

DEAL ANNOUNCEMENT AND TERMS

On April 12th 2021 Microsoft announced the acquisition of Nuance for \$56 per shares with a 23% premium. It is an all cash transaction that values the target at an Enterprise Value of \$19.7 billions (including around \$2 billion of Net Financial Debt). It was a friendly takeover, with Nuance’s CEO Mark Benjamin expected to maintain its role also after the deal execution. This all cash transaction was closed and executed on 3rd March 2022 and was entirely financed with Microsoft’s available large pile of cash.

Table 8 below summarizes the deal terms: friendly and all-cash deal with a premium below average (23%).

	Nuance	Microsoft
Share price pre deal (\$)	45.58	255.85
# of shares fully diluted	316	7519
Market Cap pre-deal (\$)	14,403	1,923,736
% of cash offering	100%	
Offer price per share (\$)	56.06	
Premium	23%	
Offer Value	17,716	

[Table 8: Deal terms at announcement date; Source: Capital IQ]

TRANSACTION RATIONALE

At the deal's announcement, Microsoft declared that the transaction was executed for a strategic and not financial rationale. Indeed the main motive behind this deal is to grasp a market opportunity and acquire immediately a new technology that Microsoft plans to integrate into its business as soon as possible.

The year before the deal announcement, in 2020, Microsoft created "Microsoft Cloud for Healthcare", which aimed at improving the overall healthcare experience: from improving health data insight to automatically documenting patient encounters to using virtual assistant to categorize clinical documentation and more. Microsoft's goal was to integrate Nuance into this subsegment, and to benefit from the use of its medical dictation and transcription tools with its healthcare clients.

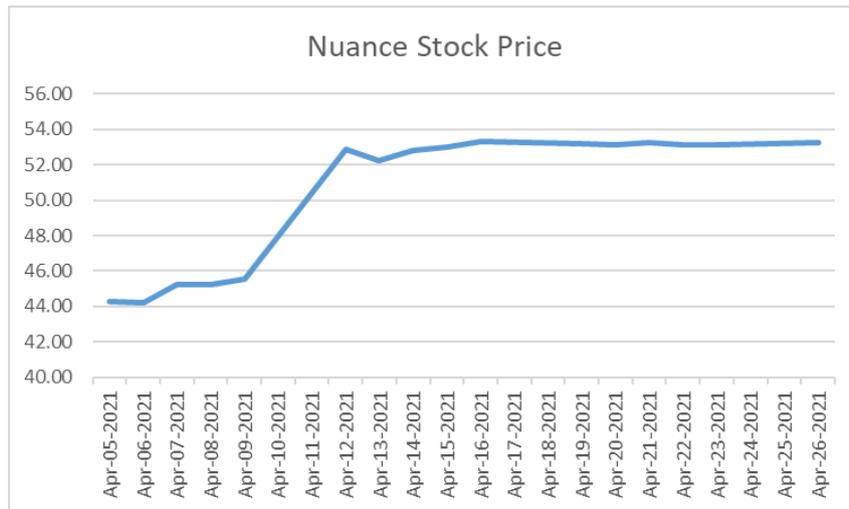
The consequence of this long term strategic fit is that analysts expect the deal to create synergies, quantified in a present value of \$1.379 Billions.

4.5 VALUE CREATION ANALYSIS

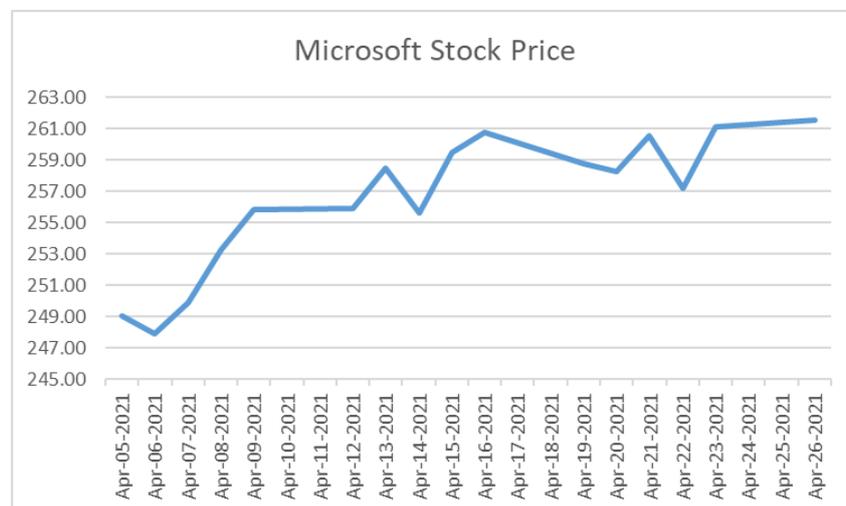
We will now perform the value creation analysis based on some of the most relevant indicators analyzed in section 3.

