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"DO MERGERS AND ACQUISITIONS CREATE VALUE?"

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// Abstract

The main objective of M&A is to create long-term shareholder value, gain a larger market share and achieve greater efficiency.
It is broadly believed and reported that the majority of acquisitions are destructive of value.
In this paper I want to use a new and original method, developed with the help of Prof. Richard Horwitz, to measure the creation of value.
We are going to use financial statements values and metrics (Intangible assets, Revenues, Net Income and ROE) to study this variable.
Analyzing a few specific M&A cases, I found that this method is a valid option to measure if a M&A deal is successful or unsuccessful. Focusing our attention on a broader number of M&A deals, I found that M&A deals are strictly correlated to an increase in revenue and net income. But we cannot draw the same conclusion regarding the correlation between intangible assets and ROE metric, leading us to the conclusion that M&A deals do not unequivocally create value.

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Introduction

Mergers and acquisitions have been around for more than a century. A vast literature has been produced on the topic. Nonetheless, the academic debate is still open: "Do M&As create value (for bidder firms)?". Numerous studies tried to answer this question, and several methodologies have been employed and refined over time. The results are contradictory, and the general conclusion is that M&As on average yield null abnormal returns.

This thesis aims to check such conclusions regarding the deals performed in the last two decades.

The existing literature on this matter appear to have attempted to establish a correlation between acquisitions and post-acquisition stock performance, but it presents serious flaws. Therefore, I present a new and original approach to valuate this kind of deals, finalized in the U.S.A market, that aims to correct these flaws. This methodology investigates the relationship between Intangible Assets and profitability.

Chapter I aims to investigate and define the M&A activity. This research starts by questioning what mergers and acquisitions are and by defining the phenomenon. Different types of M&As are then described, merger motives are discussed, with a particular focus on synergies.

Chapter II introduces the previous literature review, with a focus on the papers analyzing the value creation from these deals. We move on, then, to the previous research, describing the various types of M&A and their structures, focusing on the accounting side of deals, since our method exploits accounting measures.

Chapter III presents the new approach, describing its advantages. Then, it focuses on using this new method to analyze a few important deals. Then the chapter move forward with the analysis of M&A deals sorted by the most active sectors in terms of number of M&A deals for the past 15 years.

Chapter 1: Mergers & Acquisitions

1.1 Definition

A merger or an acquisition can be defined as the combination of two or more companies into one new company or corporation. It refers to buying and selling of both private businesses and public companies. In the case of the acquisition of a publicity traded company, this may also be referred as a takeover.

In practice, very few transactions are structured as pure mergers, where two companies combine their businesses and management teams, but with neither of them taking control. The great majority involve the acquisition of one company by another, with clear target and acquirer.

Takeovers, merger, and acquisition are often used as interchangeable terms, although there is clearly a difference in the economic implications of acquisition and merger (Singh, 1971). The main difference defines takeovers and acquisition as activities through which the acquiring firms will control more than 50% of the capital of the target firms, while, in a merger, at least two firms are combined into a "new" legal entity.

Other writers have also come up with different definitions. Hampton (1989) has argued that "a merger is a combination of two or more businesses in which only one of the companies survives" (Hampton, 1989, p. 394). What differentiates them is the different degrees of negotiating power of the acquirer and acquiree in a merger. Negotiating power is usually linked to the size or wealth of the business. When two firms are similar in the terms listed above, a new firm is likely to emerge because of the agreement.

To sum up, a deal to be called a merger should necessarily respect two conditions:

- Both parties must agree on the intent of the deal: come together to form a new entity.
- Interested firms must have equal size and negotiating power.

If the second term is not respected, it means that there is a more prominent firm merging a smaller one. For this reason, even though legally the two companies may consolidate, the transaction should be regarded de facto as an acquisition.

1.2 Types of M&A

We can classify M&As in different types according to different criteria, as defined by the *Corporate Finance Institute*. M&A transactions can be divided by type (horizontal, vertical, conglomerate) or by form (statutory, subsidiary, consolidation). These classifications are relevant as they may have a different impact on the success of the deal and value creation.

Competitive relation

It is the standard and most simple classification of M&A transactions. It is based on competitive relations occurring between the involved parties.
As follows:

- Horizontal: a horizontal merger happens between two companies that operate in similar industries that may or may not be direct competitors. It was the case of the Exxon Mobil merger in 1998, both oil companies.
- Vertical: A vertical merger takes place between a company and its supplier or a customer along its supply chain. The company aims to move up or down along its supply chain, thus consolidating its position in the industry.
- Conglomerate: This type of transaction is usually done for diversification reasons and is between companies in unrelated industries. It may be the case of recent, in 2017, Amazon entered the grocery business by tossing Whole Foods in its shopping cart. Amazon spent more than $13 billion to buy this 40-year-old supermarket chain known for its organic merchandise and, at times, its sky-high prices.

Deal structure

As to the future of the target (or its assets), we can note four types of transactions:

- Statutory Merger: Statutory mergers usually occur when the acquirer is much larger than the target and acquires the target's assets and liabilities. After the deal, the target company ceases to exist as a separate entity.
- Consolidation: both companies in the transaction cease to exist after the deal, and a completely new entity is formed.
- Subsidiary merger: the target becomes a subsidiary of the acquirer but continues to maintain its business.
- Acquisition of Assets: target's assets are transferred to the bidder.

The latter case is the least common, allowing the buyer to choose only desirable assets and avoid burdensome liabilities. On the other hand, transferring only assets can be complicated and time-consuming, especially when the target is as large and highly regulated, as a global bank could be. In addition, the liabilities of the target must also be acquired by another entity.

Financing

An important task performed by investment banks when designing the deal is the choice of the consideration (i.e., the mean of payment).
This usually originates three types of transactions (Iannotta, G., Investment Banking, 2010):

- Cash Deal (borrowings): when the bidder pays the seller entirely in cash.
- Equity Deal: when the bidder pays the seller entirely through its stocks. It may be agreeing on a fixed value or a fixed number of shares.
- Mixed: when the bidder pays the seller partly by cash and partly by equity.

The sources of debt financing include working capital, term debt, vendor take- back, subordinated debt, and government contributions, while equity financing consists of mainly preferred and common shares, and retained earnings (Albo and Henderson,

1987). In debt financing, borrowers' credibility is the main concern of the providers of capital in determining the size and maturity of the debt.

If the transaction is unsuccessful, buyer's shares will decrease in value, consequently the wealth of the seller shareholders will also decrease. On the contrary, if the operation is successful, the revenues will be shared amongst all the shareholder, of both companies. Therefore, a stock transaction can be seen, by the market, as low buyer's confidence in the acquisition. Indeed, in cash acquisitions the seller's shareholders do not receive the buyer's shares. In fact, all risks and potential rewards will only impact the bidder's stocks and the wealth of its original owners. Unsurprisingly, cash acquisitions are linked to an increased buyer confidence in the deal.

Another reason is the asymmetric information between the bidder's management and the different investors. The former will prefer stock deals when they believe their stock is overvalued. On the contrary, they will avoid such deals when they believe the market is undervaluing their shares, or when they believe the deal will be very successful. This theory was first developed by Jensen, 2005, and it is known as the agency cost of overvalued equity. In particular, the ability to use low-cost equity financing in the form of overpriced stocks can undermine managerial discipline and even push managers into making unprofitable investments, particularly stock-financed acquisitions. This explains why investors should view stock acquisitions as inferior investment decisions.

Usually, a stock offer is made in combination with an equity issue. A seasoned offering is typically received as a negative indicator by the market. It could imply that the company is not able to finance projects with its revenues. Alternatively, the market could perceive that the stock is overvalued, taking advantage of the moment to raise some extra funding (Myers and Majluf, 1984).

Target's status

Whether the target is a listed or a private company has a significant different implication on the transaction. In the former case, the bidder must propose a public offer to buy shares (tender offer) to all target's shareholders. While in the latter case the transaction

would be private between the bidder and the seller. In this situation, the target may be as well a business unit or just assets to be considered as a private transaction.

Several studies claim that the acquisition of private target results, on average, in positive extra returns for the acquiring company, whereas the acquisition of a public company leads on average to negative or null extra returns. It may be due to several factors (Hazelkorn, Zenner, and Shivdasani, 2004). First, privately held companies are smaller and therefore, easier to integrate. On one side, the acquisition premium may also be lower, as there is no public valuation to add a premium to the selling price. On the other side, it is also true that a private transaction may be riskier as there is less available information on the target. In such a context, confidential information acquires a leading role in decision-making.

Impact on EPS

The choice of consideration also affects the EPS of the combined firm. More specifically, the transaction is:

- Accretive: indicates the positive effect of the deal on the EPS of the combined firm
- Dilutive: indicates the negative effect of the deal on the EPS of the combined firm

There is not a simple way to know in advance if the deal is going to be accretive or dilutive. The only exception is for all equity deals. Whenever the Bidder's PE ratio is higher than the Target's PE ratio the stock deal will be accretive. It is intuitive as Bidder is purchasing "cheap" earnings: the combined net income thus increases more than the number of shares does, resulting in a higher EPS. It translates to paying less for new earnings, therefore increasing the earnings per share.

Accretion and dilution analysis is a key component in M&A analysis (Haas and Hodgson, 2013). An increase in EPS is beneficial to shareholders. Therefore, accretive deals should have a positive impact on the share price. On the contrary, a dilutive deal is thought to be seen poorly by the investors.

This leads to the belief that:

- EPS accretive transaction create value
- EPS dilutive transactions destroy value

What is not considered is the earning growth. It determines the P/E ratio of a company. A higher P/E ratio means that a company has higher expectations as to future earnings growth. Combining a firm with a higher P/E with one that has a smaller P/E lead to two counterbalancing effects. From one side, the EPS are indeed going to increase if the deal is stock financed. From the other, the combined firm will have a lower P/E, dragged down by the target's lower earnings growth expectations.

As a result, there is no value creation. Being aware of this, managers may still pursuit accretive deals to deceive the market. This has the name of bootstrap game. New accretive M&A must continuously take place to perpetuate the illusion of value creation.
However, it is impossible to accomplish endless acquisitions. When the process stops, acquirer's stock will inevitably crush. Therefore, the corporate finance theory shows no relationship between accretion/dilution and value creation/destruction.

1.3 Rationale

There are numerous reasons why one company chooses to merge with or acquire another. The literature suggests that the underlying motivation to merge is driven by a series of rationales and drivers.

Several primary rationales determine the nature of a proposed merger or acquisition. (Roberts A., Wallace W., Moles P., 2010, Mergers and Acquisitions).
These rationales are:

- **Strategic rationale**. The strategic rationale makes use of the merger or acquisition in achieving a set of strategic objectives. A merger to gain control of capacity in a specific sector is one example. Mergers and acquisitions are typically not crucial in the achievement of strategic objectives, and there are usually other alternatives available. For example, firm A may want to gain a foothold in a lucrative expanding market but lacks the necessary experience or

competence. One possible solution is to purchase a firm that already has a track record of success in the new market. The alternative might be to develop a research and development division in new market products in order to catch up with and eventually overtake the more established businesses. This option has clear cost and time implications.

- **Speculative rationale.** When the acquirer perceives the acquired firm as a commodity, the speculative rationale emerges. The acquired company might be a player in a newly emerging area. The acquiring company may wish to participate in the potential profitability of this sector without committing to a significant strategic realignment. One way to accomplish this is to purchase established companies, develop them, and then sell them for a significant profit at a later date. Even if the targets are carefully analyzed and identified, this technique carries a significant risk. A substantial risk, particularly in the case of small and highly specialized targets, is that a considerable number of the target's highly trained employees will leave before, during, or shortly after the merger or acquisition. If this occurs, the target's actual value might decrease dramatically in a very short period of time.

- **Management failure rationale.** Mergers and acquisitions can occasionally be forced upon a firm as a result of management failures. Strategies may be assembled with a margin of error, or market conditions may change dramatically throughout the implementation period. As a result, the original strategy may become misaligned. Such strategy compromises can arise from a combination of factors, including changing consumer demand and competitor's actions. In such cases, by the time the strategy variation is discovered, the company may be so far off the new desired strategic track that it is not possible to correct it other than by merging with or acquiring another company that will assist in correcting the variance.

- **Financial necessity rationale**. Mergers and acquisitions are occasionally required for financial reasons. A company's strategy might be misaligned, causing it to lose value as a result of decreasing shareholder trust. In certain

situations, the only solution is to merge with a more successful firm or to buy smaller, more successful companies.

Merger Drivers

- **A requirement for specialized knowledge, skills, and/or resources.** A business may seek to merge with or purchase another business to gain a specific skill or resource owned by the other company. This type of merger or acquisition frequently occurs when a smaller company has established highly valuable specific expertise over time, and it would take an acquiring company a long time and significant effort to achieve the same skills.

- **National and international stock markets.** Share price movements can be major catalysts for mergers and acquisitions. A stock market boom tends to increase the attractiveness of acquisition activities by making it easier to fund the transaction with the acquirer's shares rather than cash. Alternatively, a declining stock market can result in potential targets being devalued, making them more desirable for a cash purchase.

- **Globalization drivers**. Increasing globalization, facilitated to a large extent by the growth and development of information technology, tends to encourage mergers as geographical separation between individual companies becomes less of an obstacle to organizations cooperating as a single entity, both within and across international boundaries.

- **National and international consolidation**. This type of drive arises when there are compatible businesses in the same general geographical area that are accessible for merger or acquisitions.

- **Industry and sector pressures**. Mergers became extremely common in certain areas during the 1990s. Large-scale mergers were particularly important in the oil exploration and production sector. For example, in 1998, BP merged with Amoco, while Exxon Mobil merged with Total Petrofina in 1999.

- **Capacity reduction.** Total production in a specific sector may exceed or be close to demand, resulting in a low product value. In some circumstances, a company may seek to merge with or acquire a competitor to gain a greater degree of control over the sector's entire output. If company A acquires company B, it has greater influence over total sector production and it could gain the ability to maintain more of its own manufacturing facilities and employees within the new company at the expense of company B.

- **Vertical integration.** The goal is to gain more control over the production process, which encompasses practically all stages from raw material procurement to final product distribution. Capturing upstream or downstream profit margins sector may result in cost savings, increased efficiency, and market power, even though vertical mergers do not appear to be as common as in the past. Nowadays, businesses tend to outsource components rather than produce them themselves. For instance, Nike designs shoes but does not manufacture them (2021, Nike Inc.). Manufacturing is entirely outsourced to third parties. It allows them to fully leverage the competition between suppliers to get the lowest possible price. It also provides the flexibility to switch contractors when conditions change quickly. A business may seek vertical integration with (for example) a supplier of a key supply to decrease the risk profile associated with that supplier and thereby ensure supply continuity.

