



MASTER THESIS

# **Analysis of the effects of M&A announcements on stock prices. Performance and ESG Scores.**

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## Table of contents

Abstract .....	3
1. Introduction .....	3
2. Mergers and Acquisitions .....	4
2.1 Definition of Mergers and Acquisitions.....	4
2.2 M&A Waves.....	5
2.3 M&A deal Process and Steps (Buy Side).....	8
2.4 M&A deal Process and Steps (Sell Side).....	10
2.5 Motives of M&A Transactions.....	11
2.5.1 Synergy.....	11
2.5.2 Tax Benefits .....	12
2.5.3 Increased Debt Capacity.....	12
2.5.4 Diversification and Reduced Cost of Equity .....	13
3. Research problem.....	13
4. Methodology .....	14
4.1 Data and Data Collection .....	14
4.2 Event Study Methodology.....	14
4.3 Event Study using a single factor model.....	16
5. Ratio analysis.....	18
5.1 Liquidity ratios: .....	18
5.1.1 Current ratio .....	18
5.2.1 Cash ratio .....	18
5.2 Profitability Ratios .....	19
5.2.1 Net Profit Margin.....	19
5.2.2 ROE .....	19
5.2.3 ROA.....	20
5.3 Leverage Ratios .....	20
5.3.3 Debt-to-Equity Ratio .....	20
5.4 Market Ratios .....	20
5.4.3 Earnings Per Share (EPS).....	20
6. Environmental, Social and Governance Scores (ESG).....	21
7. Results from the Event Study .....	22
7.1 Event Study Results by industry.....	22
7.2 Event Study Results by type M&A.....	36
8. Results from the Ratio Analysis.....	37

9. Results from the ESG Score.....	40
10. Conclusion.....	42
Appendix 1 .....	44
Appendix 2:.....	53
Appendix 3:.....	54
Appendix 4:.....	60
Appendix 5:.....	61
Appendix 6:.....	63
Appendix 7:.....	67
Appendix 7:.....	70
 Figure 1 Buy side deal process. ....	 8
Figure 2 Sell side deal process.....	10
Figure 3 Results by industry and type M&A .....	36
Figure 4 CAR by industry and type of M&A .....	37
Figure 5CAR and T-statistics Summary .....	62

## Abstract

This master's thesis investigates whether mergers and acquisitions (M&A) impact on financial performance on 100 publicly traded companies from different industries and countries, through event study and ratio analysis. The majority acquisitions, and the data is collected from FactSet and CALDISS. Collected data is between the years 2006 and 2023 and includes domestic and cross-border M&As from 27 different industry sectors. Once the analysis of the stock price after the announcement of the merger or acquisition is done, the aim is to check the performance of all the companies in order to see if this strategic decision leads them to a better financial position. The event study methodology measures abnormal returns around the M&A announcement date, while ratio analysis examines changes in profitability, liquidity, leverage, and efficiency post-M&A. The finding reveals mixed short-term market reactions, while long-term performance hinges on successful integration and strategic alignment. In addition, ESG Score rates of the companies only for the last five years as well are investigated, since this topic is very actual recently and the data before 2018 was missing because the organization did not have standardized metrics and reporting frameworks.

## 1. Introduction

M&A have long been a fundamental strategy for corporate growth, allowing companies to achieve synergies, or to diversify their portfolios, and enhance competitive positioning. Over the past few decades, the global market for M&A has experienced significant fluctuations, influenced by economic cycles, regulatory changes, and evolving corporate strategies. Moreover, the low interest rate environment and ample liquidity in financial markets have further fuelled M&A activities. This makes the study of M&A particularly timely and significant, as companies seek to navigate the complexities of integration and value creation. Those kinds of activities could bring also benefits to the investors, because successful M&A transactions can lead to enhanced shareholders value through improved financial performance and increased stock prices. Announcing the decision of that kind of step in the organization is challenging for each side - from the employees' perspective in all levels to the shareholders, and to the customers. Process is long, filled with many changes within the organisation and outside of it.

## 2. Mergers and Acquisitions

The concept of this chapter is to provide a review of the concept and theories of the need and purpose of mergers and acquisitions. The main concepts and terms that cover the topic area of the thesis.

### 2.1 Definition of Mergers and Acquisitions

The main objectives of any business entity are to achieve the highest level of profits, but some of the entities are missing the capability and resources required to attain the highest levels of profits (Rashid & Naeem, 2017). Therefore, to attain their goals, firms employ various options like grown within own industry or expand outside of their business category (diversification). Organic growth strategic involve the expansion of business through new products, productivity enhancements, increased production, streamlining of business operations and cost reduction, entry into new markets, and increasing customer base (Dash, 2010). In organic growth is the process of growth of assets and sales expansion through mergers and acquisitions (Dash,2010). Koi-Akrofi (2016) uses the term mergers and acquisitions interchangeable to describe the fusion, joining, union, or coming together of two or more entities through the process of acquisition or a pooling of interests (Koi-Akrofi, 2016). The result of a merger is the formation of a new entity. According to Unoki (2013), an acquisition occurs when a target company is purchased by another firm. The firm that purchases the target firm treats the acquired entity as an asset. The firm is included as an asset in the balance sheet; the amount paid above the target firm's book value and/or market value is recognised as goodwill that will be charged against future income (Unoki, 2013).

According to Wang, Pauleen, & Chan, 2013, a merger is the combination of two entities whereby one entity transfers all its assets to the other entity which continues to exist. Put simply, one entity is consumed by the other. The shareholders of the consumed firm obtain shares in the surviving firm (Huh, 2015). On the other hand, an acquisition involves the buying of assets and stocks of the target firm. The distinction between mergers and acquisitions is often blurred. According to Popp (2013), the main difference between mergers and acquisitions is the position of the shareholders. In merged firms, the shareholders of the target firm receive shares in the new firm. In acquired firms, the shares of the target firm are transferred to the purchasing firm in the form of cash or debt. Netter, Stegemoller, and Wintoki (2011) indicate that mergers and acquisitions involve a wide variety of transactions, with different frameworks, and different effects on the various stakeholders. Netter et al. (2011) argued that the difference

between M&As is seen in the governing structure that arises from the deal whereby mergers result in the equitable combination of the firms while acquisitions entail less equitable combination of the firms with more emphasis being placed on streamlining and replacing the target-firm's structures.

Estanol, Clougherty, Seldeslachts, and Szucs (2018) argue that mergers and acquisitions are distinguishable by the fact that neither of the firms necessarily dominate in a merger, although the acquirer tends to determine the process of integration and the future of the combined entity. In summary, mergers create a new entity in which control is shared, whereas acquisitions tend to result in the acquiring firm gaining control over the target firm. According to Gauld (2016), mergers result in mutual and two-way contribution by both the firms while in acquisitions there is only the acquirer contributes.

## 2.2 M&A Waves

The phenomenon of M&A waves refers to periods that exhibit vigorous amounts of merger activity followed by periods of significantly lower levels (McCarthy & Dolfsma, 2013). Since the 1890's, there have been six discernible waves with a potential seventh wave occurring currently starting after the global financial crisis (Martynova & Renneboog, 2008; McCarthy & Dolfsma, 2013). Usually, every merge is happening when the economy is booming.

First Merger Wave is between 1897 and 1904 and occurred after the Depression of 1883 which is characterized as a time of economic boom and new technologies. This wave affects mainly all the major mining and manufacturing industries, most of them were horizontal and 75% were concentrated in eight industries: primary metals, fabricated metal products, food products, petroleum products, chemicals, transportation equipment, machinery, and bituminous coal. This period is known for its role in creating large monopolies. The first billion-dollar megamerger- U.S. Steel founded by J. P. Morgan (combined Carnegie Steel and Federal Steel + other companies). Great industrial giants were originated during the same period (DuPont, Standard Oil, General Electric, Eastman Kodak, American Tobacco). During this period sugar company conduct 98% of the market and the public became increasingly concerned about unethical business practices which are between banks and business community. However, the end of this first wave was triggered by financial factors rather than legal restrictions. In 1904 the stock market crashed, and banking system were weak, so the wave stopped naturally.

Second Merger Wave is from 1916 to 1929 and new regulation was established, which required no more monopoly. The antitrust environment of the 1920s was stricter (Clayton Act, 1914,

reinforced the antimonopoly provisions of the Sherman Act). The post-World War I economic boom provided much investment capital for securities markets. During this time many companies in unrelated industries merged although these business combinations involved firms that did not directly produce the same products, they often had similar product lines. Therefore, this was the beginning of conglomerates, and many vertical merges were done. Similarly to the first wave, in 1929 the market crashes which was again led to ending it.

Third Merger Wave was from 1965 and 1969 and it was a conglomerate merger period characterized by economic boom with high prosperity and development in the United States. They were created by various size companies - small, medium-size, mega firms. In addition, Tougher antitrust enforcement, Celler-Kefauver Act, 1950, had strengthened the antimerger provisions of the Clayton Act, which prohibited companies to create oligopolies. In contrast with the first merger wave, during the third wave competition, market concentration, in the U.S. economy was not greatly reduced, so no significant impact on competition. In this third wave stock consideration was used as a form of the payment, also conglomerates were financed via equity financing and companies played the price-earnings ratio game to justify their expansionist activities. The crucial assumption is that stock prices will rise, and the P/E ratio of the high P/E firm will be applied to the combined entity. Eventually, it became difficult for a serial acquirer to find a target that will not decrease the acquirer's stock price. As the number of suitable acquisition candidates declined, the merger wave slowed down. The stock market crash in 1969 affected the pace of acquisitions by reducing P/E ratios and 60% of the acquisitions were sold or divested by 1989.

Fourth Merger Wave is coincided with the economic prosperity of the 1980s and it is between 1984 and 1989. The unique characteristic of the fourth wave is the significant role of hostile mergers. The majority of M&A deals were friendly mergers but the relative percentage of hostile takeovers in the total value of takeovers rose during this time period. It led to the term 'corporate raider'. This wave is also known as a „wave of megamerger“ due to size and prominence of the M&A targets, the period of the billion-dollar M&As. The largest deals were in the gas and oil industry, and during the second half of the 1980s, drugs and medical equipment deals were the most common, driven by the deregulation of certain industries. Some of the unique characteristics of this wave are aggressive role of the investment bankers, the role of the arbitrageurs, and rise of LBO as many of the megadeals were financed with large amount of debt. In addition, during this period more companies started to be interested in international M&A activities, but the foreign takeovers also introduce currency valuation issues. In the 1990s

dollar fell in value against other currencies and companies couldn't continue with the same M&A activities as the acquisition in foreign markets became more expensive. Industries such as air transport, broadcasting, entertainment, natural gas, and trucking had undergone significant federal deregulation. The fourth merger wave ended as the long economic expansion of the 1980s came to an end and mild recession in 1990 began, as well the junk bond market collapse and this was source of financing for LBOs.

Fifth Merger Wave is in a period after the economic recession of 1990 to 1991. It started in 1993 and continue until 2000, as during the time featured many large megamergers, there were fewer hostile high-profile deals and more strategic mergers occurred. The size of M&A deals close to that occurred in the fourth merger wave and the stock market values of companies took off, so M&A deals were financed through the increased use of equity. Major M&A deals were concentrated in industries such as banking and finance, communications and broadcasting since in this time new technologies were introduced, and internet has its bum. This wave was driven by the deregulation of those industries, consolidation of the banking industry, and changes in telecom and Internet-related businesses. The strategy in the 5<sup>th</sup> wave is behind roll-ups which combine smaller companies into a national business and enjoy economies of scale (national vs regional scale). This wave is known as an international and in Europe it started in 1998. During this period many investors wanted to invest more and more which led to stock market bubble - equity as a form of financing. Between 1998 and 2001, acquiring firm shareholders lost a shocking \$216 billion. 87 deals over the period 1998–2001 that lost \$1 billion or more for shareholders. On average, shareholders lose \$2.31 per dollar spent on the acquisition in large loss deals from 1998 through 2001. Reason: the stock market bubble, dramatically higher stock valuations because of irrational wave of overvaluation (higher P/E ratios), greater use of equity as a form of payment for transactions, and more takeover defences in place, management is overcome by hubris. The fifth wave came to an end when the economy turned down and entered a brief eight-month recession in 2001.

Sixth Merger Wave is between 2004 and 2007 and as a response to 9/11 economic shock, the Federal Reserve established very low interest rates, which lasts for 10-15 years. A speculative bubble in real estate led to an international bubble related to mortgage-backed securities and other debt securitizations. The low-interest rates gave a major boost to the private equity business (low IR + available equity financing). Private equity firms were betting on the rising market. Equity and debt capital were used to buy companies or divisions of companies with the aim of making a profit based on inflated valuations. The prior way of financing was that



low-interest rate debt can generate high returns for the equity holders. This wave is short, but intense and came to a rapid end with the subprime crisis that started in 2007 followed by the recession in 2008. It ceased access to cheap debt and eager equity investors.

To conclude M&As commonly occur during periods of sustained high rates of economic growth, low or falling interest rates, and a rising stock market. During difficult times, M&A activity typically slows down as financing becomes more expensive. Merger waves also occur in cross-border M&As, with European waves following those in the United States with a short lag, that could be used for financial benefits. Every wave end because of the economic crisis.