SHARE PRICE REACTION

Microsoft announced its acquisition of Nuance on Monday April 12th 2021. The same day, Microsoft's price per share jumped from \$255.91 to \$258.49, registering a +1.0% increase. This means that, at announcement, the market was positive about the value creation of the deal for Microsoft's shareholders, especially by the fact that the premium offered (23%) was below the average in the industry. On the same day, Nuance stock price jumped from \$45.58 to \$52.85, registering a +15.9% increase. This increase is lower than the premium offered, and hence signals that the market was unsure whether the regulators would have approved or not the deal.



[Figure 15: Nuance stock price, USD; Source: Yahoo Finance]



[Figure 16: Microsoft Stock Price, USD; Source: Yahoo Finance]

It is interesting to note that Microsoft Stock price fluctuated also after the deal announcement but due to different reasons (Quarterly Earnings Announcement released on April 27th).

According to the efficient market hypothesis then, where market participants are perfectly rational and can precisely anticipate the outcome of an M&A deal, this transaction creates wealth both for the bidder and the target. As we saw in the previous section, this assumption is too strong, and it is necessary hence to take into account other indicators.

EPS ACCRETION/DILUTION

We already discussed in the previous section that EPS accretion does not necessarily indicate value creation, but that nonetheless it is a widely used metric in the industry. We discussed that the “rule of thumb” to calculate in advance whether an all cash deal is accretive is to confront the cost of debt of the bidder after tax versus the reversed P/E ratio of the target, taking into account the present value of the synergies. Given that Nuance has a Net Income very close to zero, at a first sight we expect the deal to have a low impact on the EPS pro forma. The precise calculations are reported below (we calculated the cost of financing to be 0.6% given the AAA rating of Microsoft):

EPS ANALYSIS	
NI Nuance pre deal	22.10
NI Microsoft pre deal	43,309.44
PV of Syn after tax	39.12
Cost of Financing after tax	- 105.63
Net Income Pro Forma	43,265.03
Microsoft Shares pre deal	7,519
Shares issued for deal	0
NOSH Pro Forma	7,519
EPS pro forma	5.75
EPS pre deal	5.76
Accretion/Dilution	-0.10%

[Table 9: EPS Analysis]

The deal was hence slightly EPS dilutive for Microsoft, creating to the shareholders a dilution of -0.10%.

SYNERGIES VERSUS PREMIUM PAID

As explained in the previous section, a way to measure whether a deal is value creative for the bidding shareholders is to confront the premium paid and the present value of the synergies. Below we report our calculations for this case study:

Synergies VS Premium	
Nuance Market Cap pre-deal	14,403
Premium offered (%)	23%
Premium (\$)	3,313
Present Value of Synergies	1,379
Value Creation/Destruction	- 1,934

[Table 10: Synergies VS Premium paid analysis]

It appears then that the deal is value destructive for the bidding shareholders, as the premium paid to acquire the target is larger than the present value of the synergies that the latter will generate once integrated with Microsoft. This approach is based on the assumption that it is possible to estimate ex ante the synergies that a merger will create.

ROE VS COE

Given that the transaction is very recent, we will perform this analysis ex ante, confronting the ROE of Nuance with the Cost of Equity of Microsoft. If the former is larger than the latter, the economic theory suggests us that the deal will create value also for the bidder's shareholders.

We calculated Microsoft's cost of equity using the CAPM and information from CapitalIQ (which estimates Beta to be 0.9). Using the CAPM formula, we arrive at a COE of **4.49%**.

We calculated Nuance's ROE simply dividing its 2020 Net Income by its book value of equity: it has a negative value of **-0.8%**.

Given that the bidder's cost of equity is larger than the target's return on equity, also this indicator suggests us that this transaction will be value destructive for the bidder's shareholders.