- **A drive to acquire a new market or customer base.** Mergers and acquisitions frequently provide an expedited path to new and established markets. When a large bank merges with another, each bank gains access to the other's customer base. In some instances, the acquired customer base may represent a previously unavailable market. For instance, one bank may have previously specialized on business customers, whereas the other bank may have specialized in domestic consumers. The new structure results in a more balanced consumer base.

- **A drive to buy into a growth sector or market.** Businesses may consider mergers and acquisitions to enter a desirable new market or sector, particularly

if the industry or sector is expected to grow in the future.

- **Economies of scale.** They are realized as production volume increases and the unitary cost decreases. This occurs because the fixed expenses will be distributed across a larger number of produced units. Increased size may result in increased bargaining power against suppliers.
  Scale economies were also mentioned as a justification for conglomerate mergers. This way, businesses can share the costs associated with the administration, strategic planning, and financial control. However, as history has proved, it is cumbersome to manage all these processes jointly for many different companies operating in different businesses.

- **Tax benefits.** Occasionally, a business may have potential fiscal benefits but no earnings to realize them. It could so acquire a profitable business to benefit from shielding its. On the reverse, it would be the same: a profitable company could merge one with losses and tax benefits. In both circumstances, the combined entity will pay lower taxes than the total of its individual companies. As a result, the value of the synergy equals the present value of tax savings.

- **Debt capacity.** It could increase if the bidder's and target's cash flows are not perfectly correlated, as this would make the merged firm's cash flows less volatile.
  Increased debt capacity results in a stronger tax shield and may lower the combined firm's WACC, hence increasing its valuation.

- **Cash slack.** This occurs when a company with a sizable cash surplus acquires a company with valuable projects but insufficient capital. It enables target managers to avoid missing out on profitable investment opportunities to a lack of financial resources. It would be a profitable way to employ excess cash for a firm with few investment opportunities. Naturally, the additional value is in the present value of the projects that would not have been undertaken had the two firms remained independent. However, excess cash can also be interpreted from

the agency theory point of view. Management may be hesitant to distribute extra cash to shareholders if doing so depletes the company's resources without increasing owners' wealth. Thus, a takeover decision motivated by cash slack can be reconciled with the empire-building theory (Gibbs, 1993)

1.4 Synergies

Whenever a merger is announced, there is a high probability that synergies will be cited. For instance, in March 2016, Marriott and Sherwin Williams announced multi-billion-dollar mergers with Starwood Hotels and Valspar, respectively. Both bidder's CEOs mentioned estimated annual synergies of $250-$300 million in their press releases.

Synergies are any source of additional value deriving from combining two previously separate entities under the same control. The resulting company, therefore, can be more efficient than the original companies by eliminating redundancies and pooling more effectively resources. Synergies occur where the market value of the two merged firms is higher than the sum of their individual values.

Mainly two categories of synergies are recognized:

- *Operating synergies*, which provide strategic advantages and economies of scope. They can be further divided into cost and revenue synergies. The former type is recognized as more valuable as cost cuts can more reliably be predicted and realized than revenue forecasts. Generally, operating synergies shows up as higher expected cash flows.
- *Financial synergies* are more focused and comprise tax benefits, increased debt capacity, diversification, and cash slack. “They sometimes show up as higher cash flows and sometimes take the form of lower discount rates.” (Aswath Damodaran, Stern School of Business, October 2005).

Therefore, mergers are made to create value; this is achieved through synergies.

Businesses engage in M&A transactions for a variety of reasons, as discussed above. When a firm gets into an M&A deal and synergies between the two companies

become apparent, there is a strong likelihood that value will be created as a result of the transaction (Petitt & Ferris, 2013). Therefore, businesses should pursue M&A only if the value of the acquirer and the target company is larger if they operate as a single entity rather than as separate entities, maximizing shareholder wealth for both parties (Grinblatt & Titman, 2004). Operating synergies are achieved when the acquirer's and target's operations are combined. Operating synergies are critical for boosting margins, returns, and growth. According to Aswath (2005), economies of scale, the ability to command a higher price, the combination of disparate resource capabilities, and expansion into new or emerging markets are all examples of operating synergies that generate value for the company and its shareholders. The rationale for operating synergies is that the merged firms' unlevered cash flow exceeds the combined unlevered cash flow of the individual entities (Grinblatt & Titman, 2004). Operating synergies and cost synergies are inextricably related because both seek to profit from economies of scale, but cost synergies are a bit more delicate because they can eliminate duplicate roles and even entire offices or factories inside the merged organization. Financial synergies are attributed to the merged companies' weighted average cost of capital as a result of the acquisition (Kaplan, 2006). According to Aswath (2005), financial synergies pay out in the form of increased cash flows, cheaper cost of capital, or a combination of the two. Additionally, Aswath (2005) notes that financial synergies can include the following: possibility to build value through the combination of a firm with extra capital and a firm with high-return initiatives.

- Debt capacity can be increased, and cash flows may become more stable as a result of two enterprises pooling their earnings. As a result, they can borrow more money, which may result in tax benefits such as a cheaper cost of capital.
- Tax savings can be realized when a profitable firm merges with a non-profitable entity and uses the combined firm's net operating losses to offset its tax liability.
- Diversification is the most contentious of this category and may not add value to the business since while unsystematic risk can be diversified away through M&A, systematic risk cannot be diversified away by diversification.

Following takeover, synergy can be developed in a variety of ways. It often occurs as a result of the combined firm's improved resource allocation, such as the substitution of inefficient management with more efficient management (Ross et al., 2002, p. 826) and

the elimination of redundant and/or unprofitable divisions. Generally, this type of restructuring leads in a rise in market value.

Additionally, synergy can develop as a result of achieving "operational" and "financial" economies of scale through acquisitions (see Brealey et al., 2001, p. 641; Ross et al., 2002, p. 825). Operational economies of scale imply 'potential cost savings in production or distribution' (Jensen and Ruback, 1983, p. 611), whereas financial economies of scale imply a lower marginal cost of debt and expanded credit capacity. Additionally, oligopoly power and a more diverse distribution of company risk are sources of synergy. Numerous causes of synergy have been proposed and evolved into unique concepts, which will be discussed in later sections.

Management synergies are discovered through an increase in managerial efficiency, which results in a rise in the corporation's overall performance. Synergies between managers will also result in a more innovative structure, as people become more risk averse. This is because the fusion of ideas results in the creation of more innovative solutions than working alone (Krug, et al., 2013). This results in the strength of one company complementing the strength of the other through management synergy, enabling the merged entity to overcome obstacles that would have stymied the firms alone (Williams, 2010). Unfortunately, as previously said, not all managers are driven by the goal of creating shareholder value, and some fall victim to hubris and empire building notions, potentially resulting in a detrimental impact on shareholder value (Petitt & Ferris, 2013). In the context of mergers and acquisitions, this adverse effect is referred to as a "dyssynergy." Additionally, dissynergies might result in client loss to competitors, the resignation of qualified or specialized personnel, or an increase in administrative costs (Sirower, 2001). With synergies critical to M&A success in terms of shareholder value creation, corporations must also exercise caution when calculating such synergies. Kuhn (2009) and the McKinsey study on M&A synergies (2010) demonstrate that synergies are frequently overstated. Where 160 mergers and acquisitions were examined, over the seven years before, 70% did not achieve targeted revenue synergies and 40% failed cost synergies targets. While not all synergies achieved their intended outcome, the goal is to generate positive synergies and a higher value for the merged company than existed before to the acquisition.

In the next page there is a list of potential synergies, classified by financial statements and accounts.

Potential synergies, sorted by different financial statement and accounts.

Financial Statement	Account	Positive or Negative	Synergy	Description
Income Statement	*Revenues*	+	Product Expansion	cross sell the acquired products to existing customers and/or the acquirer's (buyer's) products to the target's customers
		+	Geographic Expansion	expand the market reach of the acquirer and/or target to new regions or countries
		+	Distribution Channel Expansion	expand the customer base by adding incremental distribution channels for the acquirer, its target or both
		+	Reduced Competition	eliminating competitive threats from substitutes from new entrants or established rivals can mitigate price competition and improve market share
		+	Network Effects	expanding the customer base may lead to or improve network effects that raise the value to customers and/or create barriers to entry to competitors
		+	Brand	elevating image and/or market positioning via purchase of a premium / higher quality label
		-	Competing with Your Customer	if the acquisition means competition with the previous distribution channel, the firm's distributors could shift sales to its competitors • using the acquisition to cut out a wholesaler • acquiring a direct-to-consumer company that bypasses the entire distribution channel by selling one-to-one to the consumer
		-	Antitrust	regulators such as the Federal Trade Commission or Department of Justice may require companies to sell businesses or pieces of businesses to mitigate antitrust problems or bar a transaction outright
		-	Common Customers	overlapping customer bases can diminish potential Revenue synergies

Figure 1: Potential synergies, Revenues' account. This table shows all the possible synergies that can be created by a M&A deal, sorted by the type of account, the positive or negative influence and the type of synergy with the description of its effect. Source: personal elaboration.

Potential synergies, sorted by different financial statement and accounts.

Financial Statement	Account	Positive or Negative	Synergy	Description
Income Statement	*Cost of Revenues*	+	Capacity Utilization	improved capacity utilization can increase returns
		+	Economies of Scale	lowering per unit costs by increasing volume throughput
		+	Access to Lower Cost Labor Pools	using the transaction to accelerate reach into lower cost labor sources
		+	Material Costs	amassing sufficient quantity to achieve superior volume discounts from suppliers or buying a target to lower costs by producing materials internally previously purchased
		-	Raise Labor Costs	may expose the acquirer to higher wage structures (e.g., unionized labor pools)
	OpEx	+	Economies of Scale	gain expertise, eliminate duplicative expenses including C-level and other high priced management, increase organization-wide media buys, improve sales force productivity by increasing product line, enabling up-selling, generate savings via increased shipment size
		-	Cost of Complexity	combining businesses, and infrastructure, can be expensive and time-consuming • Expedia bought Orbitz and Travelocity which meant consolidating software for years
		-	Implementation Costs	M&A carries negative synergies from implementation costs and legal fees
	Non-Operating Expenses	+	Interest Income (Expense)	lower borrowing costs
	Taxes	+	Favorable Geographic Impact	expand income base into lower cost jurisdictions such as Ireland
		+	NOLs	Net Operating Loss Carryforwards (NOLs) are prior losses of either company that may be netted against the future pretax profits of the combined company to lower its tax rate
		-	Unfavorable Geographic Impact	expand income base into higher cost jurisdictions (i.e., countries such as the U.S.) or U.S. regions with higher sales taxes

Figure 2: Potential synergies, Income statement's account. This table shows all the possible synergies that can be created by a M&A deal, sorted by the type of account, the positive or negative influence and the type of synergy with the description of its effect. Source: personal elaboration.

Potential synergies, sorted by different financial statement and accounts.				
Financial Statement	**Account**	**Positive or Negative**	**Synergy**	**Description**
Balance Sheet	***Account Receivable***	+	Lower DSOs	improve systems that hasten the collections process and/or leverage the shift in distribution channels to lower DSOs
	PP&E	+	Economies of Scale	remove duplications and raise spending efficiencies
	Excess Cash	+ / -	Uses of Cash	may be utilized to finance acquisition activity, which can be both positive or negative
	Accounts Payable	+	Lower DPOs	with increased market power, the company may speed supplier payments
	Debt	+ / -	M&A Financing	may be increased to finance M&A (raising costs) or decreased if a combined company has a healthier Balance Sheet
	Equity	+ / -	M&A Financing	may be increased to finance M&A which could improve or worsen ratios such as ROE

Figure 3: Potential synergies, Balance sheet's accounts. This table shows all the possible synergies that can be created by a M&A deal, sorted by the type of account, the positive or negative influence and the type of synergy with the description of its effect.
Source: personal elaboration.

1.5 Value Creation

Acquisitions create value when the cash flows of the combined companies are greater than they would have otherwise been. If the acquirer doesn't pay too much for the acquisition, some of that value will accrue to the acquirer's share- holders. Acquisitions are a good example of the conservation of value principle.

The value created for an acquirer's shareholders equals the difference between the value received by the acquirer and the price paid by the acquirer:

Value Created for Acquirer = Value Received − Price Paid

The value received by the acquirer equals the intrinsic value of the target company as a stand-alone company run by its former management team plus the present value of any performance improvements to be achieved after the acquisition, which will show up as improved cash flows for the target's business or the acquirer's business. The price paid is the market value of the target plus any premium required to convince the target's shareholders to sell their shares to the acquirer.

Chapter 2: Prior research

A vast literature, which we are going to analyze in this chapter, appear to have attempted to establish a correlation between acquisitions and post-acquisition stock performance. While this is logical, it has three fundamental flaws.

It is difficult to quantify such a dynamic using returns over a defined time horizon.
Numerous research examine the *seven-day* to *ten-day* period surrounding the announcement date.
Analyzing near-term results is comparable to relying on *market emotion* rather than *business fundamentals*. If the market views acquisitions negatively, it may penalize them in the near term without understanding the underlying value provided.
When attempting to quantify long-term influence, employing a defined timeframe presents difficulties.
Additionally, there are so many factors influencing stock performance concurrently that it is extremely difficult to isolate a single cause when looking beyond a year.
Much research relies on the capital markets and the acquirer's stock's success over time.
The hope of the acquiring company is that the acquisition premium paid (resulting in Intangible Assets on the Balance Sheet) can be more than compensated for by synergies (on the Income Statement).
Analyzing the relationship between *Intangible Assets* and *related post-acquisition company valuations* may shed light on the success rate of prior acquisitions.
Our new method (analyzing relationship between Intangible Assets and profits) addresses all the discussed below issues with analysis based on post-deal stock performance.

2.2 Previous literature review

Research on M&A has been extensive and often contradictory. The most studied and debated topic is whether these transactions create value or not. A common conclusion is that M&A, on average, fail to create value for acquiring firm's shareholders. Nonetheless, as it has been shown, mergers by corporations reoccur in waves. The fact that managers seem to ignore empirical findings is called success paradox (Cording, Christmann and Bourgeois, 2002).