### 2.3 M&A deal Process and Steps (Buy Side)

The process of M&A can be separated to two parts: pre-merger is before the official event and companies can negotiate and post-merger phase begins when management had declared that the firms have been combined and the merger is complete (Appelbaum et al., 2000).

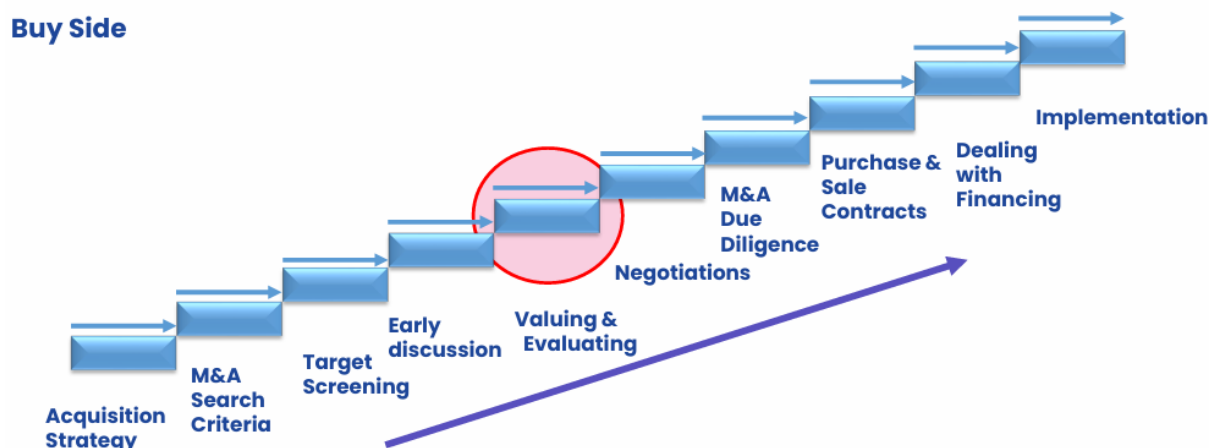


Figure 1 Buy side deal process.  
Source: M&A course lectures

1. *Develop on acquisition strategy* - in this step the buyer needs to define what will be the aim by purchasing another company, considering current market conditions, the financial position, and future projections.
2. *Set M&A Search Criteria* - here company size, products and services, customer base, culture and any other factors should be taken into consideration.
3. *Search of potential target companies* - after setting the criteria, the ideal companies search needs to start. All available information until this stage can make a brief evaluation of the potential target companies.

4. *Early discussion* - An acquirer is presented with an executive summary prepared by the investment banker - a “teaser”, describing the target with the name and key identifying elements of the target removed. Usually at this point, any proposal should be very high-level, as its subject to change. In addition, sending a letter of interest is a good way to get more of the information that buyer can use in valuation.
5. *Valuing & Evaluating* - this step is one of the critical steps in the M&A process. Here, the target company provides the buyer with important information about its business - namely, financials - so the buyer can evaluate its value, both as a stand-alone company and as a potential merger or acquisition. Moreover, culture fit, and external conditions needs to be considered since they can affect the success of the deal, timing, and other forms of synergy. Ideally, multiple valuations models can be conducted in order to pursue with a deal, or not. The performance can include, for instance a SWOT analysis for the target company.
6. *Negotiations* - in the negotiation step many deals and options can be discussed, but the deal is finalized once both parties agree and sign the deal.
7. *M&A Due Diligence* - Only a limited amount of diligence is due to limited access to information on the target, most of which is contained in the CM. the aim is to understand the target, see potential fit, uncover key issues, discover opportunities and potential synergies. If the acquirer is participating in a competitive bid process - specific bid date by which the acquirer must have completed its preliminary diligence and submitted its Indication of Interest (IOI). Typically, this date is set three-to-five weeks from the day that the acquirer receives the CM (Confidential Memorandum).
8. *Purchase and sale contracts* - once the due diligence is completed, the final purchase and needs to be write, including the type of the purchase (a stock or asset sale). The deal is closed once all relevant parties sign these contracts.
9. *Dealing with Financing* - at this point, the strategy and adjustments around finances must be created when the final purchase sale contracts are signed.
10. *Implementation* - here the deal is finalized, and integration of the two firms needs to begin. All fronts must be planned - roles and responsibilities, finances, organizational structure, culture, etc.

## 2.4 M&A deal Process and Steps (Sell Side)

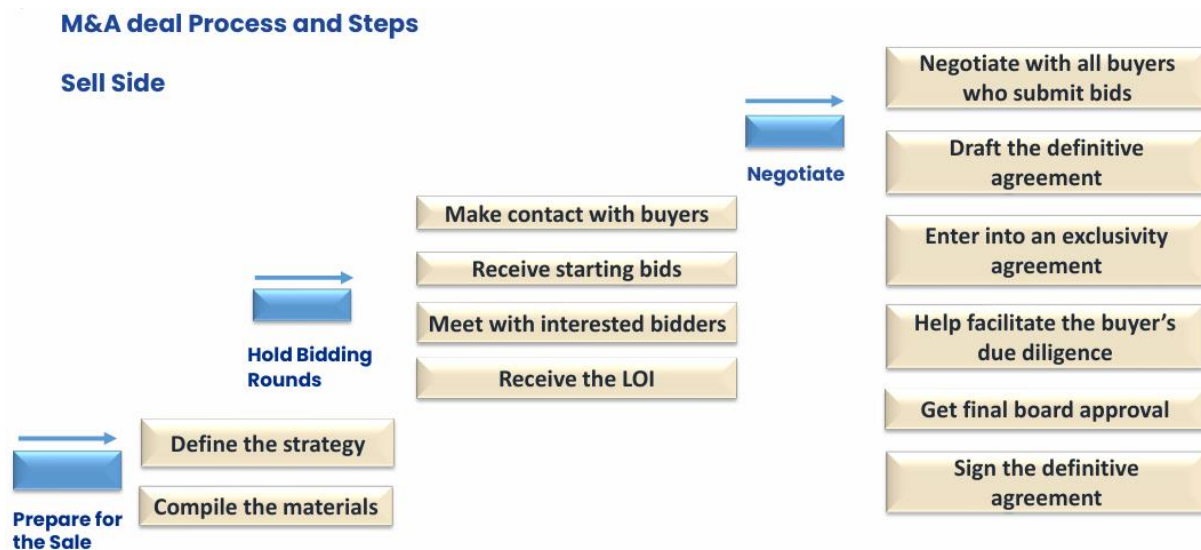


Figure 2 Sell side deal process.  
Source: M&A course lectures

### 1. Prepare for the Sale:

- Define the strategy - here the seller should know the goals when entering a potential sale. The executive team should define the objectives of pursuing a sale and identify the ideal buyers.
- Compile the materials - the documents need to present the company's performance to the potential buyers. If the firm works with investment banker on the sale, they will prepare a confidential information memorandum (CIM/Offering Memorandum), a 50-plus-page document that contains information about company's financial, market position, and product & services.

### 2. Holding Bidding Rounds:

- Make contact with buyers - can happen in two ways: potential buyers contact the company, or the company contact them.
- Receive starting bids - the bid can start once the potential buyer reviewed all the materials. Then he can settle the first offer.
- Meet with interested bidders - management meetings with interested bidders needs to be conducted in order to learn more about these company's intents, needs, and proposed offering.
- Receive the LOI: the interested ones will send a letter to intent in which they explicitly express interest in pursuing a merger or acquisition and provide a summary of the proposal deal. Multiple LOIs from multiple bidders may be received.

### 3. *Negotiate:*

- Negotiate with all buyers who submit bids - once bids from all interested companies are received the negotiation with them can start.
- Draft the definitive agreement - buyers and sellers work together to draft a final deal.
- Enter into an exclusivity agreement - the selling company is already into an exclusive deal with the buyer, so can't pursue further negotiations or solicit interest from other potential buyers.
- Help facilitate the buyer's due diligence - it can take more than two months for the buyer to complete their due diligence evaluations. All documentation ahead of time needs to be prepared and stay in close contact throughout of the process.
- Get final board approval - when the buyer has completed due diligence and plans to move forward, final board approval has to be solicited.
- Sign the definitive agreement - once the final agreement is signed, the deal is closed - merged is completed or the company had been acquired by another company, so the integration can begin.

## 2.5 Motives of M&A Transactions

From the acquirer's perspective, there are several reasons for buying another company. Through an extensive literature review Cox (2006) found that M&A activity can be motivated by various kinds of synergies, tax considerations or for reasons of diversification. An increase in market power, a more efficient management or a undervaluation of the target firm can also be factors for a lucrative investment (Cox, 2006). Besides that, instead of just relying on organic growth, M&As pose an opportunity for entry into new markets, reach new customers, - 7 - build a better product portfolio, reduce supplier risk, and realize cross-selling in a much faster way (Renneboog & Vansteenkiste, 2019).

### 2.5.1 Synergy

Synergy is the concept that the whole entity is worth more than the sum of the parts. In other words, by combining two companies in a merger, the companies' value will be greater than the sum of the value of each of the two companies being merged:  $2+2=5$

$$NAV = VAB - [VA + VB] - P - E$$

Where: NAV is the net acquisition value

Vab - is the combined value of two firms

VA - the value of A

VB - the value of B

P - the premium paid for B

E - the expenses of the acquisition process

$$NAV = [VAB - (VA + VB)] - (P + E) \rightarrow [VAB - (VA + VB)] > (P + E)$$

→ Going forward with the merge

Synergy has two main types: operating synergy and financial synergy.

The **operating** comes in two forms: revenue enhancement and cost reduction. It is mainly in horizontal or vertical mergers and it is easier to plan and discuss, but difficult to achieve, in particular revenue enhancements.

On the other hand, the buyers can be divided into strategic when the operating companies acquire other businesses for horizontal or vertical expansion. By this way they can increase efficiency and create more value by entering new markets, technologies, lines of business (market share). Aim to identify and deliver operating synergy.

The financial buyer usually acquires companies mainly for investment purposes rather than operating synergies. They use the leverage to maximise equity returns and don't aim to get the benefit of operating synergies (LBO). This could involve streamlining process, optimizing supply chains, or investing in new technology upgrades.

### 2.5.2 Tax Benefits

A combined company may use net operating losses to shield income. NOL of the target is used to tax to reduce the burden of a profitable firm, the acquirer increase in depreciations charges after a merger can save on tax costs and increase in value. The firm's unused debt capacity, unused tax losses, surplus fund, and write-up of depreciable assets also create tax benefits.

### 2.5.3 Increased Debt Capacity

Debt capacity can increase because when two companies merge their cash flows and earnings may become steadier and more predictable. M&A deals may reduce risk if the firm's cash flow streams are not perfectly correlated. If the acquisition or merger lowers the volatility of the cash flows, suppliers of capital may consider the firm less risky.

### 2.5.4 Diversification and Reduced Cost of Equity

The diversification effect may reduce the cost of equity for the combined firm. When firms merge, they gain a wider customer base, which can result in lower competition, increased revenue, market share, and cash flows. However, this is highly dependent on the size and industry of the business.

#### **Summary of reasons for M&A deals:**

- M&A transactions enable firms to grow faster than firms relying on organic growth.
- Allow to penetrate new markets.
- Cross-sell into a new customer base.
- Expand their scope by acquiring a set of complementary products.
- Buy a pipeline of R&D intensive products, patents, or trade secrets.
- Avoid upstream or downstream market foreclosure by suppliers.
- Reduce taxes by means of new subsidiaries situated in tax-friendly countries.
- Realize cost synergies by eliminating surplus facilities and overheads.
- Reduce competition.
- Improve access to capital, etc.

## 3. Research problem

As the M&A activity has significantly increased globally over the past decade, and that was driven because of all the factors mentioned above. Moreover, many events happened, and some are still on during that time such as COVID19 pandemic, financial crisis and wars. Companies aim to improve their performance and indicate growth or maybe some of them wanted just to stay on the market. My idea for the research is to examine those different companies and if the M&A activity was crucial for the short and long-term performance. Thus, I state in this paper to analyse the situation of the selected companies and research three main topics:

1. Is the official announcement of the merger or acquisition significantly affect the stock returns?
2. How those companies are performing five years before this merger, then the year of the M&A activity and then five years after?
3. ESG scores for the last five years for all the companies?

## 4. Methodology

### 4.1 Data and Data Collection

The secondary data for this thesis was gathered using primarily FactSet and Eikon. In both platforms Aalborg University is having a license of gaining financial data for all the companies that are researched in this paper. The theoretical foundation behind the thesis is from Google Scholar is used and applied - literature related to the Mergers and Acquisitions. One of the main theoretical sources are lectures and book from the core course during the Finance Master Programme - Mergers and Acquisitions. I benefit from the lecture notes from the following courses as well - Portfolio theory and financial applications, Quantitative methods in finance, and Financial Data Analysis. In the calculation part I have used Excel and RStudio - an integrated development environment for R, a programming language for statistical computing and graphics. I choose to work with this tool because the results are more understandable and can have better visualization. Moreover, during the previous classes the tool was used very often for exercises and assignments. The codes and knowledge about this software are gained through our Finance classes, online sources, and videos, in the appendix there are codes applied.