ROCE VS WACC

We already discussed that ROCE VS WACC is an indicator that measures value creation for the overall firm, and not only for shareholders. We calculated Nuance's ROCE with the usual

formula, that is EBIT/Capital Employed, where capital employed is the sum of long term liabilities and equity. We hence have ROCE (Nuance) of **1.39%**.

We calculate Microsoft's WACC using the formula illustrated in the previous section. It is interesting to note that Microsoft has a Net Financial Debt below zero, hence the WACC tends to be very similar to the cost of equity. We calculated a WACC (Microsoft) of **4.57%**.

Given that we have a ROCE that is lower than the WACC, also this indicators suggest us that the deal is value destructive for the bidding firm. It is important to note that it would be more appropriate to confront ROCE and WACC for a couple of years after the acquisition has been executed in order to fully measure the ability of the bidder to integrate the target. Nonetheless this was impossible to perform in our case study given the very recent execution of the transaction.

4.6 KEY TAKEAWAYS FROM THE CASE STUDY

We have decided to analyze specifically this case study because it is the perfect example of why companies engage in M&A. We asked to the reader in the introduction of this research paper: "if 2 out of 3 M&A deals destroy value for the bidding shareholders, why do the latter still engage in these kind of transactions?". Most of the indicators discussed in the value creation section of this paper point that this deal is value destructive for Microsoft, with a premium offered way higher than the present value of the synergies that will be achieved, and with a return on the capital employed way lower than the cost of the same capital.

Nonetheless, the market was still optimistic about the deal, with both Microsoft and Nuance's share price registering positive returns at the announcement. This is because with this deal Microsoft is not pursuing a financial opportunity but a strategic one. It has the need to acquire a rare technology, speech and voice recognition driven by AI, that can be perfectly integrated into its product offering. A technology that is extremely scarce and that would take years to develop internally: and a delay in the integration of a similar technology could result in a loss that could be worse than an overpayment in an M&A deal.

5.1 CONCLUSIONS AND LIMITATIONS

In this paper we saw that M&A creates value at aggregate value, but partly consists on average of large wealth transfers between bidding shareholders (which 2 out of 3 times lose value) and target shareholders (which gain on average a premium between 20% and 30%). We saw that the reasons of this value destruction are multiples, such as poor PMI planning, hubris and overestimation of synergies, overpayment and so on. We saw that there are multiple indicators in order to measure value creation, but that most of them present huge downsides, and hence a combination of the latter is essential in order to analyze the outcome of a deal. Analyzing the types of deal, we saw that literature is homogeneous on conglomeratization, which tend to be value destructive for the firm and shareholders, and for divestures, that are value creative. Deals have higher chances of being value creative for both parties also if they are executed via hostile offerings, cash offerings, and if there is a difference in size between target and bidder (due to lower PMI issues). The literature tend to be heterogeneous on all the other type of deals, such as vertical integration M&A, Cross Border acquisitions and so on, given that many significant studies arrive at different conclusions.

Finally, we connected theory with practice with a very recent case study, Microsoft's acquisition of Nuance communications. The rationale of this deal is purely strategic, with the bidder executing the transaction in order to gain market share in one of the market where it operates. The deal presents lots of feature that we analyze might lead to value creation for both the combined firm and shareholders: a 100% cash offering, a sound strategic rationale, a bidding management with a proven methodology for PMI success, a significant difference in size between bidder and target that should minimize the PMI potential errors. Most of the value creation indicators are negative (ROCE is lower than WACC, EPS has been diluted, the premium paid was larger than the present value of the expected synergies), but nonetheless the market responded positively to the deal, with both the target and bidder's share price registering significant gains. The reason of that is that this acquisition is going to enable Microsoft to create new products whose market size is hard to estimate as of now, which has the potential to transform the landscape of healthcare software.

This paper has the following limitations: first of all, it analyses a very recent case study, with the implication that it might be too early to fully understand whether the deal was really successful or not. Second, the acquisition was very specific in the sense that it was an all cash transaction in a niche sector (tech-healthcare), with the consequence that it cannot be

representative of the full spectrum of acquisitions. Lastly, even if the size of the transaction was very relevant (EV of \$19 billion), the size of the target relative to the size of the bidder was fairly small, with the consequence that development of the transaction couldn't have had a too significant impact on the bidder in general. Notwithstanding these limitations, the paper still provides useful information on what type of M&A deal creates value, how to measure this value and the application of this theoretical knowledge on a real-life recent case study, and we strongly believe that it will be useful for any scholar who will be interested in investigating the sector of mergers and acquisitions.