Prior to discussing the findings of empirical studies, it is necessary to define the research methodologies used. (Does M&A Pay? Bruner, 2004). There were primarily four of these:

1. Event studies. The stock prices of the two companies involved are analyzed shortly after the merger announcement. The abnormal returns are calculated. These are nothing else than the stock return less a benchmark of what investors require. The benchmark is often the rate of return implied by the capital asset pricing model (CAPM) or the return on a significant market index such as the S&P 500. The underlying principle is that investors can reliably forecast the merged firm's future cash flows. These studies are considered forward-looking since they are based on the efficient market hypothesis. The other two assumptions are that the event was unanticipated and that no further effects occurred. That is, the event should not be anticipated prior to its disclosure for the firm's stock prices to accurately represent the event's effect on the day of announcement. Additionally, no other events should influence the surveyed firm's stock price within the event frame.

2. Accounting studies. These consider broad accounting-based performance measures (such as net income, return on equity, return on assets, earnings per share, leverage, and liquidity) of acquiring corporations both before and after the transaction. Productivity, innovation, and growth are the primary areas of study. The results analysis takes a longer-term view in this case, as it is necessary to examine the transaction's influence on financial statements. These will fully take place only after the completion of the integration process. The

outcomes are then compared to non-acquirer counterparts to determine whether the M&A approach was beneficial.

An explicit constraint is that accounting metrics are subject to many variables. For example, because the financial statements accessible are only the consolidated ones, it is impossible to separate the merger effect from the company's other ongoing changes. They are subject to change over time and vary by country, thus complicating the implementation of this strategy.

3. Survey of executives. To evaluate the merger's success, a standardized questionnaire is distributed to a random sample of executives. The sample's results are then generalized. The primary advantages of this strategy are the ability to acquire some private data, or at the very least evaluations of private data, and the ability to evaluate the transaction's motivations and if they were met. The survey, however, is based on managers' perceptions, which may be skewed. Additionally, because integration is a lengthy process, surveys are undertaken several years after the deal closes to determine the deal's success. This makes managers' perceptions even less dependable, and in the meantime, the company's management may have changed.

4. Clinical studies. According to this perspective, each M&A transaction is viewed as a distinct event taking place in a unique setting. It entails a higher concentration on a single or a small number of transactions. It is difficult to generalize insights from clinical investigations because the study process is inductive. With a small sample size, statistical inferences about the population will be insignificant.

The strengths and disadvantages of each methodology are discussed in greater depth in Table 1.

	Market-based Returns to Shareholders ("Event Studies")	**Accounting Studies: Returns estimated from reported financial statements**	**Surveys of Managers**	**Clinical Research (Case Studies)**
Strengths	· A direct measure of value created for investors. · A *forward-looking* measure of value creation. In theory stock prices are the present value of expected future cash flows.	· Credibility. Statements have been certified. Accounts have been audited. · Used by investors in judging corporate performance. An indirect measure of economic value creation.	· Yields insights into value creation that may not be known in the stock market. · Benefits from the intimate familiarity with the actual success of the acquisition.	· Objectivity and depth in reconstructing an actual experience. · Inductive research. Ideal for discovering new patterns and behaviors
Weaknesses	· Requires significant assumptions about the functioning of stock markets: efficiency, rationality, and absence of restrictions on arbitrage. Research suggests that for most stocks these are not unreasonable assumptions, on average and over time. · Vulnerable to confounding events, which could skew the returns for specific companies at specific events. Care by the researcher and law of large numbers deal with this.	· Possibly non-comparable data for different years. Companies may change their reporting practices. Reporting principles and regulations change over time. · Backward looking. · Ignores value of intangible assets. · Sensitive to inflation and deflation because of historic cost approach. · Possibly inadequate disclosure by companies. Great latitude in reporting financial results. · Differences among companies in accounting policies adds noise · Differences in accounting principles from one country to the next make cross-border comparison difficult.	· Gives the perspectives of managers who may or may not be shareholders, and whose estimates of value creation may or may not be focused on *economic* value. · Recall of historical results can be hazy, or worse, slanted to present results in the best light. · Typically surveys have a low rate of participation (2-10%) that makes them vulnerable to criticisms of generalizability.	· Ill-suited to hypothesis testing because the small number of observations limits the researcher's ability to generalize from the case(s). · The research reports can be idiosyncratic making it difficult for the reader to abstract larger implications from one or several reports.

Table 1: Comparison of research approaches regarding the profitability of M&A, focusing on the strength and weakness of each approach.

Source: Does M&A Pay? A Survey of Evidence for the Decision-maker, Bruner, 2004.

2.2.1 M&A activities

Since 1985 in the U.S., more than 325,000 mergers & acquisitions transactions have been announced with a known value of almost 34,900 bil. USD. In 2017, a new record has been broken in terms of number of deals with 15,100 which is a 12.2% increase over 2016. The compound annual growth rate (CAGR) for the number of deals from 1985 to 2018 was 5.86% while the value grew at 5.32%. The trend in 2018 suggests that there will be a decrease in M&A this year.

As the economy, the volume and value of mergers and acquisitions in the United States have fluctuated throughout time. And as the economic expansion that began in mid-2009 stayed strong for more than a decade, M&A reached new heights. The latest surge in transaction activity was the third such wave in three decades, and it lasted longer than the previous two.

PwC conducted an analysis on mergers, acquisitions, leveraged buyouts, minority share purchases, and other investments reported by US acquirers, from 1990 to 2018. This analysis is critical for comprehending how M&A volume and value have historically behaved, as some cyclical trends may persist.

However, M&A is undergoing significant structural changes. These include an unprecedented volume of capital and a diverse range of deal financing sources. These developments are critical to our belief that the next M&A cycle will be different, particularly as the economy continues to deteriorate.

Succeeding through M&A in uncertain economic times

Conventional wisdom holds that mergers, acquisitions and other deal activity likely will plummet in an economic downturn, especially after record highs in M&A volume and a wave of stratospheric transaction values in recent years. Concerns of a steep drop-off are understandable. That’s what happened in the Great Recession, and the dot-com bust before that.

But the expectations of M&A’s demise may be exaggerated. While deal volume has declined recently, fears of a full collapse similar to previous cycles may be premature.

In short, a combination of factors has been driving a decoupling of deals from the broader economy. That decoupling is different from past cycles, providing a higher floor that should prevent deal activity from evaporating.

With this anticipated resilience, prepared corporate and private investors don't have to fully retreat in this downturn. As our research shows, organizations that make deals in a recession actually could outperform their industry peers.

Although M&A declined during the dot-com bust, a PwC analysis found that companies that made deals during the downturn ultimately saw higher shareholder returns than others in their industries.

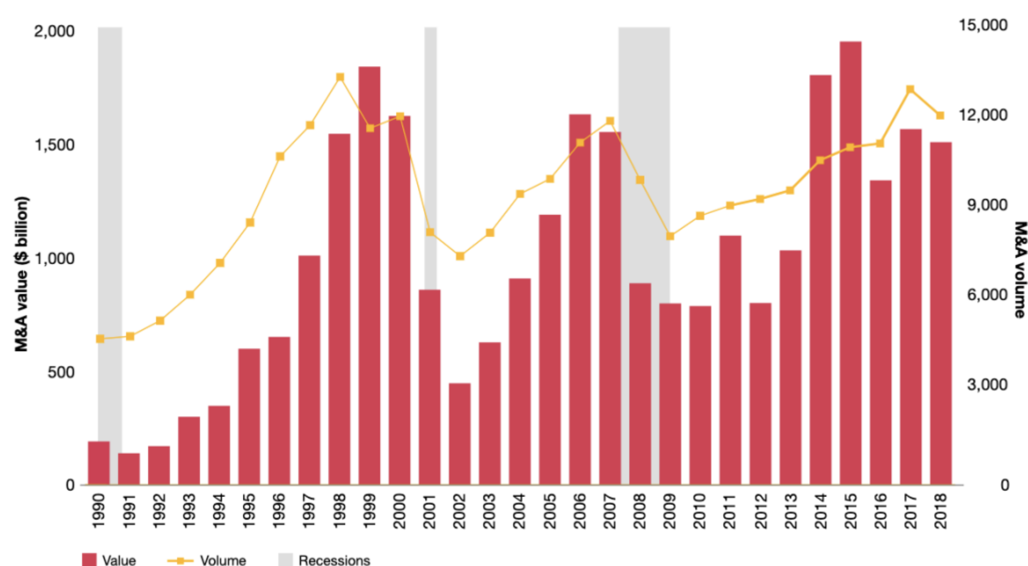

Figure 4: Past M&A cycles and economic recessions. There is a connection between economic recessions and M&A cycle. Important is the significant decrease in value of M&A deals after a recession.

An eye on valuations

Consistent with conventional wisdom, this analysis shows that transaction multiples have historically fallen with the economy, resulting in lower valuations. The pool of acquisition targets should swell as it typically does in a recession, with pieces of companies or entire organizations adding to the M&A supply. But the ability to buy will be stronger than in past downturns, thanks to both the level and mix of capital. Theoretically, this would imply that valuations might stabilize rather than dip during a downturn. Critically, however, not all potential acquirers will be in the same position. An economic downturn tends to impact marginal players and turn them from prospective buyers to potential sellers

M&A cycles

Just as the economy rises and falls in cycles, so have the volume and value of mergers and acquisitions in the US. And as the economic expansion that began in mid-2009 remained resilient for more than a decade, becoming the longest since before the US Civil War, according to federal data, M&A achieved new heights. The uptick in deals activity in recent years was the third such wave in the last three decades, and it lasted longer than each of the previous two. PwC analyzed data on mergers, acquisitions, leveraged buyouts, minority stake purchases and other investments announced by US acquirers from 1990 through 2018. This analysis is important for understanding how M&A volume and value have behaved historically, as some cyclical trends could endure.But M&A also is seeing significant structural changes. These include an unprecedented amount of capital and diversity of funding sources for deals.

What happened in recent M&A waves

In a typical M&A cycle, deal volumes and values initially decline in line with an economic downturn, often prompted by an exogenous event. Company management and boards of directors often hesitate on big investments, wary of extending their organizations in a weaker economy.As companies, private equity (PE) firms and other investors reassess portfolios and strategies, the appetite to buy starts to grow as others decide to sell. Lower valuations for targets during the cycle improve the chances for acquirers to see higher returns. With a greater supply of targets, M&A activity

accelerates. This momentum eventually slows as more companies regain confidence and economic footing and valuations again climb, reducing the number of acquisition targets and the prospects of strong returns. As this trend played out in recent M&A waves, the sectors that have seen brisk deal activity have varied, and the funding for deals has shifted over time, especially as the combined wealth in the world has grown. (PwC, 2018).

1992- 2000: Tech deals during dot-com boom

The internet's rise occurred in the aftermath of the 1990-1991 recession and the Cold War's end. Investors are particularly interested in technology, media, entertainment, and telecommunications. With the equity market underwriting a sizable portion of M&A, notable transactions include the AOL-Time Warner merger and the Bell Atlantic-GTE merger to establish Verizon.

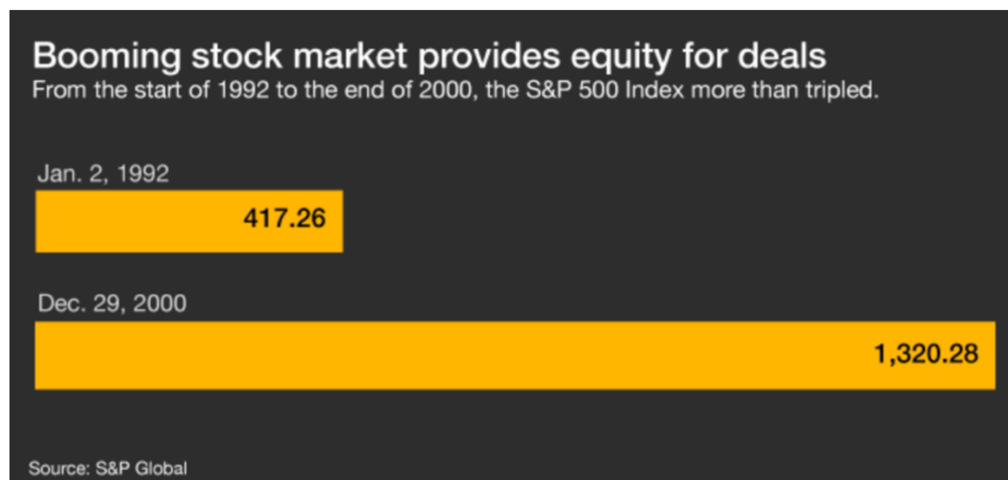

Figure 5: Value of S&P 500 in 1992 and in 2000. The S&P500 index tripled in less than a decade, providing equity for the numerous M&A deals.

2002-2007: Financial deals rise

Following the dot-com bubble crash and the 2001 recession, the expansion of private equity M&A stimulates transaction activity in the financial industry. Financial megadeals include JP Morgan Chase's acquisition of Bank One and Bank of America's acquisition of FleetBoston Financial and MBNA. Private equity is now a significant source of finance alongside the public equity market. The amount of PE-related transactions accelerates, and deal value reaches an all-time high, fueled by PE-backed

acquisitions of HCA, Harrah's Entertainment, and Univision. Annual transaction value in the United States tripled during a wave that is shorter than the preceding one, while annual deal volume increased more modestly.

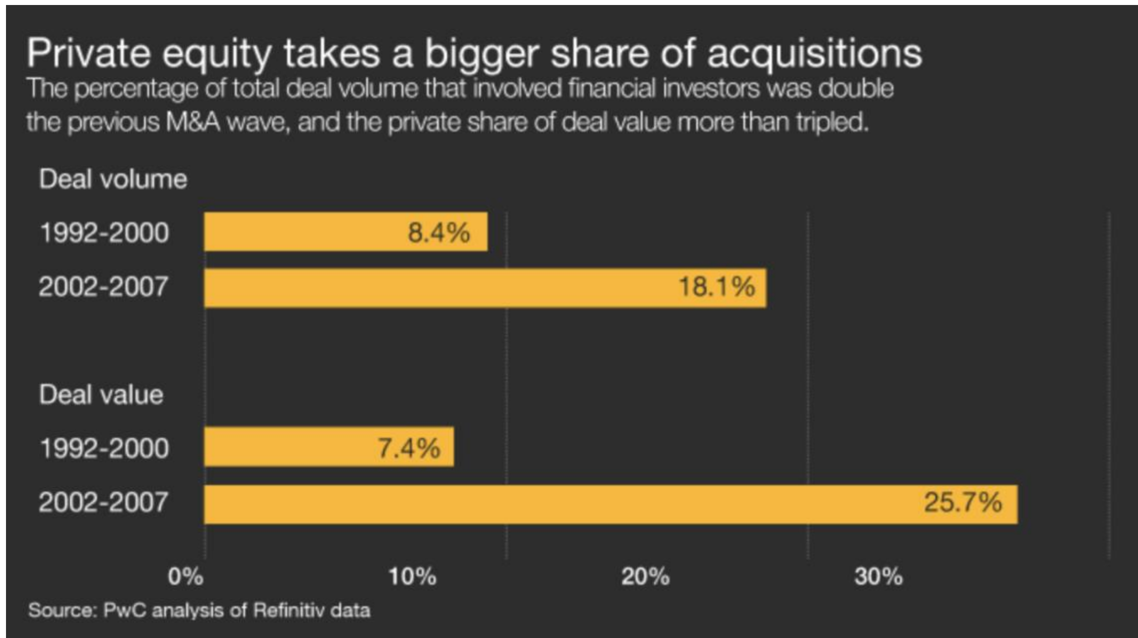

Figure 6: Percentage of private equity investing in M&A deals, in two consequent decades. The deal volume doubled, and the deal value tripled, signaling an increase in M&A activity and importance.