### 4.2 Event Study Methodology

Event studies are an important tool in finance and the corporate finance literature, and it is applied to measure the impact of an event on stock return of the company/ Measuring the value of the firm is difficult. However, if there is an efficient market for the firm's stock, the impact of decisions of this type can be measured by the change in the stock price around the time when the decision becomes public knowledge. If the financial markets are informationally efficient, there should be an immediate reaction to the event on the announcement date and no further reaction on subsequent trading days. In my case the event will be the announcement date of the merger or acquisition. Usually, this specific date is few months or a year before the close date of this activity. Such events can be studied in many ways, the empirical finance literature has taken a particular approach based on statistical tests of the significance of abnormal stock returns around event dates. The analysis can be conducted using the following steps:

- *Event Day* - Announcement of an any event which is denoted by „0“- Identifying the event - identifying the actual date of the takeover is usually announced a long time

before and potential changes in the value of the target and bidder firms should already be reflected in the stock price. The purpose here is to see what happens on the day that the takeover plans become public knowledge (announcement date) or before that, to form an idea of the profits from insider trading. Usually, the picked data is the one that was in a financial news source.

- *Event Window* - This is the period of the event of interest, in this case this will be the day that M&A was announced, along with five days before and after that. The only technical requirement is that the event window ensures the actual abnormal returns are captured (Sethi and Krishnakumar, 2010). Typical short term event windows used in literature as 5 or 7 days before and after the event, while long-term event windows range from 40 days post-event and beyond (Sethi and Krishnakumar, 2010). Andrade et al., (2001) use a shorter estimate of the average short-term event window at one day before and one day after the event. This is a period in which abnormal return is calculated considering some trading days of pre and post of the event day of sample companies.
- *Event/Window Estimation* - The estimation window is connected to the period before the event, in this case it is assumed that stock returns are normal. They are calculated in order to get a benchmark with which to compare normal and abnormal returns. The standard procedure is to use a period before the event as the estimation window (Campbell et al., 1997). In my case the estimation window is 100 days and 40 days as a „pre-event“ period and 40 as „post-event“ period.

After that the following analysis are conducted: Normal stock return, Market return, Abnormal return, Cumulative Abnormal Return, Cumulative Average Abnormal Return and Statistical significance of abnormal return and cumulative average abnormal return. Steps to be followed in the event study:

1. Searching the announcement of event.
2. Calculation on Stock return and market return.
3. Computation of intercept and slope.
4. Calculation of normal return and abnormal return.
5. Testing the significance of an event on individual company's cumulative abnormal return.
6. Combining the abnormal return of all the individual companies and average it.



7. Testing the overall significance of an event on overall cumulative average abnormal return.

### 4.3 Event Study using a single factor model

The purpose of calculating the normal returns is that the data will give information about the ordinary returns of the stock prior to the event. There are few models to estimate normal returns such as Capital Asset Pricing Model (Sharpe, 1964; Lintner, 1965). This mathematical model helps to calculate the expected returns on a specific stock based on its relative risk to the market. The equation is as follows:

$$ER_i = R_f + B_i \cdot (ER_M - R_f)$$

Examining its components, I can identify the risk-free rate, the beta of the stock, and the expected returns on the market. The risk-free rate is defined by the government using treasury bills and is the rate that can be achieved with zero risk. The expected market returns can be calculated, by knowing the prices of the most important index on the market, as it shows the movements of the largest stocks sold on it. The difference between the expected market returns and the risk-free rate is called a market risk premium. The last component - the beta, is a measurement of the relative risk of a particular stock in comparison to the market risk. It is calculated by dividing the covariance of the stock with the market by the variance of the market. Upon calculating the result, I get a value, which should be the returns of the stock based on its risk. So, the higher the risk, the higher the returns should be. In this paper I am following the event study guidelines published by McWilliams and Siegel in 1997. They suggest that if a particular event had a significant effect on stock returns, their t-value would be above 2. In order to get to it, I only need three critical pieces of information - the stock prices, the market prices, the prices of an index, and the risk-free rate for the selected period.

Before beginning with the analysis, the event day, the event window, and the window estimation needs to be defined. In this case, the event day is clear - the day of the announcement of M&A and it is marked as the 0 day. The event window is the period for which I calculate abnormal returns. In this case, I use -40/+40 days of the event, so the total event window is 81 days. Finally, the window estimation is the total period for which I calculate the expected returns. In the thesis a hundred days before the event window for the beta and the standard deviation calculations.

The first step of this analysis is to calculate the log-returns for both the stock and the market prices. Using this information, I can calculate the beta of the stock, which is the slope of the line which goes through the plotted stock and market returns. I can also calculate the risk premium using the market returns and the risk-free rate. Next, information to calculate the expected stock returns using the CAPM is needed. Once I know the expected stock returns, then the abnormal returns can be calculated for each date by subtracting the ESR from the actual stock returns. This gives the information about how much more/less the stock has generated than it was expected to generate.

After that, I must check the window of interest I want to analyse. In this case, I have analysed three periods - 5-, 11-, and 81-day periods, so 2, 5, and 40 days before and after the event plus the actual event day. The shortest period will confirm or deny a short-term reaction of the market, the middle one will show whether the reaction continues, and the longest one will prove that there was a long-term reaction. I also analyse the two and five days before and after the event separately. Since the log-returns fluctuate around zero, I expect that if the event did not cause any effect, the positive and negative log-returns would cancel each other out, and the cumulative average return would not be significant. I will sum the abnormal returns for each window, resulting in the cumulative abnormal returns/CAR/, then check its t-value. This will be done by dividing CAR by the multiplication of the standard deviation of the stock and market returns and the square root of the number of days in the window. The formula looks like this:

$$t - \text{statistic of CAR} = \frac{CAR}{\sigma \cdot \text{number of days}}$$

And then, I can decide if the effect was significant by checking if the t-value is above the threshold of 2. It is to be noted that when I compare values, I compare the t-values, as their movements correspond to the movements of the calculated CAR value. All the calculations are done in excel since companies are spread all around the world and in very different period. Hence, in order to be accurate, I am taking the risk-free rate in each country, month by month to calculate risk premium. In addition, the index that exchange stock price on the specific company is also different, so the right one is used accordingly. They is a information on that in the appendix - table number 4.

## 5. Ratio analysis

It is a quantitative method of gaining insight into a company's liquidity, operational efficiency, and profitability. I decided to examine few ratios, which could give some inputs of the performance of all 100 companies. For this analysis the financial data is taken from the financial statements - balance sheet, income statement and cash flow statement. In my analysis, I took the following numbers from: five years before the M&A announcement, the year when the M&A was announced and five years after. Some of the activities in few of the companies happened two or three years ago, hence few on the panel data fields are empty.

### 5.1 Liquidity ratios:

#### 5.1.1 Current ratio

The current ratio is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year. It tells investors and analysts how a company can maximize the current assets on its balance sheet to satisfy its current debt and other payables. A current ratio that is in line with the industry average or slightly higher is generally considered acceptable. A current ratio that is lower than the industry average may indicate a higher risk of distress or default. Similarly, if a company has a very high current ratio compared with its peer group, it indicates that management may not be using its assets efficiently. The current ratio is called current because, unlike some other liquidity ratios, it incorporates all current assets and current liabilities.

$$\text{Current Ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

#### 5.2.1 Cash ratio

Cash ratio is another liquidity measure that shows if the company is able to cover its short-term obligations but with the difference that the organisation will use the most liquid resources - cash and cash equivalents. If the company is forced to pay all current liabilities immediately, this metric shows the company's ability to do so without having to sell or liquidate other assets. A cash ratio is expressed as a numeral, greater or less than 1. Upon calculating the ratio, if the result is equal to 1, the company has exactly the same amount of current liabilities as it does cash and cash equivalents to pay off those debts. A calculation greater than 1 means a company has more cash on hand than current debts, while a calculation less than 1 means a company has

more short-term debt than cash. This ratio is used by investors, creditors, and lender to evaluate the short-term risk of a company.

$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Cash Equivalents}}{\text{Current liabilities}}$$

## 5.2 Profitability Ratios

### 5.2.1 Net Profit Margin

The net profit margin ratio is used to describe a company's ability to produce profit and to consider several scenarios, such as an increase in expenses which is deemed ineffective. It is used extensively in financial modelling and company valuation. However, keep in mind that a single number in a company report is rarely adequate to point out overall company performance. An increase in revenue might translate to a loss if followed by an increase in expenses. On the other hand, a decrease in revenue, followed by tight control over expenses, might put the company further in profit. A high net profit margin means that a company is able to effectively control its costs and/or provide goods or services at a price significantly higher than its costs. Therefore, a high ratio can result from: efficient management, low costs (expenses), strong pricing strategies. A low net profit margin means that a company uses an ineffective cost structure and/or poor pricing strategies. Therefore, a low ratio can result from: inefficient management, high cost (expenses) and weak pricing strategies. Investors need to take numbers from the profit margin ratio as an overall indicator of company profitability performance and initiate deeper research into the cause of an increase or decrease in the profitability as needed.

$$\text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Revenue}}$$

### 5.2.2 ROE

ROE provides a simple metric for evaluating investment returns. By comparing a company's ROE to the industry's average, something may be pinpointed about the company's competitive advantage. ROE may also provide insight into how the company management is using financing from equity to grow the business. A sustainable and increasing ROE over time can mean a company is good at generating shareholder value because it knows how to reinvest its earnings wisely, so as to increase productivity and profits. In contrast, a declining ROE can mean that management is making poor decisions on reinvesting capital in unproductive assets.

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Average Shareholder's Equity}}$$

### 5.2.3 ROA

The ROA metric indicates how profitable a company is in relation to its total assets. Corporate management, analysts, and investors can use ROA to determine how efficiently a company uses its assets to generate a profit. A higher ROA means a company is more efficient and productive at managing its balance sheet to generate profits, while a lower ROA indicates there is room for improvement.

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

## 5.3 Leverage Ratios

### 5.3.3 Debt-to-Equity Ratio

A leverage ratio that calculates the weight of total debt and financial liabilities against total shareholders' equity. Unlike the debt-assets ratio which uses total assets as a denominator, the D/E Ratio uses total equity. This ratio highlights how a company's capital structure is tilted either toward debt or equity financing. A higher debt-equity ratio indicates a levered firm, which is quite preferable for a company that is stable with significant cash flow generation, but not preferable when a company is in decline. A high debt-equity ratio can be good because it shows that a firm can easily service its debt obligations (through cash flow) and is using the leverage to increase equity returns. Conversely, a lower ratio indicates a firm less levered and closer to being fully equity financed. The appropriate debt to equity ratio varies by industry.

$$\text{Debt} - \text{to} - \text{Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Shareholder's Equity}}$$

## 5.4 Market Ratios

### 5.4.3 Earnings Per Share (EPS)

Earnings per share or EPS is a common metric used to carry out corporate value. It can be defined as the value of earnings per outstanding share of common stock of the company. EPS indicates the company's profitability by showing how much money a business makes for each share of its stock. The EPS figure is determined by dividing the company's net profit by its

outstanding shares of common stock. However, it is considered the higher the EPS number, the more profitable the company.

$$EPS = \frac{\text{Net Income} - \text{Dividends on Preferred Stock}}{\text{Average Outstanding Shares}}$$

## 6. Environmental, Social and Governance Scores (ESG)

Nowadays, the corporate performance is not only measured by financial ratio, the company's contribution to environmental sustainability, but the welfare of the surrounding community is also currently part of the corporate' performance. It can be said to be successful if it considers economic, environmental, and social aspect. For companies that are sustainability-minded organizations, ESG scores are the true north that guides boards and shareholders toward stronger environmental, social and governance practices. These scores are a keyway third-party rating and reporting organizations measure companies' efforts. They are also an important tool to compare one organization's ESG performance to another's. Scores are a measure investor can use to gauge a company's performance on ESG issues and its exposure to ESG-related risks. They are calculated against a set of special metrics and may be expressed on a number scale or through a letter ranking system. A company's performance on ESG issues - from cybersecurity to climate change to diversity, equity, and inclusion - is becoming an increasingly important factor for stakeholders and investment decisions. A good ESG score is an invaluable piece of that puzzle, helping organizations to anticipate future risks and opportunities or adopt longer-term strategic thinking. Moreover, companies could prioritize long-term value creation over short-term gains using the scores. As such, the consequences of a substandard score can be momentous. Research increasingly shows that companies that adhere to ESG principles are lower-risk investments and more resilient over time.

- **Environmental scoring** factors range from a company's greenhouse gas emissions to its treatment of animals. Common evaluation criteria include metrics on: Climate change, Soil and water contamination, Renewable energy, and Environmental policy.
- **Social scoring factors** examine a company's business relationships with employees, suppliers, partners, shareholders, and other groups throughout the supply chain' for instance:
  - Are workers in factories abroad treated ethically?
  - Do employees earn a living wage?
  - Are facilities regularly inspected and safe to work?

- Can employees take leave when they are sick or for other personal reasons?

Social scores may also reflect charitable contributions, customer interactions, community impact and policy influence.

- **Governance scoring criteria** evaluate legal and compliance issues and board operations as part of the ESG score:
  - Does the company abide by all local, state, and federal laws?
  - Does board composition represent diverse backgrounds and perspectives?
  - How does executive and non-executive compensation compare to the company's peers?

Many ESG scores take industry context into account. Corporate Knights, for instance, only scores companies based on performance indicators that are relevant to their industry.