BIBLIOGRAPHY

- Alexandridis et al. (2016), "Value creation from M&As: New evidence", Journal of corporate finance
- Antoniou et al. (2011), "Measuring the Economic Gains of Mergers and Acquisitions: Is it Time for a Change?", Journal of Financial Economics
- Barber, B. M. and J. D. Lyon (1997), 'Detecting long-run abnormal stock returns: The empirical power and specification of test statistics', Journal of Financial Economics
- Bausch et Fritz et Boesecke (2007), "Performance Effects of Internationalization Strategies: A Meta-Analysis", Emerald Group Publishing Limited
- Betton et al. (2008), "Corporate Takeovers", Journal of empirical corporate finance
- D. Besanko, D. Dranove and M. Shanley (2000), "Economics of Strategy", Wiley
- K. Bosecke (2009), "Value creation in mergers, acquisitions, and alliances", Springer edition
- P. Cusatis, J. Miles and J. Woolridge (1994), "Some new evidence that spinoffs create value", Journal of Applied Corporate Finance
- M. Dallochio (2013), "Mergers & Acquisitions", Egea editore
- A. Damodaran (1996), "Damodaran on Valuation: Security Analysis for Investment And Corporate Finance", Wiley Finance
- Dobbs et al. (2010), "Are you still the best owner of your assets?", McKinsey publication
- M. Evans (1999), "Creating Value through Financial Management"
- Fama, E. F., L. Fisher, M. C. Jensen and R. Roll (1969), 'The adjustment of stock prices to new information', International Economic Review
- Fama, E. F. (1998), 'Market efficiency, long-term returns, and behavioural finance', Journal of Financial Economics
- P. Gaughan (2011), "M&A Resurgence: Good or Bad?", Journal of Corporate Accounting & Finance
- P. Gaughan (2011), "Mergers, Acquisitions and Corporate Restructurings", Wiley
- M. Gort (1969), "An economic disturbance theory of mergers", The Quarterly Journal of Economics

Hogholm (2016), "Bidder's Gain in Public M&A Transactions: Does Size Matter?", International Journal of Economics and Finance

Ibrahimi et al. (2018), "Sources of value creation and destruction in horizontal mergers and acquisitions", Emerald Insight

M. C. Jensen (1986), "Agency costs of free cash flow, corporate finance, and takeovers", The American economic review

J. Kengelbach et al. (2015), "The 2015 M&A Report", BCG Publications

P. Legland (2022), "PMI Course Material", HEC Paris

Microsoft (2018), "2018 Registration Document"

Microsoft (2019), "2019 Registration Document"

Microsoft (2020), "2020 Registration Document"

Microsoft (2021), "2021 Registration Document"

M. Mitchell and J. H. Mulherin (1996), "The Impact of Industry Shocks on Takeover and Restructuring Activity," Journal of Financial Economics 41

C. Montgomery (1994), 'Corporate diversification', Journal of Economic Perspectives

Mueller (1985), 'Mergers and market share', Review of Economics and Statistics

J. Mulherin and Audra Boone (2000), "Comparing acquisitions and divestitures", Journal of Corporate Finance

Nuance Communications (2018), "2018 Registration Document"

Nuance Communications (2019), "2019 Registration Document"

Nuance Communications (2020), "2020 Registration Document"

Nuance Communications (2021), "2021 Registration Document"

Olsen et al. (2004), "The next frontier: Building an Integrated Strategy for Value Creation, the 2004 value creators report", BCG Publication

L. Rondi et al. (1996), "Determinants of diversification patterns", Oxford: Clarendon Press

H. Servaes (1996), "The value of diversification during the conglomerate merger wave", Journal of Finance

L. Shulman (2007), "How Premium Conglomerates Sustain Success", BCG Publications

Sirower et al. (2022), "The Synergy Solution: How companies win the M&A game", Harvard Business Review

Sirower et al. (1999), "The Synergy Trap", Harvard Business Review

S. Sudarsanam (2003), "Creating Value from Mergers and Acquisitions: The challenges", FT Prentice Hall

N. G. Travlos (1987), "Corporate Takeover Bids, Methods of Payment, and Bidding Firms' Stock Returns", Journal of Finance

P. Vernimmen (1981), "Corporate Finance", Dalloz

J. Zajac (2008), M&A: Persistence, willingness to adapt best practices key to successful mergers, Oliver Wyman Publications