2010-2019: Long recovery from the Great Recession

Global financial crisis and the worst economic slump since the Great Depression result in new rules, which contribute to a shift in M&A funding. As equity markets fund a decreasing share of transactions, corporate cash and borrowing become more important. IBM and Red Hat, Microsoft and LinkedIn, and Amazon and Whole Foods Market are all cash buys. Private equity deal volume continues to grow as investors assess the environment for potential opportunities. Energy and healthcare are of greater importance to dealmakers. While overall US M&A activity continues to grow somewhat, deal value has reached an all-time high and is continuing to rise. Increased market liquidity enables even more transactions.

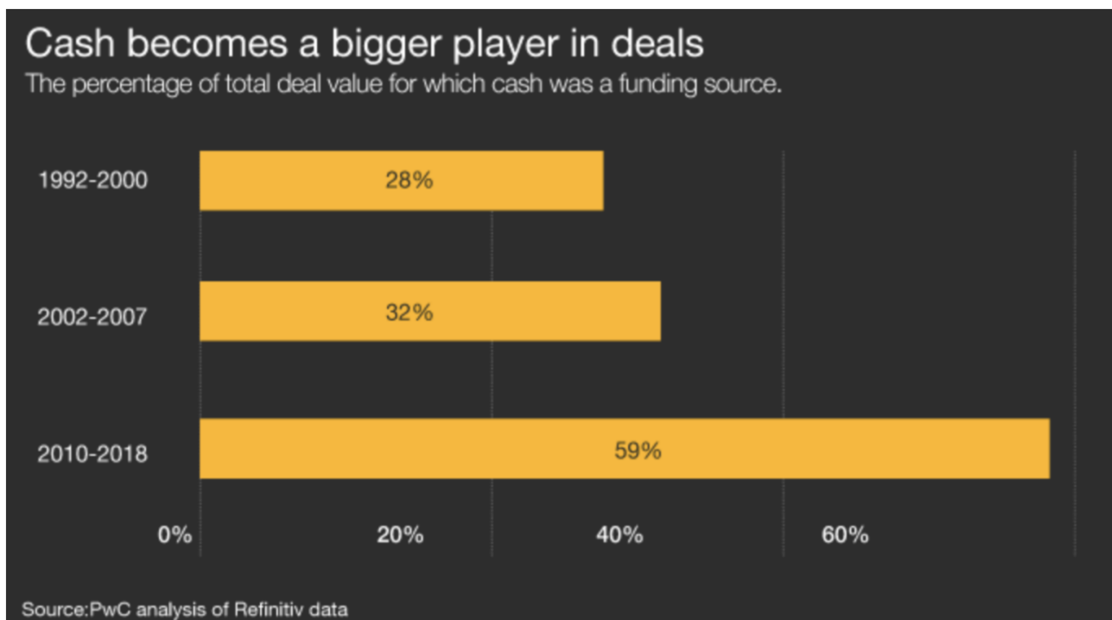

Figure 7: Percentage of cash used in M&A deals. Cash became an important factor in M&A deals, especially in the current decade.

2.2.2 Why do M&A fail?

When a CEO wants to boost corporate performance or jump-start long-term growth, the thought of acquiring another company can be extraordinarily seductive. Indeed, companies spend more than $2 trillion on acquisitions every year in the U.S.. Yet study after study puts the failure rate of mergers and acquisitions somewhere between 70% and 90%. A KPMG study (2010) specifically indicates that 83% of merger deals did not boost shareholder returns.

The *2019 M&A Report* states: “In terms of valuation, deal multiples declined slightly in 2018, to a median of 13.7x. In the first half of 2019, multiples declined further to 13x. The continued decline in the first half of 2019 was driven, in part, by decreasing multiples in cyclical industries, such as industrial companies and consumer-related businesses. However, the average multiple paid for high-tech companies increased significantly. Acquisition premiums, on average, held steady (24.1% in 2018 versus 24.6% in 2017).” In the first half of 2019, they rose to 31.2%, slightly above the long-term average of 30.6%, as showed in *figure 10*.

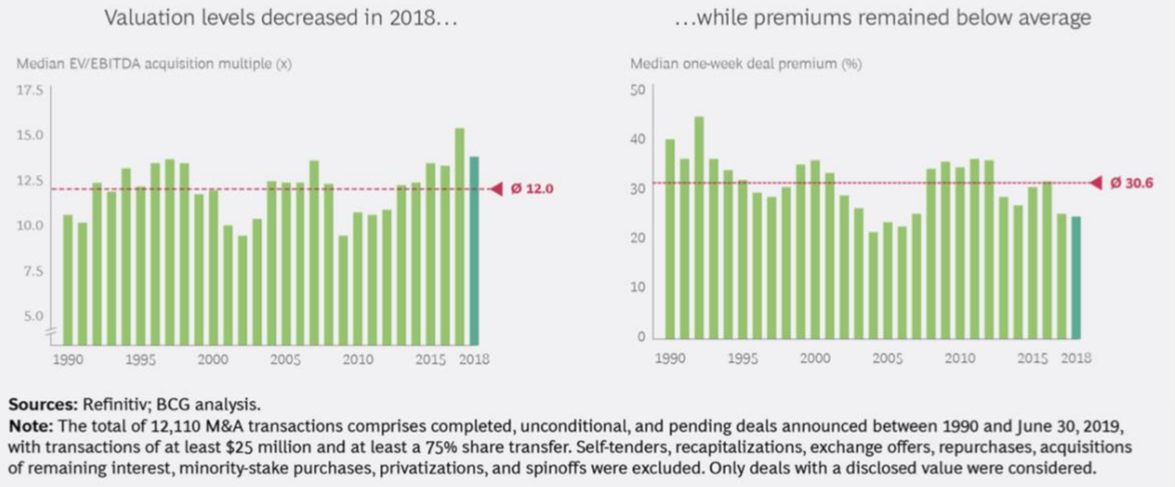

Figure 8: Valuation levels and premiums between 1990 and 2018. The M&A's valuation did not increase between 1990 and 2018, and, in the last few years, it decreased; and the premiums paid remain below average.

From 2012 through 2017, however, cumulative abnormal returns (CARs) of both targets and acquirers were positive, indicating that investors were placing their bets on dealmakers.

Acquirers' CARs centered on the announcement date fell to an average of –0.4%. Although it is well above the historical (since 1990) average of –1.1%, this negative figure indicates that investors are growing skeptical about companies' ability to create value by acquiring public targets. Targets saw their CARs dip slightly to 18.5% in 2018, still above the average of 14.8%. (*Figure 11*).

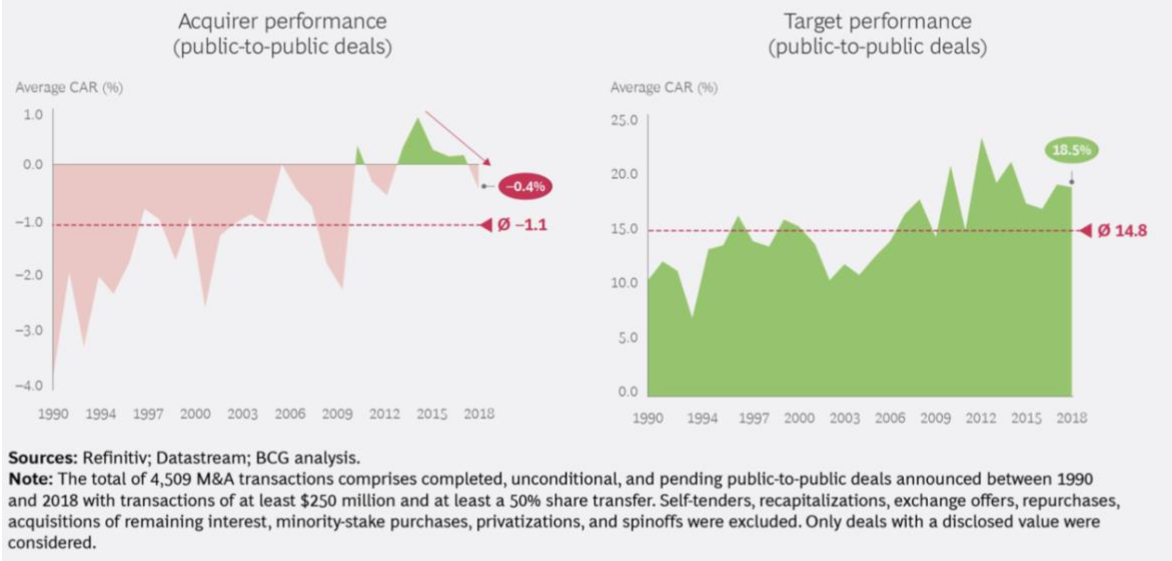

Figure 9: Acquirer and target performances between 1990 and 2018. The acquirer performance has always been negative, it is slowly increasing with a unique positive performance in the current decade. Target performance has always been positive, they are still increasing and remaining above average.

Alternative deals were becoming increasingly attractive in this environment of disruption and uncertainty. Rather of purchasing control of and integrating a target, firms buy minority holdings or construct cooperative arrangements, such as joint ventures, strategic alliances, or corporate venture capital investments. Dealmakers are increasingly seeing alternative transactions as viable methods to accomplish strategic goals while reducing risk. There are two illustrative, and frequently overlapping, approaches to analyzing alternative deal trends:

- Minority transactions, in which the buyer purchases less than 50% of a firm.
- Transactions involving joint ventures and alliances (JV&A), such as equity alliances and corporate partnerships, which frequently include the acquisition of minority stakes.

The *2019 M&A report* describe a survey proposed to corporate dealmakers about their experience and views on alternative transactions. The findings support the empirical conclusion that alternative transactions provide varied effects in terms of value generation. According to respondents, roughly 40% of alternative transactions fail – that is, they do not meet their claimed financial and/or strategic objectives. According to respondents, only around 60% of agreements are successful once the dust settles (but

stock market performance shows that fewer deals—approximately 50%, depending on the metric—are successful). In terms of perceived failure and success rates, alternative deals performed no better than traditional M&A.

Why do so many alternative transactions fail? Three major explanations were given by survey respondents. More than a quarter (29%) cited a lack of a clear strategic purpose. A comparable proportion (27%) blamed failures on a lack of clearly defined and effective governance.

Experience often determines whether a deal succeeds or fails: companies with significant experience (at least three alternative deals per year) report that 61 percent of their deals are successful, whereas less experienced companies (two or fewer deals per year) report that 58 percent of their deals are successful. The organizational structure and strategy of a firm definitely matter as well. Self-reported success rates for firms with specialized teams or team members for alternative deals are 9 percentage points higher, and 7 percentage points higher for companies with processes for alternative acquisitions that differ, at least partially, from those used for conventional M&A.

Mueller, D.C., & Yurtoğlu, B.B. (2006) examined the effects of mergers on the returns to acquiring companies' shareholders for a large sample of companies from both Anglo-Saxon and non-Anglo-Saxon countries over the 1980s and 1990s. They observe comparable patterns of returns across both types of countries, with the notable exception of Japan. The average percentage gain during a 21-day period for a sample of 9733 acquiring businesses is 0.6 percent. As the market has more time to assess mergers and/or acquiring businesses, the picture alters drastically. After three years, acquirers' shareholders in the United States and continental Europe lost an average of 19% of their market value compared to a portfolio of non-merging firms in their size deciles and two-digit industry, roughly 16% in Canada, Australia, and New Zealand, and nearly 15% in the four Scandinavian countries.

Kengelbac et al. (BCG, 2018) conducted research of 1,000 public-to-public deals from 2008 – 2017: "For the past five years, the cumulative abnormal returns (CARs) of both targets and buyers have been positive, bucking the longer-term trend of investors punishing acquirers. For buyers, CARs centered on the announcement date reached

0.3% in 2017, which translates into a significant valuation lift for large companies. In contrast, the historic average since 1990 is -0.8%."

Global PMI Partners (February 2018) conducted an empirical study on the success and failure of M&A transactions. 34% of transactions created value, 66% of transactions destroyed value.

Global PMI Partners based its analysis on the acquiring company's stock price movement from before the announcement until 10 days after the acquisition closed, assuming that capital markets expectations for future earnings and cash flow growth are a strong proxy for whether promised synergies are realized.

Academic research by Ralph Sonenshine and Robert Feinberg (Sonenshine, Feinberg, 2014) stated "There is considerable evidence that a large share of acquisitions made in the United States are unprofitable ex post or that they lead to reorganization and/or divestitures of many of the merged assets not long after the merger." "Like previous work we find that abnormal returns were negative over 1-, 3-, and 5-year periods."

According to Akbulut, Mehmet (2013) overvalued equity drives managers to make stock acquisitions, and such acquisitions destroy, rather than create value for acquirer firm shareholders.
Overvalued stock acquirers earn negative and lower returns in the short run and substantially underperform similarly overvalued non-acquirer firms in the long run. The results do not support the idea that managers can benefit shareholders by converting overvalued equity into real assets through stock acquisitions.

An analysis based on data from January 1979 to December 2002, conducted by Christa H. S. Bouwman (2009) reported that announcement returns are significantly better for acquisitions announced in high-valuation markets relative to those announced in low-valuation markets, this finding is reversed in the long run.