It is accepted and widely used a 100-point scale, where for instance a score of 70 or more than that is considered as good and strong. While score below 50 have room for improvement. Those points are used mainly from the investors as an indicator of organization's potential, while lower score won't boost the financial performance and it will limit the risk. Reporting of ESG, which gives a significant positive effect on financial performance, which is then increased over the financial performance of impact positive and significant impact on social benefits (Rodriguez-fernandez, 2016). A study conducted by (Li et al., 2018) also support the statement that the level of disclosure of ESG positively correlated with the value of the company.

## 7. Results from the Event Study

### 7.1 Event Study Results by industry

- **Business Services** - this sector is crucial because it is offering services such as consulting, outsourcing, marketing, financial services, etc. that can support the operations. Trans Union is a company that went through M&A back in 2018 and analysis shows a significant impact on the event date with the t-value of 7.49 and 11% of returns. However, the whole 81 days show that their merger did affect the stock price, hence the event in this company is significant with a long-term reaction. It is the same with the 11 days period (five days before and after the announcement, plus the event day). In the other organisation - Equifax, Inc. the situation is quite different because the number of t-statistics of CAR is negative and above the threshold on five and two days before the event. In addition, impact of the returns is visible here - they are

negative few days before and after the event, but on 1<sup>st</sup> of August when it was announced they are 2.43%.

On average this sector shows that there is a significance only in the period 81 days period with value of 2.80, hence the merger did impact the company performance and the reaction stays for longer period.

- **Hospitality services** - one of the widest used and oriented to meet the needs and preferences of travellers and consumers seeking experiences away from their homes or workplaces. It is offering accommodation, dining, entertainment, and leisure activities. Firstly, I have Endeavor Group Holdings, Inc., that had a merger with same company in China only two years ago. The t-value of CAR statistics is below the threshold, except the five days before the announcement day, which makes mean of -2.88. The AB are positive, then on the event day it is -3.65% and 1.03% on the day after. The situation in Hilton Worldwide is quite clear, with balanced distribution of the abnormal returns, minor impact on the company's stock price and insignificance consequences of the event. TUI AG is a cross-border M&A in 2014 that shows a positive return of 6.68% on the event day and significant t-statistics of the abnormal returns, but in general in all the estimated days the number is showing that this M&A did not gave any reaction to the stock price.

Overall, the hospitality services sector is performing with positive returns on day 0 and negative on day 1, but in all three companies the event is not showing any significance.

- **Media and Publishing Services** - it includes a diverse range of businesses involved in creating, distributing, and monetizing content across various platforms. This industry plays a crucial role in shaping public discourse, informing the audiences, and entertaining customers. In the thesis all three organizations, which are based in USA are showing reaction, but in a different event window. For instance, Fox Corporation had significance is on two days post event with 2.59, which makes a short-term reaction, but then the t-value of the 81 days period is also 4.44, which means the reaction stayed longer. Returns on 5<sup>th</sup> of November 2019 are 0.10% but only after a day, there is an increasing to 4.92%. In Warner Bros Discovery, Inc. all the numbers of the t-Statistics of CAR are negative and what I have noticed is that during the 81-days researched period their returns seem to be more likely negative, than positive. Because of that the t-statistic value is also corresponding to AR being -8.5. In Walt Disney Co. the situation is quite similar, even though the M&A happened back in 2017. Again, more negative



performance on the returns during the examined period and significant impact mostly on the long-term period because of the event.

The average of this sector shows that M&A activity did affect the returns on day 0 and day 1, as they proof negative number. In addition, t-statistic values are negative and reacted more in the 81 days period.

- **Consumer Goods** - this industry is broad and diverse, covering various sectors and product categories. I picked to research on fashion brands that are producing clothes, shoes, bags, eyewear, and accessories which are luxury and quite expensive but all of them are proven by users over time. Prada SpA had a more balanced distribution of the abnormal returns, generating positive and negative values before the merger, but it seems that during the 81 days, two days before and after, and two days after the results show a significant impact on the stock price. However, only two days after the announcement, company shows approximately 11% of returns, which stays as the highest until end of the researched window. The situation in one of their main competitors - Burberry Group Plc. represent that the M&A activity back in 2016 had no significant impact on the company, the t-value if below the threshold and distribution of the abnormal returns is balanced during the period that I choose to research. Another modern brand that had a merger with South Korean brand in year 2010 - Ralph Lauren Corp. is having a significant impact on the day of the merger and the day after, but overall, there is no reaction on their stock price. However, the returns are positive on both days, following same pattern until the end of the period. Next company is Luxottica Group SpA - Italian leader of producing fancy and expensive eyewear, the company acquired Oakley, Inc. in 2007 and that had only a short-term reaction on the +- 5 days. AR were positive on day 0 and day 1. In 2017 same company merged with Essilor International, and the day of the announcement shows the highest abnormal returns during the whole research window with 11.87% and t-statistic value of 10.72 which means that the event is indeed significant. However, this is one of the strategic mergers that had a major impact in the eyewear business. Working together they basically closed the cycle or producing lenses and frames together, so that would be very convenient for the customer.

Consumer goods sector in this paper appearance with no significance on average and positive returns on the announcement day and day after.

- Upstream Energy** - this sector related to the discovery and extraction of crude oil and natural gas, and it is very critical for the industrial process since it supports millions of jobs worldwide, drive technological innovation and ensuring energy security. All three M&A happens in the last 6 years and only the one from ConocoPhillips and Australia Pacific LNG is a cross-border. Each partner brings unique strengths and resources to the table, so this partnership is quite significant, and the event shows it as well with -3.52% returns on 12<sup>th</sup> September 2021, followed mainly by negative once in the first 15 days. Moreover, looking at the t-Statistics of AR, I can see the overall picture of the market - all values after the event are significant, which makes the reaction continues. Another major acquisition took place in 2019 between Occidental Petroleum Corp. (Oxy) and Anadarko Petroleum Corp and the deal is very attractive to the industry analysts and investors since Occidental is one of the largest producers in the Permian Basin enhancing its influence and competitive stance in the US oil and gas market. In the analysis, company display significance is some pre-event days, but overall, the situation is quite normal and stable, so I can conclude that this event didn't affect the organization in the short-term. Permian Resources is another key player in the oil and gas industry with increasable performance in 2023 when had the M&A activity. Their positive returns during the research period proves it, and the t-statistics is having only number way more than the threshold, which means that the merger had a significant impact and reaction in the short and long-term. Their high t-value correspond to the movements, to AR are performing good as well. In general, the company increase in the stock price by 58% last year and the reported very strong financial results. Overall, the sector is showing proof significance and positive returns mainly because of the last examined company and its performance in year 2023.
- Downstream and Midstream Energy** - Here midstream is the transportation and storage of crude oil and natural gas, downstream refers to the conversion of crude oil and natural gas into thousands of finished products that we are using daily - gasoline, diesel, heating oil, etc. This industry faces many opportunities but as well challenges because they adapt to regulatory changes. The M&A activity in Canada with Enbridge Inc. in 2018 represents significance in all the observed periods and mainly normally distributed positive returns. In contrast the event in Turkey back in 2012 display a very typical situation with no effect of the announcement, having t-statistic value way below from the threshold.

Conclusion from this industry is that there is a significance only because of the first organization, but the performance overall is positive.

- **Integrated Oil and Gas Exploration and Production** - here companies are involved in the entire value chain of the oil business. I am researching two of the leaders in this industry - Chevron Corp. and Exxon Mobil Corp. and the outcome is quite similar. the pattern is that both got no significant impact because of the M&A, except 81 days window in Exxon and it's returns are positive on day 0, while in Chevron they are negative, but on the next day, research shows performance of 5.83%.

On average this industry represent normality with no significant number or changes.

- **Banking** - this of course is one of the essential parts of the world economies because of the variety services that offers, such as deals with credit facilities, storage the cash, investments, etc. Like most of the companies this French bank did not display any significance after the deal in 2020, only negative returns less than 1%. In contrast Huntington Bancshares, Inc. had -10.04% on 26<sup>th</sup> of January 2016 when they announced officially the M&A deal. T-value is above the threshold on period -2, -5, +2, 11, and on event d. Danske Bank is the last in this paper with an announcement back in 2008 which mainly represents no short-term impact in the organization. Abnormal returns vary between -3.88% and 5.18%.

Indeed, the Europe banking companies do not have that much impact after the M&A announcement, compared to US. However, on average, returns remain negative with the number of -3.31%, but on day one they back to normal being 0.74%.

- **Insurance** - the basic concept of this sector is that companies offer risk management in the form of contract that guarantee payment if some uncertain future event happened. They are many types of insurance, and this industry usually is highly regulated. A cross-border between UK and USA in 2019 appear with a negative trend of the abnormal returns during the whole researched period, together with negative value for the t-statistic. The main significance is in the 81 days event window and 5 days before and after the merger with MG LLC. In Precision Castparts Corp there is a very similar situation with mainly negative pattern of returns and this time only in the whole 81 days window with -2.58. On 11<sup>th</sup> September 2012 the t-value is 0.20, while returns are 0.20%, followed by 4.33% after the announcement. Lastly, Chubb Ltd. is the sooner M&A activity happened in this sector and it is visible that has the biggest impact with higher number of t-statistic and mostly positive returns during the whole examined

period. However, the long-term impact in this company is more significant than few days before and after 7<sup>th</sup> October 2021. Insurance industry is interesting for investigation because of its complication, and in this case the cross-border M&A had the biggest impact on this event. However, on average, returns are negative on the event day and positive on the day after with 2.34% which means that the market reacted acceptable.

- **Investment Services** - in the paper there are three of the main leaders at providing investment, advisory and risk management solutions. Firstly, a cross-border acquisition in BlackRock Inc., happened in 2019 represent a very stable and positive trend of abnormal returns during the whole examined period, and t-value on the long-term performance which means that there was an impact only in the 81 days window. On the other hand, in KKR I can see that this domestic M&A is insignificant, and the only difference is in the negative returns at day 0 and two days after that. However, during the seek information I noticed that this company had the most numerous M&A activities in the past 15 years, so this one did not give a reflection. Lastly, Morgan Stanley appearance with the negative pattern on the return in the second half of the examined period with -4.77% AR on the announcement date, and t-statistic of -6. It seems that the organization had more likely short-term reaction rather than long-term.

To conclude the sector, the average show impact only in the returns at day 0 and 1, being negative with -1.97% and -0.61% respectively.

- **Real Estate** - This is the market for buildings, homes and land and its main segments are residential, commercial, and industrial real estate. Nowadays, this industry is very dynamic and challenging, especially now during the crisis when prices for the properties rise dramatically. The first M&A in my research here is CBRE Group, Inc. and their cross-border activity in 2019 that represents significance in the long-term and five days before the date of the announcement. AR are quite stable during the period and followed a very positive pattern. Next is Kimco Realty Corp. which go along with the same trend in the AR and t-statistic of having reaction in the 81 days window and  $\pm 5$  days as well. Prologis, Inc. another real estate leader in USA also had a long-term impact but with the difference that AR are mainly negative during the examined period and -2.53% on 28<sup>th</sup> April 2018. Lastly, a M&A activity in Germany shows a very good performance in the AR being positive during the whole period and insignificance in the

t-value. Overall, for the sector, the M&A had a long-term impact in the 81 days period and stable positive returns, even though announcements happened in different years.

- **Specialty Finance and Services** - here are included any financing activity that takes place outside of the traditional banking system. AerCap Holdings NV is the first organization and the M&A activity in 2021 shows a reaction in all the examined periods and high AR, such as 15.67% two days before the announcement and -3.88% and staying only positive after that until end of the period. T-statistic value is more than threshold. The opposite numbers are visible in Visa Inc. where the t-value is way below 1.96 and AR are -0.05%
- **Biopharmaceuticals** - Biopharmaceuticals are complex medicines made from living cells or organisms, often produced using cutting-edge biotechnological methods. Here you can find out more about their complex atomic structure and the different types of biopharmaceuticals that exist. There are many companies in this industry and the first one is AbbVie, Inc. that shows a t-value of -6.1 on the event day and -17.62% of AR which is a reaction in short and long-term. The situation is exactly the opposite in Johnson & Johnson where the event had no impact in the organisation, returns are positive and follow normal distribution until the end. Bristol-Myers Squibb Co. M&A in 2019 is having very low AR on the announcement date such as -12.20% and t-value of 4.53. The company is having more likely long-term impact and positive returns. Abiomed, Inc. is another US company in the industry that M&A activity happened in 2020 but did not have any significant impact overall, the AR are negative on the announcement date and one day after, but 8 days after that they are increasing to 11.67%. Next is a cross-border activity happened in 2018 between Japan and Belgium. Takeda Pharmaceutical Co., Ltd is having a negative return few days before 5<sup>th</sup> of January and 0.24% on the exact day with an insignificant t-value and normally distributed returns afterwards. It seems that the merger didn't affect the company that much. Another company in this industry is GlaxoSmithKline Plc. where the situation is way difference, since mainly the t-values indicate significance of their merger with Pfizer, Inc. in 2018, meaning that this event did leave a mark. Their AR are negative during November and December same year, as well on the announcement day -1.33%. Before having this M&A Pfizer did acquire Medivation LLC in 2016 where returns performing was not so good, because they had just negative numbers, on the returns side and on relative high number on the t-statistics side. Moreover, this announcement

left both - short and long-term effect. In general, their performance was showing financial health in 2016 so maybe this M&A led to those numbers during the examined period. Another company that became well-known because of the pandemic is AstraZeneca PLC which acquired Alexion Pharmaceutical, Inc. in 2020. The analysis represents that on the day of the announcement of the activity company had -5.75% AR and -2.10 t-value, followed by numbers that show only long-term reaction. Lastly for this sector, Merck & Co., Inc. had their domestic M&A back in 2009 where on the day of the announcement their returns show negative number of -7.02% but only two days after that there is an increase to 5.32% and 10.97% on the day after. T-value is negative showing significance in the values after 9<sup>th</sup> of March, meaning company more likely had a long-term impact.