Mueller, Dennis (2007) found that acquiring-firm shareholders lost 12 cents at the announcement of acquisitions for every dollar spent on acquisitions for a total loss of $240 billion from 1998 through 2001, whereas they lost $7 billion in all of the 1980s, or 1.6 cents per dollar spent. Though the announcement losses to acquiring-firm

shareholders in the 1980s are more than offset by gains to acquired-firm shareholders, the losses of bidders exceed the gains of targets from 1998 through 2001 by $134 billion. The 1998-2001 aggregate dollar loss of acquiring-firm shareholders is so large because of a small number of acquisition announcements by firms with extremely high valuations. Without these announcements, the wealth of acquiring-firm shareholders would have increased. The large losses are consistent with the existence of negative synergies from the acquisitions, but the size of the losses in relation to the consideration paid for the acquisitions is large enough that part of the losses most likely results from investors reassessing the standalone value of the bidders. Firms that announce acquisitions with large dollar losses perform poorly afterwards.

With the available research, serious concerns were identified. Most of the study focuses on a tiny fraction of transactions. "Much of what we know about mergers and acquisitions (M&As) comes from studies with limited and unrepresentative sample sizes. Occasionally, this results in inaccurate or erroneous judgments about them." (J. M. Netter; M. Stegemoller; and M. B. Wintoki, 2011).
It is also concerning that many of the more recent publications indicate M&A as a failure by citing much older material. We discovered little study on the recent bull market, which lasted from 2008 to the present and involved numerous transactions. Rather than that, most studies concentrated on the peak in transactions between the late 1990s and the early 2000s. Because the analysis of overall returns was considerable in the late 1980s and 1990s, it may be so widely accepted that M&A destroys value. The emphasis on the 1990s is understandable given the large valuations at the time, such as Vodafone's $183 billion acquisition of Airtouch and Pfizer's $90 billion acquisition of Warner-Lambert, the $77 billion Exxon Mobil acquisition and the 34 transactions valued at more than $20 billion.
There is no research on the recent wave of digital M&A deals. Since all the data is historical, there is no examination of the impact of acquisitions of or by digital new corporations, a notable omission, given that these are some of the largest transactions of the last decade.

Only a few studies examine financial performance, or synergies, and the majority instead examine stock market performance within the announcement window.

While the stock market values businesses based on predicted future cash flows, we believe that there is little attention on whether promised synergies are produced. Of 88 publications published between 1970 and 2006 on M&A profitability, 41% used a short-term window event to assess performance, while the remainder employed longer-term accounting criteria. Such as price-to-book were employed in 28% of cases.. (Maurizio Zollo, Degenhard Meier, August 2008).

The *2016 Harvard essay "M&A: The One Thing You Need to Get Right"* refers to an investigation that looked at EVA (ROIC - WACC) and at the significant write-offs of disastrous acquisitions, but the source, timeline, and veracity of the 70-90 percent number referred to as 'abysmal failures' were unknown.

Acquirers pay a premium above the target's market value due to anticipated synergies

Acquisition premiums have dropped to 55% in recent years. Acquisitions are nearly always conducted at a premium to the acquired company's current market value, referred to as the 'acquisition premium. (Ciampa, David, Loucks, Jeff., M&A Premiums Surge as Pool of Targets Subsides, 2020). The acquisition premium is the portion of the purchase price that is more than the market value prior to the transaction. When there are competing bidders for a target firm or, conversely, when there is a threat of competing bidders emerging if the purchase price is set too low, a premium is paid. Once an acquisition offer is made, the company may take some time to shop itself more broadly to obtain a higher-valued offer.
For instance, a bidding battle erupted recently for TikTok (2020), with Microsoft and Oracle submitting bids, but the sale fell through due to political issues surrounding the social media app's Chinese owner, ByteDance, and Chinese access to US data.

The acquisition premium, in the US market, is normally between 10% and 50% above the pre-acquisition share price of the target but might approach 100% (Ciampa, David, Loucks, Jeff., M&A Premiums Surge as Pool of Targets Subsides, 2020).

Synergies have not been significant enough to justify most valuation premiums

When the acquisition premium is extremely high, the corporation faces considerable challenges in generating a return on the capital invested. This acquisition premium typically results in 'dilution,' or a decline in profits per share (EPS), as the acquired business generates incremental earnings.
The market knows that these synergies are often not achievable. According to Boston Consulting Group (2018), "longer-term value creation, on the other hand, has proven more difficult." Additionally, BCG polled corporate dealmakers and discovered that 40% of alternative (JV&A) transactions failed to meet stated financial and/or strategic objectives.
The *2018 M&A Report* examines the developments that have elevated synergies to the forefront of deal making and the responses of dealmakers and investors.
By analyzing a unique data set of the 1,000 greatest public-to-public transactions over the last decade, we discover that deal announcements overstate synergy estimates.
Investors reward purchasers that include synergy estimates in their announcements by rewarding them with greater returns around the date of the announcement.
But their enthusiasm appears to be waning. Buyers' announcement returns in purchases with synergy estimates have dropped in recent years, a trend that has accelerated in recent years. a sign that investors have lost faith in businesses' capacity to deliver on their increasingly audacious promises. Perhaps more concerning, purchasers are ceding a greater share of total synergies to finance their transactions. Historically, buyers retained two-thirds of the value of anticipated synergies as compensation for taking on risk and shouldering responsibility for achieving the synergies. after-closing synergy Buyers retain less than half of the synergy potential in today's seller's market, with the remainder going to the targets' shareholders upon closure.

2.2 Prior Research

Many previous studies appear to have attempted to link acquisitions to post-deal stock performance.
Here we clarify the fundamental flaws regarding previous methodologies.

1. **Forward time horizon**

   It is problematic to attempt to measure such a dynamic based on returns during a fixed time horizon.
   Several studies consider the days surrounding the announcement date. A few others examined capital market returns over long term windows of 1, 3 and 5 years, i.e., Akbulut, BCG and Sonenshine et al.
   If the market has an unfavorable view of acquisitions it might penalize them in the short-term without knowing the true value created.
   It is extremely hard to separate market perception from fundamentals particularly because market values theoretically reflect expectations for longer term fundamental performance.
   As we discussed, acquisitions are typically made with the goal of long-term benefits at the expense of short-term dilution.
   Furthermore, there are so many factors that simultaneously influence stock performance, that when you are looking beyond a year it is extremely difficult to isolate a single factor.

2. **Metric used to measure returns**
   There is no consensus among academicians regarding the appropriate metric to measure M&A performance.
   Many rely on the capital markets and the performance of the acquirer's stock over time.
   Yet others have examined performance by measuring EBITDA or Abnormal Return on Operating Income, e.g., Bouwman et al.

3. **Benchmark used to assess over- or under-performance**

   Because the market is moving on a daily basis, any study using stock performance as a metric to measure performance must be evaluated relative to some benchmark.
   Some research looks at a market-based benchmark while others look at peer-based benchmarks, but all rely on a benchmark to support the conclusion of abnormal returns due to M&A.
   Many others analyze the stock market returns of the acquiring company compared with a benchmark index.
   It is critical that benchmarks used to calculate relative returns are not subject to selection bias.

4. **Historical data used**

   Transaction's volumes increased dramatically around the turn of the century. Excess cash has increased dramatically increasing the demand for deals.
   The number of transactions has increased suggesting greater competition for deals.
   Using long histories of outdated trailing data is problematic to measure a potentially new and changing phenomenon.

2.3 Post-Transaction Balance Sheet

In this section we are going to focus on the post-transaction balance sheet. We are going to analyze each type of M&A transactions (Merger, Cost method, Equity method, Consolidated method, and Full Acquisition) and explain the differences about these new accounts are calculated after the deal is finalized.

The balance sheet is organized as follows:

- **Tangible Invested Capital**: the net investment (assets minus liabilities) in the acquirer's and acquired companies' core activities (excluding excess cash)

Assets' side:

- **Intangible Assets** – the difference between the consideration and the acquired business's equity worth (its historical book value) in terms of the percentage of the company purchased.
- **Excess Cash**: the difference between Cash and marketable securities and operating cash.

Liabilities' side:

- **Unconsolidated Equity Investments**: the equity value (previous book values) of the company bought as a percentage of the total. This is eventually combined with other noncurrent assets.
- **Debt** – the total amount of short- and long-term debt remaining after the transaction is completed, including debt used to leverage the investment.
- **Equity**: the company's equity value (historical book value plus generated intangible assets).
- **Non-Controlling Interest (NCI)**: the equity value (historical book value) of non-controlling or minority interests.
- **Common Equity:** the historical book worth of the acquiring company's common stock, including intangible assets.

Post transaction balance sheet after a Merger deal:

There is no acquisition price in a merger, and the combination is formed by setting a ratio of the two firms' shares.
After a merger is completed, the financial records of the two firms are combined into a single set of books, and the two companies cease reporting.

A merger is accounted in the following manner:

- On the *cash flow statement,* the year of the acquisition: because no cash is extended, a merger has no effect on the cash flow statement.
- On the *balance sheet* the year of the acquisition: the value of the consolidated entity reported is equal to the total of the independent entities' values for each account.
- On *the income statement* next year: the value of the consolidated entity reported is equal to the total of the independent entities' values for each account.

Post transaction balance sheet after an acquisition of a part of a company or a business:

A portion of a firm must be acquired in distinct methods. Accounting treatment of a firm in which the acquirer does not own the entire business or corporation is classified into three categories based on the acquirer's level of control:

Acquisition of a Part of a Company or a Business

Ownership Stake	Accounting Method	Name	Entity Type
<20%	Cost	Passive equity holdings	NA
20% - 50%	Equity	Non-controlling interest, minority interest	Affiliate, associate
>50%	Consolidated	Controlling Interest, majority interest	Subsidiary, Fully consolidated

Figure 4: Types of acquisitions. Here are summarized three different types of M&A transactions, sorted by the ownership stake the acquiring company is going to own after the deal is closed and the corresponding accounting method used by each different acquisition.
Source: personal elaboration.

Post transaction balance sheet after a Cost Method deal:

A passive interest in a business or corporation is typically less than 20% ownership. The following cost technique is used to account for the acquisition of passive interests:

- On *the cash flow statement* the year of the acquisition: the cash outflow is detailed on the Cash Flow Statement.

- On the *balance sheet* the year of the acquisition is reported: The purchasing company's equity investment is held at historic cost on the balance sheet. If the equities are liquid, they will be classified as marketable securities and put in the excess cash account.
  If the equities are illiquid, they will be classified as unconsolidated equity investments and accounted for separately from other noncurrent assets.
- On the *income statement* next year is reported: the other income raised by the acquired firm's dividends delivered to the acquiring company is showed on the income statement.
  This is computed as (1 – the percentage of acquired shares) * the dividends paid by the acquired firms. This will affect the results of pretax income and all subsequent calculations, but the reasoning will remain same.
- On the *cash flow statement* next year is reported: the cost method of acquiring a passive interest has no direct effect on the cash flow statement, as dividends paid are reported as revenues and flow through net profit to equity.

Post transaction balance sheet after an Equity deal:

A non-controlling interest in a business or firm is commonly defined as ownership of between 20% and 50% of the equity.
The following cost technique is used to account for the acquisition of a non-controlling interest:

- On the *cash flow statement* the year of the acquisition is reported: cash acquisitions, to the extent that cash was used to pay for all or a portion of the acquisition, is recorded on the cash flow statement.
- On the *balance sheet* the year of the acquisition is reported:
  Unconsolidated equity investments are boosted by the acquired company's equity worth, calculated as a percentage of total equity. This is computed as (1 – the percent of shares purchased) * the acquired company's equity value.
  The acquiring company's intangible assets plus the difference between the consideration and the unconsolidated equity investment (equity value of position acquired).

The acquiring company’s debt, adjusted for newly issued or redeemed debt. The purchasing company’s equity, adjusted for any equity issues or repurchases, plus the increased worth of intangible assets.

- On the *income statement* next year is reported:
  Net income affiliates are included in other income (expense). This is computed as (1 – the percentage of shares purchased) * the acquired company’s net income attributable to common stock. This will affect the results of pretax income and all subsequent calculations, but the reasoning will remain same.
- On the *cash flow statement* net year is reported:
  If the intangible assets are classified as other intangible assets (rather than goodwill), they will be amortized throughout their useful lives.
  Cash dividends distributed by the acquired company will be reflected on the cash flow statement and will reduce the balance sheet’s unconsolidated equity investments. This is computed as (1 – the fraction of acquired shares) * the acquired company’s dividends.

Post transaction balance sheet after a Consolidated deal:

A controlling interest in a firm or company is commonly defined as ownership of more than 50% of the equity.
Consolidating the subsidiary following the acquisition of a controlling interest:

- On the *cash flow statement* the year of the acquisition:
  To the extent that cash was used to pay for all or a portion of the acquisition, this cash outflow is recorded on the cash flow statement. the cash flow statement will reflect any needed issue (redemption) of debt or equity.
- On the *balance sheet* the year of the acquisition is reported:
  Except for the following accounts, the value of the acquiring company is equal to the sum of the values of the acquiring and acquired entity’s identical accounts.
  Intangible assets’ new value is calculated as: the consolidated entity is equal to the sum of the acquiring and acquired entities’ intangible assets, plus the

difference between the consideration (acquisition price) and the acquired entity's equity value. This is a representation of the two organizations' intangible assets on their balance sheets prior to the acquisition plus the additional intangible assets produced as a result of the acquisition premium.

Intangible assets that cannot be appraised or valued are capitalized and not amortized like goodwill.

Debt's new value: total debt of both companies adjusted for newly issued or redeemed debt.

Equity's new value: the combined equity of both companies, adjusted for equity issues or repurchases, plus the rise in intangible assets.

Non-controlling Interest (NCI)'s new value: computed as (1 – the percent of acquired shares) * acquired company's equity.

The NCI is the minority interest's pro rata equity value. The term "Common Equity" refers to the difference between the equity and the NCI.

- On the *income statement* next year is reported:

  Except for the following accounts, the value of the consolidated entity equals the sum of the values of the acquiring and acquired entity's identical accounts

  Interest's new value: if the acquisition necessitated the issuance of additional debt, the interest on this additional debt will be reported on the income statement.

  Amortization's new value: if the intangible assets are classified as other intangible assets (rather than goodwill), they are amortized over their useful lives and the amortization expenditure is recorded on the income statement.

- On the *cash flow statement* next year is reported:

  Amortization: if the intangible assets are classified as other intangible assets (rather than goodwill), they will be amortized throughout their useful lives. Cash dividends distributed by the acquired company/affiliate are considered an internal transaction and are not included in the cash flow statement.

  The acquiring company's cash dividends will be determined by its net income available to common.