After analysing those nine Biopharmaceutical companies on average again the trend is an impact represented in the 81 days window and having a negative number on the announcement day with -4.55% and then being 0.19% on the day after, so the market manages to back to normal and showing better results after that.

- Healthcare Services** - this industry aims to treat patients with by dividing into a three main groups: hospital activities, medical and dental practice activities, and other human health activities. First M&A activity happened in Bulgaria with one of the main providers of that type of services in 2015 and numbers displaying significance on the days before the announcement day. In general, AR are negative in the day 0 and 1, and t-value for the 81 days is having a value of -4.75. The situation with the US provider - Express Scripts, Inc. is similar in terms of the short-term effect, but AR are positive on 21<sup>st</sup> July 2011, followed by eight days of negative ones. Hence, the M&A activity didn't have that much impact the organization. Cigna Holding Co. in another competitor in US in the healthcare industry and my calculations shows that as in the previous discussed companies, here again there is a long-term significance having a 12.80 and negative AR on the announcement day with -11.26%, followed by mainly positive until end of the dataset. Because of that high number, period of 5 days before and after is also affected by average having a -4.97, as well only 2 and 5 days before 8<sup>th</sup> of March 2018. Cerner Corp. acquired the German Siemens Health Service Corp. in 2014 and that event again had only impact on the 81 days window period. Overall performing of the AR remain positive during the period, but mostly in the second half and especially after the announcement. In conclusion there is a trend in this sector, results are showing the same results no matter the country or the year that M&A was introduced. There is

no significance in the short-term, positive, and stable returns, but in general this sector is widely used and stable.

- **Healthcare Equipment** - this industry manufacture and distribute medical devices, diagnostic tools and other equipment that is used in clinics, hospitals and other healthcare settings. It is a sector that needs investment in the advanced medical technologies due to enhancing the efficiency. Here there are two cross-border M&As and one domestic. Firstly, Boston Scientific Corp. displaying significance in all the examined periods, except two and five days after the announcement. It seems that a day before the event their AR are showing the highest value in all pre-event window i.e -6.69% and -4.58% on 20<sup>th</sup> November 2018. In contrast, Metronic Inc.'s returns are normally distributed during the whole period with no dramatical changes. T-statistic value signal significance only in the long-term and positive return after the public presented information about their merger with Covidien Plc. The last company is based in China and M&A happened only two years ago, but overall, there is significance only on the days after the event, around a month after the announcement and then few days in month two after the events. AR are positive on day 0 and the following ones.

In conclusion this sector is performing mainly negative numbers and more likely long-term reaction. T-value of the 81 days window is 6.79 and AR are -1.92%. However, day 1 is represented by positive AR.

- **Industrial Manufacturing** - this sector covers a wide variety of major manufacturing plants that includes data centres, solar panels, aircraft manufacturing, ship building, deepwater ports, wind turbines and many others. I choose to concentrate on the wind turbines as a person who is part of such company, hence, I started with SGRE and their merger with Gamesa few years ago. All the numbers in the research are showing no significance during the whole researched months, AR are positive on the announcement day, followed by two days of negative afterwards. However, some of the problematic Gamesa turbines and overall performance was not enough for the company to stay on the market, so last year SGRE was acquired by Siemens Energy AG. The other organization is the main competitor for Siemens in Denmark when it comes to the turbine business - Vestas and their acquisition of Utopus Insights, Inc. - an energy analytics company. The overall situation is very similar, since there is no significant number because of that event, AR are mainly positive, especially after the announcement day and t-statistic is a way below the threshold. Last M&A in this



industry is with ABB and General Electric on 25<sup>th</sup> of September 2017. The only significance here is only on 31<sup>st</sup> October 2017, AR are normally distributed during the whole time. To conclude for this industry, the M&A activity did not affect those three organizations, as well their AR are positive on day 1 with 1.35% and -1.18% on day 1.

- **Industrial Services** - here there are activities that support the manufacturing and industrial sector, helping with maintenance. First in the well-known company - Ryanair Holdings Plc. where the results are showing significant only in the long-term window, AR are mainly positive and balanced. On the other hand, Canadian Pacific Railway Ltd. had significant impact in the long-run, calculations show a t-value of -5.82 on the 81 days window, -1.55 on five days before and after, and -2.15 on two days before the announcement date. However, AR are positive on 10<sup>th</sup> of August 2021 are 0.92% followed by negative once on the next days. Last organization here is Bouygues SA, where everything seems normal and not affected by this event. T-statistics numbers are above the threshold only on three of the days until end of the period of this examined activity. Overall, industrial services are showing high numbers on the long-term on average, the returns are 0.15% on day 0 are -0.76% on day 1.
- **Chemical, Plastic and Rubber Materials** - the industry covers the manufacture of basic organic and inorganic chemicals, pharmaceutical products and pesticides and rubber tyres and plastic tubes. BASF SE and Bayer AG announced the activity between each other in 2017, but that did not represent any significant effect in both - short and long-term. The AR are negative on the event day with -0.49% but on the next day everything back to normal being mainly positive until end of the period. Covestro AG in the next company in the list that is a cross-border M&A between Germany and the Netherlands where the only significance in three different days in the same month before the announcement date and only one day after. Here is interesting that on day 0 the returns are quite high negative number -6.95% but everything back to normal on the following days. Another organization in this industry is Clariant AG - a Swiss multinational speciality chemical company, where the analysis shows an impact on the long-run window with t-value of -6.72. However, the AR are positive on 30 October 2023. The last organization is Huntsman Corp. that have same situation in the long-term, the 81 days window showing a significance, but overall AR that are positive and stable after the event. In conclusion the average of all the numbers for chemical, plastic and rubber materials sector are in the norm, meaning that M&A had a reaction and AR



were negative on that announcement day, but everything back to normal and positive on day 0.

- **Mining and Mineral Products** - this industry is for prospecting, planning and permitting the mine, extraction of raw materials via surface mining and/or underground mining techniques. Sandfire Resources Ltd. is an Australian company that had M&A with Europe country few years ago. The analysis display that there is no significance in the periods that I am examining, only in separate days such as two days after or 11 or 15. Company had negative AR of -0.37%, but on the next day are 1.05% and then decrease to -6.24%. Next is the Holcim, where the day before the event had a significant value of 5.44 and 6.03% returns, but the research shows that in general the organization had a long-term impact, in the 81 days window period. Lastly, is the HeidelbergCement AG that again follows the trend with the impact mainly in the long run, because the value is above the threshold. Returns are normally distributed, with no shocked numbers in that period.

Overall, as mentioned before - the trend in this sector is that M&A announcement affect the organisation in the 81 days event window period and the mean returns are positive on day 0 and day 1.

- **Food and Staples Retail** - here are included markets, supermarkets, speciality food stores, grocery stores, convenience stores or firms that providing consumers with access to basic goods. First company is Jumbo SA, which is a Greek company that have so many enormous stores in Bulgaria for kid's toys, all necessary accessories for the beach, cloths, etc. Their M&A in 2016 did not affect that much, only in the -5 days, but during that period company is having mainly positive returns. This is not valid for 4<sup>th</sup> of Mach when they are 3.37%. Kroger Co. is US organization that operating in the supermarkets, and the numbers for them are representing a positive return on the event day in 2013 and significant value for the longest period - 81 days, which makes the reaction for long-term. The last is the 7-eleven, very known and popular firm, but there is no significant mark here, except on the day right after the merger. The returns are also positive and 4.94%, which makes them the highest until end of the examined period. To conclude, this industry is very dynamic, since we all need and attend the food retailers and the analysis display that there is only impact on the long-term and AR are mainly negative on the announcement but manage to recover right after.

- **Food and Tobacco Production** - crucial sector encompassing the cultivation, processing, and distribution of food products and tobacco. This industry plays a crucial role in the global economy, influencing public health, agriculture, and trade policies. Atlantic Grupa is a Croatia multinational company that operates within this industry and the event with the M&A announcement in 2020 did affect in the long-term with a t-value of -11.87. In this case the interesting part is that in the 40 days window period before 20<sup>th</sup> of April, the values of the t-statistic are very high, like 17.58-25 days before the event, 12.10 - 21 days before the event, and many more. However, the returns are positive and don't have dramatically changes. In Bunge Ltd. numbers shows significance in the 81 days window, 11 days and 5 days. The returns are mainly negative after the event and during the end of the period. AB InBev - the biggest beer producer is displaying interesting numbers with a negative AR of -17.62% on the event day, followed by mainly positive until end of the period. On the other hand, t-statistics do not now significance on the 2 and 5 days before but all the other values for the examined day periods are above the threshold. However, the M&A happened in 2019 when COVID started and their business suffered a lot, so maybe this factor also has a sign in their numbers. Another competitor is having similar noticeable numbers is H.J. Heinz with their M&A in 2015 when they are having impressive returns of 31.12% on the event date, which of course affect the mainly in the short return periods, but the 81 days is again with value of -4.61.

Overall, this sector follows the trend of having reaction on the stock price on the long run and having mean AR of 3.57% on day 0 and -0.18% on day 1.

- **Household Products** - another industry that produces daily used goods. Firstly, is the biggest cosmetic producer that had a negative AR on the event day on 2018 but in general numbers are showing no general impact on the company. The Italian competitor - DeLonghi is in very similar situation with no significance from the M&A in 2017. AR are normally distributed until the end of the examined period. Lastly, it is Reckitt Benckiser Group Plc. organization that had statistically significant impact on stock price only in the longest window period - 81 days. AR are positive on 2<sup>nd</sup> February 2017, but staying mainly negative two months after. In conclusion Household Products industry do not show impact on average.
- **Electronic Components and Manufacturing** - industry that produces microchips, CNC machining, 3D printing. Broadcom Inc. is the first company in the list with a

M&A from two years ago. The numbers are showing significance on the long-term and returns are mainly positive during whole examined period. IMD is another well-known company that had an acquisition of Xilinx few years ago, but results are showing no significance, only negative AR of -4.71%. however, on day 1 they are 2.18% and staying stable and normally distributed until the end. Analog Devices Inc. did not have a value above the threshold during the event window, so this makes insignificance. To conclude this sector having 3 M&A that happened in different years, but the results are showing that there is no impact on the stock price. Mean AR are -2.63% and 1.19% on the day one.

- **Hardware** - includes so many products and services related to construction, home improvement and maintenance. Cisco is the first company in my research and its showing that M&A did have an impact on the stock price, because all the values are above the threshold. Moreover, the AR during all examined periods is negative. On the other hand, the competitor - Toshiba Tec Corp. display values that are was below the threshold. Only the AR are negative on the event day, but afterwards performing in the company side. In conclusion, because of my choice of Cisco and its very poor numbers, the mean returns on the event day are -4.68% and -1.34% on day 1. Hence, the average shows a reaction in both - in the short and long term.
- **Software and Consulting** - it provides to the business assist by optimizing their operations, improving productivity, and achieving digital transformation. As in the Biopharmaceuticals here the selection is within many firms, but the sector is actual, dynamic and with many competitors. There are 12 companies, so I have divided them by short and long-term significance. Splunk, Inc., Citrix Systems, Inc., IBM, Adobe Inc. and Meta Platforms are having impact on the stock returns on the 81 days period. Splunk is having mainly positive AR after the M&A announcement, while in Citrix in exactly the opposite and on the event day they got returns of -3.56%. IBM is very well-knowns company for software and consulting, and then they got the biggest software M&A paying Red Hat shareholders \$14 billion premium in cash in a bid to dominate the hybrid-cloud market. However, on the event day in 2018 they got AR of -4.06% and a t-value of -4.68. on the following four days the trend keeps the same. On the other hand, Adobe AR are positive on 23<sup>rd</sup> of January 2019 and with a insignificant value while very used and known Meta Platforms are performing with a very good and impressive stable AR during all the examined period. The event perhaps gave them only

positives after M&A 10 years ago. Next group are firm that did not have any impact and those are Take-Two Interactive Software, Inc., London Stock Exchange Group plc, and Microsoft Corp. All three companies are having normally distributed AR during the researched period with no shock in the stock price. Lastly, is the group with a significance and Capgemini SE is company that has an impact on the 2 days after window because the AR on day 1 after the announcement are with the impressive value of 8.22%, which makes them the highest during the whole examined period. Hence, the t-value is also above the threshold - 6.57. On the other hand, Salesforce is having - 2.83% of AR on the announcement day, followed by -9.16% on the day 1 which led to significance in the 2 days after the event period. However, after those two days the company back to normality and numbers seems with no long-term effect in this organization. S&P Global is another competitor with same situation in the analysis, being significantly affected only 2 days after and the t-value is -2.23. 6 days after the M&A there are negative AR of -6.07% but after that everything back to normal as before the event.

After researching between those 12 companies, numbers are displaying no significance on average and only 0.02% of positive returns and -1.30% on day 1.

- **Telecommunications** - a very critical sector that facilitates global communication through various technologies. It constantly growing with consistent revenue and many investments because of the 5G infrastructure and diversified service offerings. First three companies are representing a significant impact mainly on the long-term period, no matter of the country and period of M&A. Telecom Italia and CCH I LLC are having normally distributed positive and negative AR while T-Mobile US performing mainly negative AR during the whole researched period. In 2018 on the announcement date, they got -6.66% followed by -3.22% and -4.68% on the days after. However, company suffer in the both - short and long-term. Orange SA calculations show a significance only two days before the announcement in 2022, but no shocking numbers on the AR and t-statistics. SoftBank Group Corp. is displaying no significance in the numbers, except on day 4 with 2.34 and then 3.03% of AR.

In conclusion numbers in this industry of the mean calculations are negative with no significance in the t-statistics and having AR of -0.55% on day 0 and -1.30% on day 1.

- **Utilities** - those companies provide essential services such as electricity, natural gas, water, and sewage treatment - all necessary for the household to function. The industry

is characterized by stable revenue, but as well many strict regulations to ensure fair pricing, reliable service, and environmental protection. Veolia Environnement SA is French company that operates in this industry, and which is performing a very nice positive AR on the announcement day in 2020, 6.79%. Next company - RWE AG is showing no significance in the calculations, except 13 days after the announcement when the t-value is -2.83 and AR of -5.40%. E.ON SE is the biggest Germany utility company that had M&A acidity in 2018 which brought to them positive AR of 4.64% and 5.49% on day 1. T-value of showing significance only in the short-term impact in this company. To conclude, on average this industry represents very good and stable normal numbers, having no significance and positive AR - 4.06% on the day that M&A was announced and 0.85% on the following one.

## 7.2 Event Study Results by type M&A

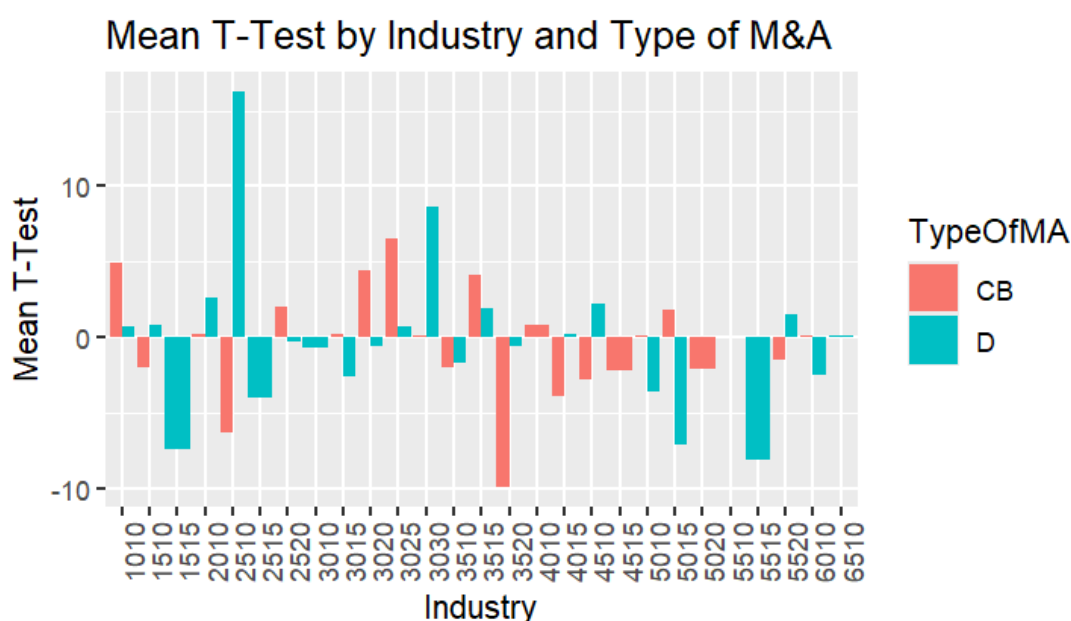


Figure 3: Results by industry and type M&A

Source: Own creation in R

After examining all the companies within those 27 industries, results from the t-test are showing that domestic M&As in the Media and Publishing Services, Food and Tobacco Production and Hardware industries are having the biggest negative impact because some of the researched companies were showing a very unsatisfied value. In Table 4 there is summary of the results again, but with highlighted the most impressive and eye-catching results. On the other hand, positive graph is showing that positive impact had

in the Upstream Energy due to Permian Resources Corp. performance in the analysis, followed by Specialty Finance and Services represented by AerCap Holdings NV positive numbers. The rest of the companies are fluctuating around 0 and 4.

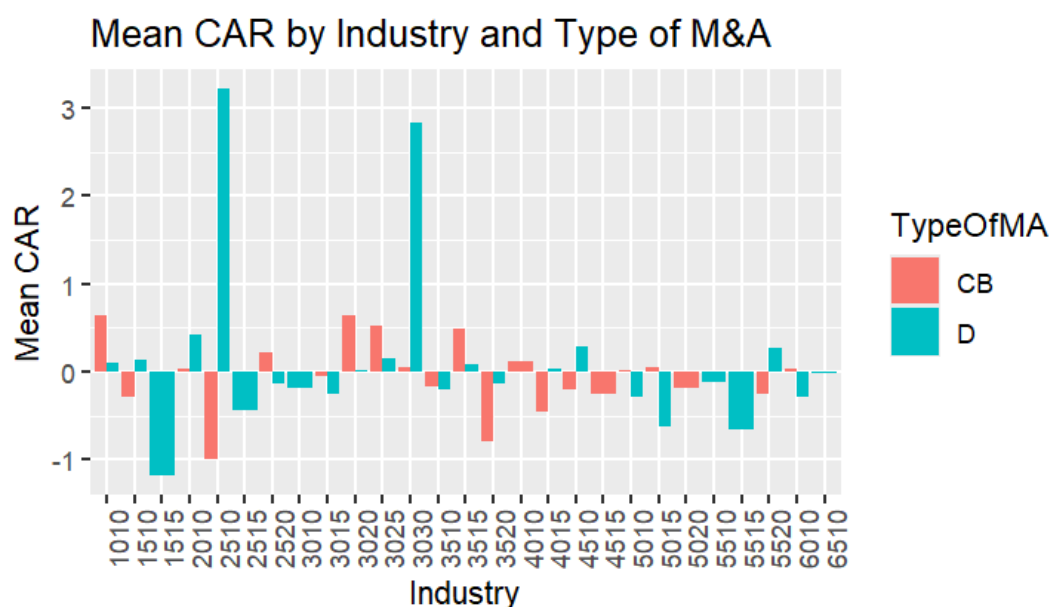


Figure 4: CAR by industry and type of M&A  
Source: Own creation in R

The second graph is representing summary of the CAR by industry and type of M&A, from which it seems that domestic ones have obvious dominating numbers. For instance, the Upstream industry and Specialty Finance and Services are displaying the best positive results with 3 or even above. while Media and Publishing Services, as well Food and Tobacco Production. In contrast cross-border deals and fluctuating around zero and few of them are stand out with better performance - Business Services, Insurance, Real Estate and Investment Services.

Sectors such as Consumer Goods and Healthcare Services are represented by negative performance on the graph. In appendix 5 there is a summary of the CAR and t-test calculation for the whole researched window period.

## 8. Results from the Ratio Analysis

The data from the financial document was collected and then combined into e huge table. After that I have calculated the mean of the values by each sector and below is the summary of the results. In appendix 6 there is a table with the results from this analysis.

- **Business Services** - this industry is performing with a current ratio above 1, meaning that companies are able to pay their short-term liabilities due in one year. The numbers after the M&A are improved. The same goes for the cash ratio which is more than 0.50 five years after the event, hence it is considered as a good one. ROE are below the 15% which is considered as good performance in the company. Eps are also increasing.
- **Hospitality Services** - situation with the cash and current ratios is not improving, industry is having numbers below the threshold which could make difficult to meet their short-term obligations. Cash ratio is also decreasing in the announcement year and the period after. Here ROE are in the norm, with a very high improvement from 5.77 to 17.69 in the end of the period. Eps also increased dramatically from 0.96 to 2.15.
- **Media and Publishing Services** - the industry displaying an improvement and very stable cash and current ratios, making the short-term liabilities no problems for all researched companies. ROE is decreasing here, while Eps jump from 2.22 to 2.97.
- **Consumer Goods** - here again the first two ratios are representing increasing in the performance. Having a decrease in the ROE and improvement in the Eps.
- **Upstream Energy** - in this industry current ratio decreased to 1.03 on the M&A announcement year but in the five-years period it increases again. However, the improvement is also visible in the cash ratio which goes from 0.69 to 0.98 at the end of the researched period. Here is noticeable that Eps are only 0.19 five years before M&A announcement and then 3.54 at the end.
- **Downstream and Midstream Energy** - it seems that there is a decrease in the downstream and midstream energy sector when it comes to the current ratio. Number goes from 0.97 to 0.78 at the end. Cash ratio is also very low, being around 0.25 for the whole examined period. ROE is in the norm, performing a good performance and Eps from 0.73 to 1.72.
- **Integrated Oil and Gas Exploration and Production** - in this industry there is a big improvement on the current ratio from 0.97 to 1.19, which makes the number above the minimum threshold of meeting the short-term obligations. Cash ratio is also improved, but still not that high value, so it will be challenging if the company can only count on their current cash and cash equivalents.
- **Banking** - this sector is having the biggest improvement on current ratio until now with the impressive value of 2.01 at the end of the period. Unfortunately, the cash ratio decreases from 0.41 in the M&A announcement year to 0.19 at the end of the period.



- **Insurance** - here the increase is in both short-term coverage ratios, but the cash ratio is still quite low as a number of 0.32.
- **Investment Services** - here current ratio decreases from 1.29 to 1.18 and cash ratio from 0.71 to 0.63. However, the industry is ready to meet its short-term expenses.
- **Real Estate** - in this industry there is an improvement in the current ratio from 1.33 to 1.50 while examining all the companies that operates in the real estate market. Cash ratio also increase from 0.85 in the announcement year to 1.04 at the end.
- **Specialty Finance and Services** - here the first two ratios are remaining stable for all the years, having only differ with 0.01.
- **Biopharmaceuticals** - the industry improved their current ratio from 1.41 to 1.62 and cash ratio from 0.35 to 0.51 which makes biopharmaceutical companies ready to meet their short-term obligations.
- **Healthcare Services** - here there is quite high number of 2.16 in the current ratio and 0.94 cash ratio in the beginning of the examined period. At the end numbers increasing to 2.86 and 1.36.
- **Healthcare Equipment** - another stable industry in the short-term with number above the threshold.
- **Industrial Manufacturing** - the industry represent decrease in the first two ratios and the numbers are below the threshold. For current ratios is 0.81 in the end of the period and for cash ratio is 0.29.
- **Industrial Services** - very good and stable current ratio and a room to improve the cash ratios, since the number is 0.32 almost during the whole period.
- **Chemical, Plastic and Rubber Materials** - here there is dramatically decrease from 1.79 to 1.06 in the current ratio and 1.10 to 0.42 in the cash ratio.
- **Mining and Mineral Products** - another decrease but still above the threshold of meeting the short-term obligations.
- **Food and Staples Retail** - here the current ratio goes down again, from the impressive 2.51 to 1.75 at the end cash ratios is performing the same trend - being 1.33 in the beginning and then drops to 0.85.
- **Food and Tobacco Production** - a stable current ratio, but a place to improvement the cash ratio since it is only 0.30.
- **Household Products** - there is a slightly decrease in both ratios, but still able to face the short-term duty.



- **Electronic Components and Manufacturing** - the industry is represented by the most stable values - 2.28 for current ratio and 1.11 for the cash ratio.
- **Hardware** - the business displays a slightly decreasing in the numbers, especially in the cash ratio from 0.69 to 0.40.
- **Software and Consulting** - software business as the one that develops every day is displaying improvement from 1.80 to 2.39 in the current ratio and 1.11 to 1.62 in the cash ratio.
- **Telecommunications** - sector that is below the good threshold in the first two ratios.
- **Utilities** - here the cash ratio can be improved a lot, since it is around 0.25, but the current ratio is in the normal numbers.