Post transaction balance sheet after a Full Acquisition:

In most cases, acquisitions are not consensual and involve one firm actively acquiring another.
Typically, once an acquisition is completed, the financials are consolidated into a single set of books and the two distinct companies cease reporting.
The acquired business, on the other hand, may be retained as a *owned subsidiary*.
A subsidiary is a legal entity distinct from the parent company.
If the acquired firm is located in a nation other than that of the acquiring or parent company (and thus subject to a different regulatory and tax framework), it must be treated as a separate subsidiary.
If the acquiring or parent firm wishes to protect itself from the acquired company's or business's legal liabilities, it must establish a distinct subsidiary.
If the subsidiary requires a different regulatory (banks, utilities) or tax classification (non-profit), it must be a separate subsidiary.
A company that owns a subsidiary in its whole is referred to as the 'parent' company.
If the acquired corporation or business is dissolved, the subsequent accounts are also dissolved: Non-Controlling Interest (NCI), Net Income Affiliates, Dividends from Affiliates.

Chapter 3: A new approach

In this chapter, I am going to present a new approach, which analyzes the relationship between Intangible Assets and Market Valuations.
This method focuses on a company's financials, instead of stock returns, which can be more volatile, and it can be influenced by multiple factors, not linked to the M&A deal.
Intangible Assets is the amount that the purchase price of an asset exceeds the historical book value of that asset, and as of 2019 90% of intangible asset is accounted as goodwill, connected to M&A deals (Bloomberg, 2019).
The hope of the acquiring company is that the acquisition premium paid (resulting in Intangible Assets on the Balance Sheet) can be more than compensated for by synergies (on the Income Statement).
We are going to focus on these metrics: increase in revenues, EPS growth, increase in intangible assets and ROE growth.
A significant reason why it is considered that the majority of acquisitions fail is the high acquisition premiums paid.
Analyzing the relationship between *Intangible Assets* and *related post-acquisition company valuations* may shed light on the success rate of prior acquisitions.
This failure to achieve the anticipated synergies that would have justified the premium frequently results in the acquiring company writing down Intangible Assets.
To this end, many acquisitions result in the acquirer writing down the value.

Benefits of this methodology

1. **What metric will measure returns?**

This approach completely disregards short-term market sentiment in favor of determining genuine, long-term market valuation.
Market valuations should theoretically take into account all operational results since the acquisitions were completed, as well as market expectations for future performance.

2. **What benchmark to use?**

This approach does not require a benchmark because the dependent metric is contemporaneous market valuation and not relative stock return..

3. **What history to use?**

The dataset present financial statements' data from the years 2004 through the present
This approach is advantageous since it examines a significantly bigger data set (7,000+ company/year data points) than much of the research we identified, which focuses on a smaller number of transactions.
This approach captures the benefits of an acquisition over the course of the business combination's life cycle.

3.1 Analysis and empirical cases

Since 2003, S&P 500 companies have written-off more than $300 billion of Goodwill, The vast majority of these write-offs were taken by relatively few companies.

Company	***Acquisition Target***
Microsoft	Nokia
Time Warner	America Online
Yahoo	Tumblr
Hewlett Packard	Autonomy
Microsoft	aQuantive
eBay	Skype

Table 2: failed 'diversification' acquisitions. All these acquisitions resulted in a write-off of goodwill.
Source: personal elaboration

While most acquisitions are perceived to erode the acquirer's wealth, acquisitions of 'overlapping' firms or enterprises operating in the same industry can provide value for the acquirer. This is because it decreases competitiveness.

Industry	**Acquisitions**
Search	Google acquired Waze
Retail	Amazon acquired While Foods
Travel	Priceline acquired Booking.com
Social Network	Facebook acquired Instagram
E-commerce	Amazon acquired Zappo

Table 3: Successful 'overlapping' acquisitions.
Source: personal elaboration

All the data is reported in millions USD and the growth rate indicated is the CAGR, compound annual growth rate.

3.1.1 Successful M&A:

In this section I am going to use this new method to analyze three different successful M&A deals, to show that our chosen metrics are consistent with the increased value due to an M&A deal.

1. **Google's acquisition of Youtube (2006)**

		Year		
		Pre-transaction	Post-transaction	
GOOGL	ALPHABET INC-CL A	2006	2007	Growth
	Increase in Revenue	6139	10605	73%
	Net Income Common	1465	3077	110%
	Shares Outstanding	584	619	6%
	EPS	2.51	4.97	98%
	Intangible Assets	360	2239	521%
	Equity	9419	17040	81%
	ROE	16%	18%	

Table 4: Google's financial. Year 2006 and 2007. This table displays Google's financial before and after the acquisition. Growth rate is calculated as the CAGR between the two years considered above. Source: personal elaboration

		Year		
GOOGL	ALPHABET INC-CL A	2007	2008	Growth
	Increase in Revenue	10605	16594	56%
	Net Income Common	3077	4204	37%
	Shares Outstanding	619	632	2%
	EPS	4.97	6.65	34%
	Intangible Assets	2239	2646	18%
	Equity	17040	22690	33%
	ROE	18%	19%	

Table 5: Google's financial. Year 2007 *and 2008. This table displays Google's financial the two consecutive years after the acquisition of Youtube. Growth rate is calculated as the CAGR between the two years considered above. Source: personal elaboration*

YouTube is an American online video-sharing platform headquartered in San Bruno, California, founded by three former PayPal employees, Chad Hurley, Steve Chen, and Jawed Karim, in February 2005. Google bought YouTube in 2006 for $1.65 billion in stock. At that time, it was Google's second-largest acquisition.

That figure seems quaint now, but at the time it was an eye-popping figure to pay for a startup only a year and a half old. Some analysts and competitors said Google overpaid. Mark Cuban said the search giant was wrong to take on YouTube's many legal liabilities. Google itself later acknowledged that YouTube wasn't worth anywhere near the price tag at the time of the acquisition. Google's stock climbed to an all-time high shortly after the YouTube acquisition in 2006, and it's been part of the company's growth narrative ever since.

As we can see from *table 4*, the intangible assets grew by 521%, indicating high premium paid for this acquisition. We can see that there was also a great increase in revenues, which kept increasing in the following years. There was also an increase in EPS (98%) and an increase in ROE. All these factors indicate that this was a successful acquisition.
The merger was accretive (increase in EPS), it impacted intangible assets, it resulted in a favorable ROE and the acquisition was rewarded by the stock market. Google's stock climbed to an all-time high shortly after the YouTube acquisition in 2006, and it's been part of the company's growth narrative ever since.

2. Verizon's acquisition of Vodafone (2014)

			Year	
		Pre-transaction	Post-transaction	
VZ	VERIZON COMMUNICATIONS INC	2015	2016	Growth
	Increase in Revenue	127079	131620	4%
	Net Income Common	9625	17879	86%
	Shares Outstanding	3981	4093	3%
	EPS	2.42	4.37	81%
	Intangible Assets	105708	119498	13%
	Equity	12298	16428	34%
	ROE	78%	109%	

Table 6: Verizon's financial. Year 2015 and 2016. This table displays Verizon's financial the two consecutive years after the acquisition of Vodafone. Growth rate is calculated as the CAGR between the two years considered above. Source: personal elaboration

		Year		
VZ	VERIZON COMMUNICATIONS INC	2012	2014	Growth
	Increase in Revenue	110875	120550	4%
	Net Income Common	2404	11497	119%
	Shares Outstanding	2839	2874	1%
	EPS	0.85	4.00	117%
	Intangible Assets	102485	106181	2%
	Equity	35970	38836	4%
	ROE	7%	30%	

Table 7: Verizon's financial. Year 2012 and 2014. This table displays Verizon's financial the year of the acquisition and two years before. Growth rate is calculated as the CAGR between the two years considered above. Source: personal elaboration

Verizon Communications Inc. completed its acquisition of Vodafone Group in a transaction valued at approximately $130 billion. The complex offer, which includes cash and stock for Vodafone's 45 percent stake in Verizon, was the third-largest acquisition of any type in history at the time and it required the biggest corporate bond issuance on record. The deal in cash and stock gave Verizon full access to the profits from the United States' largest mobile operator, handing it fresh firepower to invest in its mobile network and fend off challengers in a tough market that is fast becoming even more competitive.

The most interesting number are the increase in the EPS: 117% increase from two years before the acquisition, plus an added increase the following years, which means the deal was accretive and it created value for the shareholder.
The increase in revenues is steady but there was also an interesting increase in ROE, from 30% to 109% in a period of two years.
Verizon's excellent performance in the years that followed the acquisition made this an incredibly successful move.
The value of Verizon's stock also increased by 10% in the following years.

3. Charter Communications multiple acquisitions

			Year		
			Pre-transaction	Post-transaction	
CHTR	CHARTER COMMUNICATIONS INC-A		2015	2017	Growth
		Increase in Revenue	9108	29003	78%
		Net Income Common	(183)	3522	
		Shares Outstanding	98	235	55%
		EPS	(1.87)	15.00	
		Intangible Assets	8279	111433	267%
		Equity	146	40139	1558%
		ROE	-125%	9%	

Table 8: Charter Communication's financial. Year 2015 and 2017. This table displays Charter Communication's financial the year of the acquisition and two years after. Growth rate is calculated as the CAGR between the two years considered above. Source: personal elaboration

			Year		
CHTR	CHARTER COMMUNICATIONS INC-A		2013	2015	Growth
		Increase in Revenue	7504	9108	10%
		Net Income Common	(304)	(183)	-22%
		Shares Outstanding	90	98	4%
		EPS	(3.37)	(1.87)	-26%
		Intangible Assets	7664	8279	4%
		Equity	149	146	-1%
		ROE	-204%	-125%	

Table 9: Charter Communication's financial. Year 2013 and 2015. This table displays Charter's financial situation before its acquisitions, the most significant was the Time Warner Cable's acquisition. Source: personal elaboration

Charter has been an excellent example of both success and failure in M&A. In November 1999, the company went public. In 2009, Charter Communications filed for Chapter 11 of the United States Bankruptcy Code, extinguishing its stock and cutting approximately $8 billion in debt. On September 14, 2010, Charter Class A common stock was re-listed on NASDAQ under the symbol "CHTR". Over the next decade, CHTR continued its acquisition spree. On May 18, 2016, Charter completed its acquisition of Time Warner Cable, making it the third-largest pay television service in the United States. As we can observe from *table 8* and *table 9*, Charter Communications managed to

increase the ROE, from negative 204% to 9%. A great increase intangible assets with no write-offs, an impressive increase in revenues (78%), and a increase in EPS up to $15.00.

This acquisition was transformational, quadrupling the Revenues of CHTR.The price of Charter's stock has increased consistently and rapidly over the last decade, increasing approximately 20x.

This was a very successful strategy. The acquisition was accretive, it resulted in a favorable return on equity, and it was rewarded by the stock market.

3.1.2 Unsuccessful M&A:

In this section I am going to use this new method to analyze three different unsuccessful M&A deals, to show that our chosen metrics can also call attention to a decrease of value.

1. **Heinz and Kraft Merger (2015)**

			Year		
			Pre-transaction	Post-transaction	
KHC	KRAFT HEINZ CO/THE		2015	2017	Growth
		Increase in Revenue	29122	27447	-3%
		Net Income Common	1598	861	-27%
		Shares Outstanding	1222	1222	0%
		EPS	1.31	0.70	-27%
		Intangible Assets	28147	105171	93%
		Equity	7117	57685	185%
		ROE	22%	1%	

Table 10: Kraft Heinz's financial. Year 2015 and 2017. This table displays Heinz and Kraft's financial situation the year of the merger and two years after. Source: personal elaboration

			Year		
KHC	KRAFT HEINZ CO/THE		2015	2019	Growth
		Increase in Revenue	29122	26268	-3%
		Net Income Common	1598	(10192)	
		Shares Outstanding	1222	1219	0%
		EPS	1.31	(8.36)	
		Intangible Assets	28147	85971	32%
		Equity	7117	51657	64%
		ROE	22%	-20%	

Table 11: Kraft Heinz's financial. Year 2015 and 2019. This table shows the

comparison between Heinz and Kraft's financial situation the year of the merger and four years after. Source: personal elaboration

The merger between the H.J. Heinz Company and Kraft Foods Group was approved by each company's Board of Directors and shareholders in the beginning of 2015. In July of 2015, investors 3G capital and Berkshire Hathaway teamed up to create the new Kraft Heinz Company, of which they held a 51% stake in.

As a publicly traded company, other shareholders of Kraft, would hold the remaining 49% of Kraft Heinz. In addition, each share owned of the Kraft Foods Group company, prior to the merger, would equate to exactly one share of the new company. These additional shareholders would also receive $10 billion in total dividends, which equated to about $16.50 per share, paid by both 3G Capital and Berkshire Hathaway. The expectations for this new firm were immense, as shareholders anticipated large returns, decreased costs, and a larger influence around the world.
They also envisioned cost cuts, which would come in the form of reducing human capital, as well as better opportunities for bargaining with retail outlets, restaurants, and food companies.

Fast forward to 2019, and Kraft Heinz has not performed nearly as well as expected, its stock value decreased by 50% during these years.

From *table 10 and 11* we can see an example of unsuccessful merger.
ROE decreased to negative 20% in four years, the revenues kept decreasing, the EPS went down to (8.36), while the value of the intangible assets increased, indicating a high premium paid. This higher cost was not
The most interesting number here in the decrease in intangible assets from 2017 to 2019. This is an indicator of a write-off of goodwill associated with this merger. A write-off occurs when a company disinvest in another company.

2. Exxon and Mobile M&A (1998)

			Year		
			Pre-transaction	Post-transaction	
XOM	EXXON MOBIL CORP		1997	1999	Growth
		Increase in Revenue	120279	160883	16%
		Net Income	8443	7910	-3%
		Share increase	5010	7036	19%
		EPS growth	1.69	1.12	-18%
		Intangible Assets	-	-	
		Equity	43470	63466	21%
		ROE	19%	12%	

Table 12: Exxon Mobil's financial. Year 1997 and 1999. This table shows the comparison of the company's financial between the year pre-merger and two years after the deal closed. Source: personal elaboration

In 1998, Exxon and Mobil signed a $73.7 billion merger agreement forming a new company called Exxon Mobil Corp. (ExxonMobil), the largest oil company and the third largest company in the world.
This was the largest corporate merger at that time. Both companies had been the result of the breakup of Standard Oil, almost a century earlier.
At the time of the merge, Exxon was the world's largest energy company while Mobil was the second largest oil and gas company in the United States.
Formally, Mobil was bought by Exxon. Mobil's shareholders received 1.32 Exxon's share for each Mobil's share.
As a result, the former Mobil's shareholders receive about 30% in the merged company while the stake of former Exxon's shareholders was about 70%.
Before look at the underlying financials, we will give you a preview of the market reaction to the merger.

Figure 11: Exxon Mobil price share movements. These price movements are not consistent with a successful merger, they are consistent with the increase in value of crude oil.
Source: Yahoo! Financial

At a first glance, it appears that the price of ExxonMobile increased consistently in the decade after the merger. However, also crude oil has increased dramatically over the same time period.

As is generally the case, multiple factors are simultaneously impacting the financial and market performance of a company and it is all but impossible to isolate the impact of any one of these.

That is why we look at the firm's financial.
From *table 12*: ROE decrease to 12%, the merger was not accretive, EPS decreased by 18% and the mergers did not impact intangible assets.
This can lead us to the conclusion that this deal was not successful, and it was also not rewarded by the stock market.

3. AT&T multiple acquisitions

			Year		
			Pre-transaction	Post-transaction	
T	AT&T INC		2004	2019	Growth
		Increase in Revenue	40787	181193	10%
		Net Income	5887	13900	6%
		Share increase	3322	7348	5%
		EPS growth	1.77	1.89	0%
		Intangible Assets	2054	303858	40%
		Equity	40504	184221	11%
		ROE	15%	8%	-4%

Table 13: AT&T's financial. Year 2004 and 2019. This table shows the comparison of the company's performance before and after its multiple acquisitions, started in 2004. Source: personal elaboration

AT&T is the world's largest telecommunications company, the largest provider of mobile telephone services, and the largest provider of fixed telephone services in the United States through AT&T Communications.
AT&T is also a story of divestiture and M&A.
AT&T has been extremely acquisitive in the four decades since its break-up.
The current AT&T reconstitutes much of the former Bell System, and includes ten of the original 22 Bell Operating Companies along with the original long-distance division.
In July 2015, it acquired DIRECTV, a leading provider of digital television entertainment services in both the United States and Latin America.
Since June 14, 2018, it is also the parent company of mass media conglomerate WarnerMedia, making it the world's largest media and entertainment company in terms of revenue.In advance of looking at the AT&T financial results over the past couple of decades, its stock performance has been flat for a couple of decades as the market has increased rapidly.
From *table 13*: there is a great increase in intangible assets, indicating the high premium paid for these acquisitions. This high premium is not compensated by an adequate increase in revenues, the EPS growth is equal to 0% and the ROE decreased by 4% annually.
This strategy was not accretive, it did not result in a favorable ROE, and it was not

rewarded by the stock market. This led us to conclude that it was not a successful M&A deal.

3.2 Empirical analysis by sector

In this section, I am going to analyze, with the same methodology, three different sectors.
These are 'Communication Services', 'Information Technology' and 'Health'.
These are the most active ones, in the terms of number of M&A deals, during the period 2004-2018.
Communications services sector had a total of 3070 completed deals, Information technology sector with 7032 deals and the Health sector a total of 5030 deals (Bloomberg, 2019). The companies here presented had participated in, at least, one M&A deal during this period.
The companies highlighted in blue are companies for which the period considered is 2011-2018.

3.2.1 Communication services sector:

Communications Services	Intangible assets growth	Revenues Growth	Net Income Growth	Equity Growth
ACTIVISION BLIZZARD INC	38%	16%	25%	21%
ALPHABET INC-CL A	36%	31%	36%	34%
AT&T INC	43%	11%	9%	12%
CENTURYLINK INC	19%	18%		13%
CHARTER COMMUNICATIONS INC-A	20%	14%		40%
COMCAST CORP-CLASS A	6%	12%	19%	4%
DISCOVERY INC - A	9%	7%	-7%	3%
DISH NETWORK CORP-A	26%	5%	15%	
ELECTRONIC ARTS INC	23%	4%	4%	4%
FACEBOOK INC-CLASS A	41%	21%	28%	23%
INTERPUBLIC GROUP OF COS INC	1%	3%		1%
NETFLIX INC	99%	28%	33%	29%
OMNICOM GROUP	3%	3%	4%	-2%
T-MOBILE US INC	21%	17%	18%	16%
TAKE-TWO INTERACTIVE SOFTWRE	15%	3%	7%	6%
TRIPADVISOR INC	4%	7%	-3%	12%
TWITTER INC	27%	27%		18%
VERIZON COMMUNICATIONS INC	8%	5%	18%	-2%
VIACOM INC-CLASS B	1%	-1%	-2%	1%
WALT DISNEY CO/THE	5%	5%	13%	5%

Table 14: Communication services sector, financial metrics' growth. This table shows four different

metrics, measured in terms of growth, of every company considered in this sector. All companies engaged in one or multiple M&A deals. The companies highlighted in blue are companies for which the period considered is 2011-2018. Source: personal elaboration

Looking at *table 14* we can see the growth data summarized.

Almost all the companies have a high CAGR regarding intangible assets. This indicates an increase in the amount of common equity in these firm's balance sheet. As we said before, 90% of intangible assets is accounted as common equity. Most of these companies engaged in multiples mergers and acquisitions deals. Netflix Inc. engaged in four important acquisitions from 2015 to 2018. The company's most targeted sectors include digital media (50%) and media (50%). Alphabet Inc. has an annual growth of intangible assets of 36%, that began with the acquisition of Android (2005) and Youtube (2006). Facebook Inc. has a long history of M&A, with 70 deals in this period, the biggest one being the acquisition of Whatsapp Inc. for $19.0 billion. All these companies have positive investments in M&A deals during this period, and all of these firms, besides, Viacom Inc. presents an annual increase in revenues. Interesting is the fact that Viacom is also the only companies with almost no investment in M&A (less than 1% increase), signaling that M&A deals in this sector are successful.

ROE	2004	2011	2018	Growth
ACTIVISION BLIZZARD INC	9%	10%	16%	4%
ALPHABET INC-CL A	14%	17%	17%	2%
AT&T INC	15%	4%	10%	-3%
CENTURYLINK INC	10%	3%	-9%	
CHARTER COMMUNICATIONS INC-A		-90%	3%	
COMCAST CORP-CLASS A	2%	7%	16%	15%
DISCOVERY INC - A		17%	4%	-19%
DISH NETWORK CORP-A				
ELECTRONIC ARTS INC	22%	-11%	23%	0%
FACEBOOK INC-CLASS A		14%	26%	5%
INTERPUBLIC GROUP OF COS INC	-25%	9%	22%	
NETFLIX INC	14%	35%	23%	4%
OMNICOM GROUP	17%	23%	43%	7%
T-MOBILE US INC		10%	12%	2%
TAKE-TWO INTERACTIVE SOFTWRE	10%	7%	12%	1%
TRIPADVISOR INC		60%	8%	-25%
TWITTER INC		-26%	18%	
VERIZON COMMUNICATIONS INC	5%	3%	67%	20%
VIACOM INC-CLASS B	2%	26%	18%	16%
WALT DISNEY CO/THE	9%	12%	23%	7%

Table 15: Communication services sector, ROE values. This table displays the ROE values for the years

2004, 2011 and 2018, it then summarizes the growth of this metric in the last column. If the growth value isn't displayed, it's because there is a negative value of ROE, in the years considered. Source: personal elaboration

Looking at *table 15*, we can see ROE values and growth summarized, for this sector. We can see that for the majority of the companies the ROE increases in this time period. The only companies that have a negative growth are TripAdvisor Inc. (investment in M&A activities equal to 4%), Discovery Inc. (Intangible assets growth equal to 9%), and Viacom, as discussed above, intangible assets growth less than 1%. TripAdvisor Inc.'s continued customization and recent acquisitions had the main objective to keep the customers close and to improve the customer experience. As said above, looking at the ROE's growth rate and ROE values, we can conclude that these M&A deals were successful, with a few exceptions. An important thing to notice is the absolute value of the ROE's growth rate with respect to the growth of the other metrics, which is still positive, but lower.

3.2.2 Information Technology sector:

Information Technology	Intangible assets growth	Revenues Growth	Net Income Growth	Equity Growth
ACCENTURE PLC-CL A	27%	7%	13%	11%
ADOBE INC	16%	11%	13%	14%
ADVANCED MICRO DEVICES	-2%	0%	10%	-8%
AKAMAI TECHNOLOGIES IN	51%	20%	17%	
ALLIANCE DATA SYSTEMS C	12%	14%	17%	7%
AMPHENOL CORP-CL A	16%	13%	15%	16%
ANALOG DEVICES INC	39%	6%	7%	8%
ANSYS INC	29%	18%	20%	21%
APPLE INC	37%	28%	47%	24%
APPLIED MATERIALS INC	19%	6%	7%	-2%
AUTODESK INC	17%	6%		
AUTOMATIC DATA PROCES	0%	4%	5%	-1%
BROADCOM INC	78%	37%	25%	20%
BROADRIDGE FINANCIAL S	10%	10%	7%	2%
CADENCE DESIGN SYS INC	-2%	4%	12%	-2%
CDW CORP/DE	-3%	8%	30%	
CISCO SYSTEMS INC	16%	6%	-23%	4%
CITRIX SYSTEMS INC	11%	10%	11%	-4%
COGNIZANT TECH SOLUTIO	47%	27%	24%	26%
CORNING INC	2%	9%	7%	8%
F5 NETWORKS INC	19%	20%	21%	11%
FIDELITY NATIONAL INFO S	32%	16%	16%	29%
FISERV INC	9%	3%	9%	-1%
FLEETCOR TECHNOLOGIES	30%	25%	13%	11%
FLIR SYSTEMS INC	7%	2%	10%	14%
GARTNER INC	16%	7%	15%	14%
GLOBAL PAYMENTS INC	22%	13%	15%	17%
HP INC	-8%	-2%	3%	
INTEL CORP	16%	5%	8%	5%
INTL BUSINESS MACHINES	10%	-1%	1%	-4%
INTUIT INC	6%	9%	11%	3%
IPG PHOTONICS CORP	63%	17%	46%	
JACK HENRY & ASSOCIATES	4%	6%	13%	8%
JUNIPER NETWORKS INC	-3%	1%	11%	-2%
KLA CORP	23%	7%	9%	-3%
LAM RESEARCH CORP	35%	19%	27%	16%
LEIDOS HOLDINGS INC	17%	-1%	0%	2%
MASTERCARD INC - A	15%	13%	26%	13%
MAXIM INTEGRATED PROD	4%	0%	1%	-1%
MICROCHIP TECHNOLOGY I	38%	13%	5%	7%
MICRON TECHNOLOGY INC	13%	15%	38%	14%
MICROSOFT CORP	19%	8%	5%	1%
MOTOROLA SOLUTIONS IN	4%	-10%	-3%	
NETAPP INC	13%	12%	-2%	3%
NORTONLIFELOCK INC	17%	7%	8%	5%
NVIDIA CORP	11%	13%	30%	15%
ORACLE CORP	8%	1%	2%	13%
PAYCHEX INC	5%	7%	9%	5%
QUALCOMM INC	26%	12%		-16%
SALESFORCE.COM INC	46%	30%	39%	59%
SKYWORKS SOLUTIONS IN	7%	12%	30%	13%
SYNOPSYS INC	11%	8%	13%	8%
TE CONNECTIVITY LTD	5%	0%	5%	3%
TEXAS INSTRUMENTS INC	11%	2%	8%	-3%
VERISIGN INC	-19%	1%	8%	
VISA INC-CLASS A SHARES	4%	6%	8%	2%
WESTERN DIGITAL CORP	34%	6%	11%	25%
WESTERN UNION CO	6%	3%	1%	
XEROX HOLDINGS CORP	5%	-3%	-6%	-2%
XILINX INC	2%	4%	3%	0%

Table 16: Information technology sector, financial metrics' growth. This table shows four different metrics, measured in terms of growth, of every company considered in this sector. All companies engaged in one or multiple M&A deals. The companies highlighted in blue are companies for which the period considered is 2011-2018. Source: personal elaboration

ROE	2004	2011	2018	Growth
ACCENTURE PLC-CL A	29%	52%	38%	2%
ADOBE INC	32%	14%	28%	-1%
ADVANCED MICRO DEVI(	2%	31%	27%	19%
AKAMAI TECHNOLOGIES	-27%	9%	9%	
ALLIANCE DATA SYSTEM	12%	179%	41%	9%
AMPHENOL CORP-CL A	34%	24%	30%	-1%
ANALOG DEVICES INC	15%	23%	13%	-1%
ANSYS INC	20%	10%	16%	-2%
APPLE INC	5%	34%	56%	18%
APPLIED MATERIALS INC	15%	22%	48%	9%
AUTODESK INC	19%	13%	221%	19%
AUTOMATIC DATA PROC	17%	21%	40%	6%
BROADCOM INC		28%	46%	4%
BROADRIDGE FINANCIAL SOLUTIO		21%	39%	4%
CADENCE DESIGN SYS IN	4%	18%	27%	14%
CDW CORP/DE		-234%	66%	
CISCO SYSTEMS INC	17%	14%	0%	-26%
CITRIX SYSTEMS INC	14%	13%	104%	15%
COGNIZANT TECH SOLUT	22%	22%	18%	-1%
CORNING INC	-4%	18%	-4%	-1%
F5 NETWORKS INC	11%	22%	35%	9%
FIDELITY NATIONAL INF(	37%	7%	8%	-10%
FISERV INC	15%	14%	52%	9%
FLEETCOR TECHNOLOGIES INC		18%	24%	2%
FLIR SYSTEMS INC	23%	14%	15%	-3%
GARTNER INC	13%	75%	14%	1%
GLOBAL PAYMENTS INC	13%	14%	11%	-1%
HP INC	9%	18%	-834%	
INTEL CORP	19%	28%	28%	3%
INTL BUSINESS MACHIN	24%	78%	52%	6%
INTUIT INC	17%	24%	47%	7%
IPG PHOTONICS CORP	-6%	27%	18%	
JACK HENRY & ASSOCIAT	14%	16%	28%	5%
JUNIPER NETWORKS IN(	2%	6%	12%	12%
KLA CORP	9%	28%	50%	13%
LAM RESEARCH CORP	10%	29%	37%	10%
LEIDOS HOLDINGS INC		24%	18%	-2%
MASTERCARD INC - A	24%	32%	107%	11%
MAXIM INTEGRATED PR(	20%	19%	24%	1%
MICROCHIP TECHNOLOG	10%	23%	8%	-2%
MICRON TECHNOLOGY I	3%	2%	42%	21%
MICROSOFT CORP	11%	41%	20%	4%
MOTOROLA SOLUTIONS	11%	22%	-76%	
NETAPP INC	11%	18%	5%	-5%
NORTONLIFELOCK INC	15%	13%	23%	3%
NVIDIA CORP	7%	8%	41%	13%
ORACLE CORP	34%	21%	8%	-10%
PAYCHEX INC	25%	34%	42%	4%
QUALCOMM INC	18%	16%	-615%	
SALESFORCE.COM INC	22%	5%	3%	-12%
SKYWORKS SOLUTIONS	3%	14%	22%	15%
SYNOPSYS INC	6%	11%	12%	5%
TE CONNECTIVITY LTD		17%	24%	3%
TEXAS INSTRUMENTS IN	14%	20%	62%	11%
VERISIGN INC	11%	-162%	-42%	
VISA INC-CLASS A SHARES		14%	30%	6%
WESTERN DIGITAL CORP	31%	13%	6%	-11%
WESTERN UNION CO	39%	130%	-275%	
XEROX HOLDINGS CORP	11%	11%	7%	-4%
XILINX INC	12%	27%	20%	3%

Table 17: Information technology sector, ROE values. This table displays the ROE values for the years 2004, 2011 and 2018, it then summarizes the growth of this metric in the last column. If the growth value isn't displayed, it's because there is a negative value of ROE, in the years considered.