## 9. Results from the ESG Score

- **Environmental** - in the table below there are the mean Environmental scores for all the companies within the 27 industries that I am researching. In blue are highlighted the biggest improvement in the scoring during the last five years:

№	Industry	2019	2020	2021	2022	2023
1	Business Services	22	37	41	46	46
2	Hospitality Services	81	79	78	73	74
3	Media and Publishing Services	21	36	37	43	41
4	Consumer Goods	62	66	70	71	75
5	Upstream Energy	48	49	50	52	51
6	Downstream and Midstream Energy	77	74	78	79	64
7	Integrated Oil and Gas Exploration and Production	70	70	69	70	59
8	Banking	85	85	83	85	83
9	Insurance	23	30	38	40	42
10	Investment Services	46	46	54	65	68
11	Real Estate	83	81	82	80	76
12	Specialty Finance and Services	41	50	60	64	66
13	Biopharmaceuticals	80	82	83	83	83
14	Healthcare Services	51	52	52	53	54
15	Healthcare Equipment	69	69	70	69	68
16	Industrial Manufacturing	85	87	88	88	87
17	Industrial Services	51	55	55	59	59
18	Chemical, Plastic and Rubber Materials	78	79	82	81	81
19	Mining and Mineral Products	74	69	71	67	74
20	Food and Staples Retail	48	50	33	38	50
21	Food and Tobacco Production	67	70	61	70	68
22	Household Products	65	70	71	75	76

23	Electronic Components and Manufacturing	48	56	69	75	71
24	Hardware	68	66	68	70	70
25	Software and Consulting	58	60	61	65	68
26	Telecommunications	65	67	70	77	75
27	Utilities	72	69	69	69	72

- **Social** - in the table below there are the mean Social scores for all the companies within the 27 industries that I am researching. In blue are highlighted the biggest improvement in the scoring during the last five years:

№	Industry	2019	2020	2021	2022	2023
1	Business Services	38	50	56	54	56
2	Hospitality Services	77	80	78	77	73
3	Media and Publishing Services	57	76	75	72	79
4	Consumer Goods	70	71	72	76	76
5	Upstream Energy	59	61	64	65	64
6	Downstream and Midstream Energy	81	80	80	83	80
7	Integrated Oil and Gas Exploration and Production	83	84	89	89	85
8	Banking	77	75	76	74	73
9	Insurance	33	36	43	45	51
10	Investment Services	67	70	70	68	73
11	Real Estate	86	83	86	80	78
12	Specialty Finance and Services	50	56	59	68	65
13	Biopharmaceuticals	90	91	92	92	91
14	Healthcare Services	45	51	52	52	56
15	Healthcare Equipment	92	91	90	90	90
16	Industrial Manufacturing	85	87	86	84	81
17	Industrial Services	64	76	77	80	79
18	Chemical, Plastic and Rubber Materials	84	87	88	89	89
19	Mining and Mineral Products	68	67	78	78	78
20	Food and Staples Retail	42	46	58	64	54
21	Food and Tobacco Production	56	59	64	74	75
22	Household Products	80	80	81	84	83
23	Electronic Components and Manufacturing	58	65	67	75	70
24	Hardware	66	65	63	64	64
25	Software and Consulting	74	75	74	78	75
26	Telecommunications	57	57	69	70	69
27	Utilities	74	77	72	72	69

- **Governance** - in the table below there are the mean environmental scores for all the companies within the 27 industries that I am researching. In blue are highlighted the biggest improvement in the scoring during the last five years:

№	Industry	2019	2020	2021	2022	2023
1	Business Services	37	32	55	53	56
2	Hospitality Services	76	86	87	81	77
3	Media and Publishing Services	44	54	56	60	50
4	Consumer Goods	56	60	60	60	55
5	Upstream Energy	60	56	55	56	47
6	Downstream and Midstream Energy	57	63	69	70	59
7	Integrated Oil and Gas Exploration and Production	77	71	86	93	87
8	Banking	85	85	83	80	77
9	Insurance	55	53	55	61	58
10	Investment Services	45	49	44	49	49
11	Real Estate	77	79	81	83	84
12	Specialty Finance and Services	38	31	27	32	50
13	Biopharmaceuticals	64	70	76	76	67
14	Healthcare Services	35	36	41	44	38
15	Healthcare Equipment	63	64	60	69	73
16	Industrial Manufacturing	88	81	82	76	76
17	Industrial Services	53	60	63	57	70
18	Chemical, Plastic and Rubber Materials	72	74	83	80	76
19	Mining and Mineral Products	81	79	85	84	83
20	Food and Staples Retail	39	40	51	50	50
21	Food and Tobacco Production	69	77	74	74	72
22	Household Products	69	71	69	71	64
23	Electronic Components and Manufacturing	68	64	71	65	69
24	Hardware	83	84	85	82	79
25	Software and Consulting	57	56	57	59	58
26	Telecommunications	46	40	46	51	50
27	Utilities	64	60	66	65	64

## 10.Conclusion

The event study analysis revealed mixed results regarding the abnormal returns around the M&A announcement date. While some companies experienced significant positive abnormal returns, indicating market approval, and expected synergies. For instance, Business Services, Upstream Energy and Utilities. On the other hand, in other industries I saw negative returns,

suggesting doubt about the benefits of the M&A or concerns about potential integration challenges. For example, Banking was performing a negative AR after the M&A announcement, as well Biopharmaceuticals, Healthcare Services, Electronic Components and Manufacturing and Hardware.

In the short term (within a few days around the announcement), positive abnormal returns were more prevalent. However, the long-term performance analysis showed varied outcomes. While some firms sustained their initial positive momentum, others underperformed, highlighting the complexities and risks associated with M&A transactions. Financial ratio analysis provided a deeper understanding of the operational impact of M&As. On average, there was a slight improvement in profitability ratios post-M&A, suggesting operational synergies. However, leverage ratios also increased for many companies, indicating higher debt levels used to finance the acquisitions. The study found industry-specific trends in M&A performance. Consumers Goods, Utilities, and Business Services sectors showed more significant positive outcomes in both stock performance and financial ratios, likely due to high growth potential and strategic alignment. In contrast, traditional sectors such as Banking and Healthcare Services showed more muted results. Future studies could extend the analysis period to several years post-M&A to capture the full impact on performance, since this activity can be matched with some unplanned event such as the wars nowadays or some financial crisis. All this factor could lead to different analysis numbers

## Appendix 1

№	Target Company	Acquirer	Announce Date	Type	Transaction Value in local currency	Sector & Industry	Industry Code	Country
1	Callcredit Information Group Ltd.	TransUnion	20 April 2018	Cross-border	1,420.7 million USD	Business Services	1010	USA and UK
2	Kount, Inc.	Equifax, Inc.	8 January 2021	Domestic	640 million USD	Business Services	1010	USA
3	Endeavor China	Endeavor Group Holdings, Inc.	28 April 2022	Domestic	173 million USD	Hospitality Services	1510	USA
4	Cypress Hotel Cupertino	Hilton Worldwide Holdings, In	2 June 2015	Domestic	112 million USD	Hospitality Services	1510	USA
5	TUI Travel Plc.	TUI AG	27 June 2014	Cross-border	1,855.7 million GBP	Hospitality Services	1510	Germany and UK
6	Nexstar Media Group, Inc.	Fox Corp.	5 November 2019	Domestic	350 million USD	Media and Publishing Services	1515	USA
7	Discovery, Inc. and AT&T Inc.'s WarnerMedia business	Warner Bros. Discovery, Inc.	8 <sup>th</sup> April 2022	Domestic	430 million USD	Media and Publishing Services	1515	USA
8	Twenty-First Century Fox, Inc.	The Walt Disney Co.	14 December 2017	Domestic	81,181.6 million US	Media and Publishing Services	1515	USA
9	Fratelli Prada SpA	Prada SpA	29 October 2019	Domestic	573.9 million HKD	Consumer Goods	2010	Italy
10	Sparkle Roll Holdings Ltd.	Burberry Group Plc.	1 August 2016	Cross-border	54 million GBP	Consumer Goods	2010	UK and China
11	Doosan Corp. /Polo-Branded Apparel & Accessories Business/	Ralph Lauren Corp.	23 July 2010	Cross-border	47 million USD	Consumer Goods	2010	USA and South Korea

12	Oakley, Inc.	Luxottica Group SpA	20 June 2007	Cross-border	2,207.5 million USD	Consumer Goods	2010	Italy and USA
13	Luxottica Group SpA	Essilor International SA	16 Jan 2017	Cross-border	19,148.1 million USD	Consumer Goods	2010	Italy and France
14	Australia Pacific LNG Pty Ltd.	ConocoPhillips	9 December 2021	Cross-border	1,645 million USD	Upstream Energy	2510	USA and Australia
15	Anadarko Petroleum Corp.	Occidental Petroleum Corp.	8 August 2019	Domestic	54085.7 million USD	Upstream Energy	2510	USA
16	Earthstone Energy, Inc.	Permian Resources Corp.	21 August 2023	Domestic	3,601.2 million US	Upstream Energy	2510	USA
17	Athabasca Oil Corp.	Enbridge, Inc.	10 December 2018	Domestic	265 million CAD	Downstream and Midstream Energy	2515	Canada
18	Akdeniz Akaryakit Depolama ve Nakliyat ve Ticaret AS	Türkiye Petrol Rafinerileri AS	12 March 2012	Domestic	38.8 million TRY	Downstream and Midstream Energy	2515	Turkey
19	Noble Energy, Inc.	Chevron Corp.	20 July 2020	Domestic	12,931.4 million USD	Integrated Oil and Gas Exploration and Production	2520	USA
20	PT Federal Karyatama	Exxon Mobil Corp.	29 April 2018	Cross-border	436 million USD	Integrated Oil and Gas Exploration and Production	2520	USA and Indonesia
21	Shine SAS /Tech/	Societe Generale S.A.	30 June 2020	Domestic	100 million EUR	Banking	3010	France
22	FirstMerit Corp.	Huntington Bancshares, Inc.	26 January 2016	Domestic	3,352.5 million USD	Banking	3010	USA
23	Danske Invest Administration A/S	Danske Bank A/S	13 March 2008	Domestic	73.9 million DKK	Banking	3010	Denmark
24	MG LLC	Willis Towers Watson Plc	31 March 2019	Cross-border	1,334.5 million USD	Insurance	3015	UK and USA
25	Titanium Metals Corp.	Precision Castparts Corp.	9 November 2012	Domestic	2,973.2 million USD	Insurance	3015	USA

26	Cigna Corp. /Life, Accident & Supplemental Benefits Bus/	Chubb Ltd.	7 October 2021	Cross-border	5360 million USD	Insurance	3015	Switzerland and USA
27	eFront SA	BlackRock, Inc.	22 March 2019	Cross-border	1300 million USD	Investment Services	3020	USA and France
28	Coty, Inc.	Kohlberg Kravis Roberts & Co. LP	11 May 2020	Domestic	2,500 million USD	Investment Services	3020	USA
29	E*TRADE Financial Corp.	Morgan Stanley	20 February 2020	Domestic	12,987.8 million USD	Investment Services	3020	USA
30	Telford Homes Ltd.	CBRE Group, Inc.	3 July 2019	Cross-border	430.3 million USD	Real Estate	3025	USA and UK
31	Weingarten Realty Investors	Kimco Realty Corporation	15 April 2021	Domestic	5,531.1 million USD	Real Estate	3025	USA
32	DCT Industrial Trust, Inc.	Prologis, Inc.	29 April 2018	Domestic	8,067.5 million USD	Real Estate	3025	USA
33	Deutsche Wohnen SE	Vonovia SE	1 August 2021	Domestic	10,518.5 million EUR	Real Estate	3025	Germany
34	Celestial Aviation Services Ltd.	AerCap Holdings NV	10 March 2021	Domestic	31,149.4 million USD	Specialty Finance and Services	3030	Ireland
35	Tink AB	Visa Inc.	24 June 2021	Cross-border	2,150.6 million USD	Specialty Finance and Services	3030	USA and Sweden
36	Square, Inc. and Afterpay Australia Pty Ltd		2 August 2021	Cross-border	36,792.9	Specialty Finance and Services	3030	USA and Australia
37	Allergan Plc.	AbbVie, Inc.	25 June 2019	Cross-border	84,355.3 million USD	Biopharmaceuticals	3510	USA and Ireland
38	Momenta Pharmaceuticals, Inc.	Johnson & Johnson	19 August 2020	Domestic	5,849.8 million USD	Biopharmaceuticals	3510	USA

39	Celgene Corp.	Bristol-Myers Squibb Co.	3 Jan 2019	Domestic	93,534.3 million USD	Biopharmaceuticals	3510	USA
40	Breeth, Inc.	ABIOMED, Inc.	20 April 2020	Domestic	110 million USD	Biopharmaceuticals	3510	USA
41	TiGenix NV	Takeda Pharmaceutical Co., Ltd.	5 January 2018	Cross-border	60,364.5 million JPY	Biopharmaceuticals	3510	Japan and Belgium
42	Pfizer, Inc.	GlaxoSmithKline Plc.	19 December 2018	Cross-border	15,834.1 million GBP	Biopharmaceuticals	3510	UK and USA
43	Medivation LLC (California)	Pfizer Inc.	22 August 2016	Domestic	13,226.3 million USD	Biopharmaceuticals	3510	USA
44	Alexion Pharmaceutical, Inc.	AstraZeneca PLC	12 December 2020	Cross-border	29,504.7 million GBP	Biopharmaceuticals	3510	USA and UK
45	Schering-Plough Corp.	Merck & Co., Inc.	9 March 2009	Domestic	49,082.4 million USD	Biopharmaceuticals	3510	USA
46	exeMolina Krepost AD	Sopharma AD	25 March 2015	Domestic	720.8 million BGN	Healthcare Services	3515	Bulgaria
47	Medco Health Solutions, Inc.	Express Scripts, Inc.	21 Jul 2011	Domestic	32,902.9 million USD	Healthcare Services	3515	USA
48	Express Scripts Holding Co.	Cigna Holding Co	8 March 2018	Domestic	54147.7 million USD	Healthcare Services	3515	USA
49	Siemens Health Services Corp.	Cerner Corp.	5 August 2014	Cross-border	1,293.1 million USD	Healthcare Services	3515	USA and Germany