As the communication services sector, almost all the companies have a positive CAGR regarding intangible assets. There are a few companies (Advanced Micro Devices, Cadence Design Sys Inc, CDW, Juniper Networks and Verisign Inc.) that presents a negative value, indicating a disinvestiture in one or more companies. Again, most of these companies engaged in multiples mergers and acquisitions deals. We can notice that all these companies besides two (Intl Business Machines and Xerox Holdings) have positive revenues growth.
The two companies that have a negative growth of revenues had only a modest investment in other companies. The same reasoning can be applied to the Net Income growth: as we can see the majority of the companies reported a positive and high net income annual growth.
We can notice that equity income growth is more variable than the other metrics, with lower absolute values.

As table 17 shows, ROE values present more variability, even if most of these values are high and positive. Smaller values are reported for ROE growth: even companies with high intangible assets investments presents low or negative value of this variable. We can conclude that, for this sector, intangible assets growth is followed by revenues and net income growth, but we can’t derive the same conclusion for ROE growth. M&A deals, then, didn’t create great value (measured with ROE growth) in this sector.

3.2.3 Health sector:

Health	Intangible assets growth	Revenues Growth	Net Income Growth	Equity Growth
ABBOTT LABORATORIES	10%	3%	-2%	6%
ABBVIE INC	22%	9%	7%	-195%
ABIOMED INC	35%	25%		20%
AGILENT TECHNOLOGIES INC	17%	0%	-1%	2%
ALEXION PHARMACEUTICALS IN	54%	63%		33%
ALIGN TECHNOLOGY INC	-11%	22%	29%	21%
ALLERGAN PLC	35%	18%		27%
AMERISOURCEBERGEN CORP	9%	9%	9%	-2%
AMGEN INC	3%	6%	9%	-3%
ANTHEM INC	4%	11%	10%	3%
BAXTER INTERNATIONAL INC	5%	1%	11%	5%
BECTON DICKINSON AND CO	30%	9%	-7%	15%
BIOGEN INC	5%	14%	45%	5%
BOSTON SCIENTIFIC CORP	14%	4%	3%	6%
BRISTOL-MYERS SQUIBB CO	1%	0%	-8%	1%
CARDINAL HEALTH INC	7%	5%	-12%	-2%
CELGENE CORP	44%	30%	36%	20%
CENTENE CORP	37%	34%	24%	30%
CERNER CORP	17%	13%	18%	16%
CIGNA CORP	31%	7%	4%	16%
COOPER COS INC/THE	19%	12%	3%	14%
CVS HEALTH CORP	31%	14%		16%
DANAHER CORP	16%	8%	9%	14%
DAVITA INC	13%	13%	-2%	17%
DENTSPLY SIRONA INC	12%	6%		9%
EDWARDS LIFESCIENCES CORP	10%	10%	54%	12%
ELI LILLY & CO	6%	0%	-4%	0%
GILEAD SCIENCES INC	38%	15%	10%	19%
HCA HEALTHCARE INC	3%	3%	3%	-6%
HENRY SCHEIN INC	11%	9%	11%	9%
HOLOGIC INC	53%	21%		21%
HUMANA INC	11%	11%	14%	12%
IDEXX LABORATORIES INC			12%	
ILLUMINA INC	53%	35%		33%
INCYTE CORP	26%	42%		26%
INTUITIVE SURGICAL INC	9%	26%	33%	24%
JOHNSON & JOHNSON	14%	4%	4%	5%
LABORATORY CRP OF AMER HL	14%	10%	7%	9%
MCKESSON CORP	17%	8%	-15%	6%
MEDTRONIC PLC	19%	9%	3%	13%
MERCK & CO. INC.	22%	4%	0%	2%
METTLER-TOLEDO INTERNATIO	2%	5%	12%	-1%
MYLAN NV	39%	16%	0%	15%
PERKINELMER INC	8%	3%	13%	5%
PERRIGO CO PLC	46%	13%	4%	18%
PFIZER INC	2%	0%	0%	0%
QUEST DIAGNOSTICS INC	8%	3%	3%	6%
RESMED INC	19%	15%	13%	13%
STRYKER CORP	20%	9%	16%	11%
TELEFLEX INC	14%	0%	24%	6%
THERMO FISHER SCIENTIFIC INC	27%	18%	19%	18%
UNITEDHEALTH GROUP INC	14%	14%	12%	12%
UNIVERSAL HEALTH SERVICES-E	14%	9%	12%	10%
VARIAN MEDICAL SYSTEMS INC	9%	6%	-1%	7%
VERTEX PHARMACEUTICALS INC	-31%	12%	84%	41%
WATERS CORP	5%	6%	7%	6%
WELLCARE HEALTH PLANS INC	22%	21%	17%	21%
ZIMMER BIOMET HOLDINGS IN	12%	7%		8%
ZOETIS INC	13%	5%	29%	-7%

Table 18: Health sector, financial metrics' growth.

This table shows four different metrics, measured in terms of growth, of every company considered in this sector. All companies engaged in one or multiple M&A deals. The companies highlighted in blue are companies for which the period considered is 2011-2018. Source: personal elaboration

ROE	2004	2011	2018	Growth
ABBOTT LABORATORIES	23%	19%	8%	-7%
ABBVIE INC		29%	-67%	-213%
ABIOMED INC	-17%	-11%	16%	
AGILENT TECHNOLOGIES INC	10%	23%	7%	-3%
ALEXION PHARMACEUTICALS II	-43%	15%	1%	
ALIGN TECHNOLOGY INC	10%	14%	32%	13%
ALLERGAN PLC	7%	7%	-8%	
AMERISOURCEBERGEN CORP	11%	25%	54%	12%
AMGEN INC	12%	19%	67%	13%
ANTHEM INC	5%	11%	13%	7%
BAXTER INTERNATIONAL INC	10%	33%	21%	5%
BECTON DICKINSON AND CO	15%	26%	1%	-19%
BIOGEN INC	0%	19%	34%	38%
BOSTON SCIENTIFIC CORP	26%	4%	19%	-2%
BRISTOL-MYERS SQUIBB CO	32%	20%	9%	-9%
CARDINAL HEALTH INC	18%	16%	4%	-10%
CELGENE CORP	11%	24%	66%	14%
CENTENE CORP	16%	12%	8%	-5%
CERNER CORP	11%	13%	13%	1%
CIGNA CORP	28%	16%	6%	-10%
COOPER COS INC/THE	17%	9%	4%	-9%
CVS HEALTH CORP	13%	9%	-1%	
DANAHER CORP	16%	13%	9%	-4%
DAVITA INC	39%	17%	3%	-16%
DENTSPLY SIRONA INC	18%	13%	-20%	
EDWARDS LIFESCIENCES CORP	0%	18%	23%	37%
ELI LILLY & CO	17%	32%	30%	-1%
GILEAD SCIENCES INC	24%	41%	25%	-7%
HCA HEALTHCARE INC		-35%	-130%	10%
HENRY SCHEIN INC	11%	13%	14%	1%
HOLOGIC INC	7%	5%	-5%	
HUMANA INC	13%	18%	17%	2%
IDEXX LABORATORIES INC	20%	30%	-4084%	
ILLUMINA INC	-9%	8%	21%	
INCYTE CORP	-210%	82%	6%	
INTUITIVE SURGICAL INC	7%	19%	18%	7%
JOHNSON & JOHNSON	27%	17%	26%	0%
LABORATORY CRP OF AMER H	18%	21%	13%	-3%
MCKESSON CORP	13%	17%	1%	-20%
MEDTRONIC PLC	22%	19%	6%	-9%
MERCK & CO. INC.	30%	11%	23%	-2%
METTLER-TOLEDO INTERNATIC	15%	34%	87%	13%
MYLAN NV	20%	15%	3%	-13%
PERKINELMER INC	4%	20%	12%	8%
PERRIGO CO PLC	15%	22%	2%	-13%
PFIZER INC	17%	12%	17%	0%
QUEST DIAGNOSTICS INC	22%	13%	14%	-3%
RESMED INC	16%	13%	15%	0%
STRYKER CORP	17%	18%	30%	4%
TELEFLEX INC	1%	16%	8%	18%
THERMO FISHER SCIENTIFIC IN	8%	7%	9%	0%
UNITEDHEALTH GROUP INC	24%	18%	22%	-1%
UNIVERSAL HEALTH SERVICES-	12%	16%	14%	1%
VARIAN MEDICAL SYSTEMS IN	27%	32%	9%	-7%
VERTEX PHARMACEUTICALS IN	-469%	3%	47%	48%
WATERS CORP	33%	35%	38%	1%
WELLCARE HEALTH PLANS INC	16%	24%	10%	-3%
ZIMMER BIOMET HOLDINGS IN	14%	14%	-3%	
ZOETIS INC		7%	65%	39%

Table 19: Communication services sector, ROE values. This table displays the ROE values for the years 2004, 2011 and 2018, it then summarizes the growth of this metric in the last column. If the growth value isn't displayed, it's because there is a negative value of ROE, in the years considered.

As the other two sectors, almost all the companies have a positive CAGR regarding intangible assets. Align Technology Inc. and Vertex Pharmaceuticals that presents a negative value, indicating a disinvestiture in one or more companies, probably after a failed M&A deal. Again, most of these companies engaged in multiples mergers and acquisitions deals. These values are lower than the other two sectors, around 20% annual growth rate.
We can notice that all these companies have positive revenues growth. The two companies that have a negative growth of revenues had only a modest investment in other companies. More variable is the Net Income growth, but besides some particular cases, it presents the same trend. The equity growth's column presents high and positive values, signaling that M&A deals in this sector are successful.

As *table 19* shows, ROE values present more variability, even if most of these values are high and positive. In this care ROE values are higher than the other two sectors, but there is more variability regarding ROE growth, with half of this value being negative. We can conclude that, also for this sector, intangible assets growth is followed by revenues and net income growth, but we can't derive the same conclusion for ROE growth. An important thing to notice is that, even with little growth, ROE presented high values in the three different years considered.

3.3 Do M&As create value?

As we mentioned above, intangible assets are the accounting value linked to the investment in M&A deals. Analyzing the relationship between this value or its trend and other important financial values can help understand the impact of Mergers and Acquisitions. As we saw, also analyzing the single M&A cases, the increase in intangible assets must be compensated by an increase or growth of revenues: high premium paid compensated by new synergies. Another important metric is the EPS growth, which shows us if a single merger or acquisition is accretive. The last metric used is ROE, which measure the profitability of these businesses.
As we saw in the analysis of the various sectors, while intangible assets and revenues seemed to move together, ROE presented much more variability, with some negative values. We now analyze the correlation between the growth of intangible assets and the other variables, showed in *table 20.*

Correlation	*Revenues Growth*	*Net Income Growth*	*Equity Growth*	*ROE growth*
Intangible assets growth				
Communications Services	70%	66%	63%	-1%
Health	58%	-31%	11%	-29%
Information Technology	76%	46%	58%	-25%

Table 20: Correlation between Intangible assets growth and the other financial metrics, sorted by the three most active sectors presented above. Intangible assets growth is a metric to measure the M&A activities. Source: personal elaboration

There is a very strong correlation between Intangible assets growth and Revenue's growth and between Intangible assets growth and Net Income growth.
Very interesting is the negative correlation between Intangible assets and ROE. This does not lead us to conclude that M&A are not profitable, but we can't directly link them to a strong equity profitability. What we can derive from these results is that M&A are responsible for a great increase in revenues, which means that they are a solid strategy and a great possibility for a firm to improve its performance (for example, increasing net income, equity growth or ROE growth).
Also, ROE can be distorted by a variety of factors, such as a company instituting a program of share buybacks. Another results that we can derive is that, while M&A can generate a high increase on revenues, it depends on the company structure (such as company's costs, structure of debt, interest, taxation) if the M&A deal can be translated in shareholder's value creation.

Conclusions

Although mergers and acquisitions have been around for more than a century, the debate about their motivations and consequences continues. It's difficult to believe in the existence of a "universal theory of mergers and acquisitions" capable of explaining the rationale behind every real-world transaction. It's natural that numerous hypotheses of merger motivations, both logical and behavioral, have discovered some (though inconsistent) evidence in their favor. Rather of searching for a law that explains M&A motivations, we may describe the logic that M&A decisions should ideally follow.

A company is a legal entity whose ultimate goal is to increase shareholders' wealth. This objective is accomplished by improving the company's worth. As a result, every management choice should be made with the objective of increasing the size of future cash flows. In light of this, acquisitions and mergers become a viable alternative, one that managers of a corporation might pursue when considering corporate investment options. In other words, mergers and acquisitions are a tool that management may employ to perceive value creation.

Studies based on historical M&As do not and cannot establish a priori whether a transaction produces value or not. Rather than that, they wish to demonstrate the ex-post efficacy of M&A execution. Specifically, whether or not managers have been able to generate value through acquisitions.

Thus, the thesis' first conclusion is that previous research on this matter present fundamental flaws. With this new approach we can analyze both single M&A cases or multiple ones with the same metrics.
The second conclusion is that M&A are an optimal strategy to possibly create shareholder's value. What we know for sure is that M&A can generate a high increase in revenues, which can improve the company's performances.
It is not mandatory that high revenues can be translated into higher shareholder's value.

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