50	BTG Plc.	Boston Scientific Corp.	20 November 2018	Cross-border	3,909.4 million USD	Healthcare Equipment	3520	USA and UK
51	Covidien Plc.	Medtronic Inc.,	15 June 2014	Cross-border	46,211.7 million USD	Healthcare Equipment	3520	USA and Ireland
52	Class A & Hunan Tianzong Yijun Biotechnology Co. Ltd	Assure Tech (Hangzhou) Co. Ltd.	12 <sup>th</sup> October 2022	Domestic	20.4 million CNY	Healthcare Equipment	3520	China
53	Utopus Insights, Inc.	Vestas Wind Systems A/S	2 February 2018	Cross-border	602.9 million DKK	Industrial Manufacturing	4010	Denmark and USA
54	Gamesa Corporación Tecnológica SA and Siemens AG /Wind Power Business/	Siemens Gamesa Renewable Energy, S.A	17 June 2016	Cross-border	6,872.1 million EUR	Industrial Manufacturing	4010	Germany and Spain
55	General Electric Co. /Industrial Solutions Div/	ABB Ltd.	25 September 2017	Cross-border	2,519.1 million CHF	Industrial Manufacturing	4010	Switzerland
56	Laudamotion GmbH	Ryanair Holdings Plc	20 March 2018	Cross-border	10 million EUR	Industrial Services	4015	Ireland and Austria
57	Kansas City Southern	Canadian Pacific Railway Ltd.	10 August 202	Cross-border	38916.4 million CAD	Industrial Services	4015	
58	Equans Group	Bouygues SA	6 September 2021	Domestic	7,100.0 million EUR	Industrial Services	4015	France
59	Bayer AG	BASF SE	13 October 2017	Domestic	5,900. million EUR	Chemical, Plastic and Rubber Materials	4510	Germany
60	Koninklijke Dsm NV /Resins & Functional Materials Bus/	Covestro AG	30 September 2020	Cross-border	1,610 million EUR	Chemical, Plastic and Rubber Materials	4510	Germany and Netherlands

61	BASF SE /US Attapulgate Business/	Clariant AG	27 December 2021	Cross-border	55 million CHF	Chemical, Plastic and Rubber Materials	4510	Switzerland and Germany
62	Gabriel Performance Products LLC	Huntsman Corp	7 December 2020	Domestic	250.0 million USD	Chemical, Plastic and Rubber Materials	4510	USA
63	Minas de Aguas Teñidas SA	Sandfire Resources Ltd.	23 September 2021	Cross-border	2,765.2 million AUD	Mining and Mineral Products	4515	Australia and Spain
64	Lafarge SA	Holcim Ltd. (Switzerland)	7 April 2014	Cross-border	19,410.2 million CHF	Mining and Mineral Products	4515	Switzerland and France
65	Italcementi SpA	HeidelbergCement AG	28 July 2015	Cross-border	4,334.8 million EUR	Mining and Mineral Products	4515	Germany and Italy
66	Tanocerian Commercial & Investment SA	Jumbo SA	4 March 2016	Domestic	2.1 million EUR	Food and Staples Retail	5010	Greece
67	Harris Teeter Supermarkets, Inc.	The Kroger Co.	9 July 2013	Domestic	2,449.5 million USD	Food and Staples Retail	5010	USA
68	Sunoco LP	7-Eleven, Inc	6 April 2017	Cross-border	367,530.3 million JPY	Food and Staples Retail	5010	Japan and USA
69	Droga Kolinska dd	Atlantic Grupa dd	19 April 2010	Cross-border	382 million EUR	Food and Tobacco Production	5015	Croatia and Slovenia
70	Cargill Inc.	Bunge Ltd.	5 August 2016	Domestic	322.0 million USD	Food and Tobacco Production	5015	USA
71	SABMiller Plc	Anheuser-Busch InBev SA	16 September 2015	Cross-border	109440.6 million EUR	Food and Tobacco Production	5015	Belgium UK
72	Kraft Foods Group, Inc.	H.J. Heinz Co.	25 March 2015	Domestic	54,809.7 million USD	Food and Tobacco Production	5015	USA

73	NANDA Co., Ltd.	L'Oreal S.A.	2 May 2018	Cross-border	387.5 million EUR	Household Products	5020	France and South Korea
74	Eversys SA	De'Longhi SpA	13 April 2017	Cross-border	19.7 million EUR	Household Products	5020	Italy and Switzerland
75	Mead Johnson Nutrition Co.	Reckitt Benckiser Group Plc.	2 February 2017	Cross-border	14,005.7 million GBP	Household Products	5020	UK and USA
76	VMware, Inc.	Broadcom Inc.	16 May 2022	Domestic	68978 million USD	Electronic Components and Manufacturing	5510	USA
77	Xilinx, Inc.	Advanced Micro Devices, Inc.	27 October 2020	Domestic	34148.8 million USD	Electronic Components and Manufacturing	5510	USA
78	Maxim Integrated Products, Inc.	Analog Devices, Inc.	13 July 2020	Domestic	20,503.6 million USD	Electronic Components and Manufacturing	5510	USA
79	Splunk, Inc.	Cisco Systems, Inc.	21 September 2023	Domestic	28,083.0 million USD	Hardware	5515	USA
80	Tosha Global Commerce Solutions Holdings Corp.	Toshiba Tec Corp.	28 January 2016	Domestic	19,056.9 million JPY	Hardware	5515	Japan
81	SignalFx, Inc.	Splunk, Inc.	21 August 2019	Domestic	960.1 million USD	Software and Consulting	5520	USA
82	Peak Oyun Yazilim ve Pazarlama AS	Zynga, Inc.	1 June 2020	Cross-border	1,989.2 million USD	Software and Consulting	5520	USA and Turkey
83	Zenprise, Inc.	Citrix Systems, Inc.	5 December 2012	Domestic	324.2 million USD	Software and Consulting	5520	USA
84	Social Point SL	Take-Two Interactive Software, Inc.	1 February 2017	Cross-border	280.3 million USD	Software and Consulting	5520	USA and Spain

85	Red Hat, Inc.	International Business Machines Corp.	28 Oct 2018	Domestic	32,585.7 million USD	Software and Consulting	5520	USA
86	Refinitiv US Holdings, Inc.	London Stock Exchange Group plc	26 July 2019	Domestic	21,281.2 million GB	Software and Consulting	5520	UK
87	Altran Technologies SA	Capgemini SE	24 June 2019	Domestic	4,589.8 million EUR	Software and Consulting	5520	France
88	Allegorithmic SAS	Adobe, Inc.	23 January 2019	Domestic	159.7 million USD	Software and Consulting	5520	USA and France
89	LinkedIn Corp.	Microsoft Corp.	13 June 2016	Domestic	24,544.3 million USD	Software and Consulting	5520	USA
90	WhatsApp Inc.	Facebook, Inc.	19 February 2014	Domestic	19,645.2 million USD	Software and Consulting	5520	USA
91	IHS Markit Ltd.	S&P Global, Inc.	20 November 2020	Cross-border	43,831.3 million USD	Software and Consulting	5520	USA and UK
92	Slack Technologies, Inc.	Salesforce.com, Inc.	1 December 2020	Domestic	26,238.5 million USD	Software and Consulting	5520	USA
93	4G Holding SpA	Telecom Italia SpA	16 May 2011	Domestic	8.2 million EUR	Telecommunications	6010	Italy
94	Time Warner Cable, Inc.	CCH I LLC	26 May 2015	Domestic	78209.1 million USD	Telecommunications	6010	USA
95	Sprint Corp.	T-Mobile US, Inc.	29 April 2018	Domestic	70,267.6 million USD	Telecommunications	6010	USA
96	Másmovil Ibercom SA	Orange SA	8 March 2022	Cross-border	7,900.0 million EUR	Telecommunications	6010	France and Spain
97	Fortress Investment Group LLC	Softbank Group Corp.	14 February 2017	Cross-border	357,675.7 million JPY	Telecommunications	6010	Japan and USA

98	SUEZ SA /FR/	Veolia Environnement SA	30 August 2020	Domestic	3,380.8 million EUR	Utilities	6510	France
99	Nordex Se	RWE AG	31 July 2020	Domestic	400.0 million EUR	Utilities	6510	Germany
100	Innogy SE	E.ON SE	11 March 2018	Domestic	15,701.7 million EUR	Utilities	6510	Germany

*Table 1: M&A Deals Information*

*Source: Own creation*

## Appendix 2:

№	Sector & Industry	Code
1	Business Services	1010
2	Hospitality Services	1510
3	Media and Publishing Services	1515
4	Consumer Goods	2010
5	Upstream Energy	2510
6	Downstream and Midstream Energy	2515
7	Integrated Oil and Gas Exploration and Production	2520
8	Banking	3010
9	Insurance	3015
10	Investment Services	3020
11	Real Estate	3025
12	Specialty Finance and Services	3030
13	Biopharmaceuticals	3510
14	Healthcare Services	3515
15	Healthcare Equipment	3520
16	Industrial Manufacturing	4010
17	Industrial Services	4015
18	Chemical, Plastic and Rubber Materials	4510
19	Mining and Mineral Products	4515
20	Food and Staples Retail	5010
21	Food and Tobacco Production	5015
22	Household Products	5020
23	Electronic Components and Manufacturing	5510
24	Hardware	5515
25	Software and Consulting	5520
26	Telecommunications	6010
27	Utilities	6510

Table 2: Industry codes

Source: Own creation

Appendix 3:

№		-2 days	-5 days	+2 days	+5 days	+/-2 days	+/- 5 days	+/-40 days	Returns day 0	Returns day 1
	<b>Business Services</b>									
1	TransUnion	0.99	1.89	0.61	-0.12	4.41	3.49	4.9	11%	-1.43%
2	Equifax, Inc.	-3.29	-2.31	-0.57	-1.11	-1.76	-1.84	0.70	2.43%	-0.42%
	<b>Total:</b>	<b>-1.15</b>	<b>-0.21</b>	<b>0.02</b>	<b>-0.62</b>	<b>1.33</b>	<b>0.83</b>	<b>2.80</b>	<b>6.72%</b>	<b>-0.93%</b>
	<b>Hospitality Services</b>									
3	Endeavor Group Holdings, Inc	1.15	1.64	0.26	-2.88	0.02	-1.43	1.74	-3.56%	-1.03%
4	Hilton Worldwide Holdings, In	-0.06	0.32	0.68	0.67	0.37	0.65	-0.05	-0.07%	0.13%
5	TUI AG	0.2	-0.35	-2.32	-2.05	0.51	-0.37	-2.01	6.68%	-2.83%
	<b>Total:</b>	<b>0.43</b>	<b>0.54</b>	<b>-0.46</b>	<b>-1.42</b>	<b>0.30</b>	<b>-0.38</b>	<b>-0.11</b>	<b>1.02%</b>	<b>-1.24%</b>
	<b>Media and Publishing Services</b>									
6	Fox Corp.	-0.15	-1.64	2.59	0.43	1.57	-0.7	-4.44	0.10%	0.07%
7	Warner Bros. Discovery, Inc.	-1.89	-2.86	-1.46	-1.09	-2.61	-2.99	-8.5	-3.28%	-2.23%
8	The Walt Disney Co.	-0.99	-1.69	-1.76	-3.22	-0.61	-2.55	-9.23	2.18%	-0.61%
	<b>Total:</b>	<b>-1.01</b>	<b>-2.06</b>	<b>-0.21</b>	<b>-1.29</b>	<b>-0.55</b>	<b>-2.08</b>	<b>-7.39</b>	<b>-0.33%</b>	<b>-0.92%</b>
	<b>Consumer Goods</b>									
9	Prada SpA	0.12	0.98	4.18	1.23	2.72	1.49	2.61	0.02%	-0.28%
10	Burberry Group Plc.	-0.63	0.54	0.06	-0.4	-0.58	-0.05	1.45	-0.73%	-0.46%
11	Ralph Lauren Corp.	0.84	0.17	0.18	0.14	1.4	0.72	1.08	2.80%	2.42%
12	Luxottica Group SpA	0.24	0.5	0.75	-1.06	-1.06	2.05	-1.38	4.48%	3.03%
13	Essilor International SA	-1.9	-1.6	-0.12	-1.96	3.41	0.76	-0.24	11.87%	0.92%
	<b>Total:</b>	<b>-0.27</b>	<b>0.12</b>	<b>1.01</b>	<b>-0.41</b>	<b>1.18</b>	<b>0.99</b>	<b>0.70</b>	<b>3.69%</b>	<b>1.13%</b>
	<b>Upstream Energy</b>									
14	ConocoPhillips	-0.46	-0.05	-2.06	-2.11	-2.5	-2.07	-6.28	-3.52%	-0.21%
15	Occidental Petroleum Corp.	0.75	0.47	-0.04	-1.21	0.61	-0.39	1.73	0.55%	0.83%
16	Permian Resources Corp.	6.33	8.83	4.37	7.03	8.58	11.92	30.7	9.11%	9.64%

	<b>Total:</b>	<b>2.21</b>	<b>3.08</b>	<b>0.76</b>	<b>1.24</b>	<b>2.23</b>	<b>3.15</b>	<b>8.72</b>	<b>2.05%</b>	<b>3.42%</b>
	<b>Downstream and Midstream Energy</b>									
17	Enbridge, Inc.	-4.1	-3.45	1.36	-0.94	-1.42	-2.75	-8.03	0.86%	0.86%
18	Turkiye Petrol Rafinerileri AS	-0.58	0.64	1.34	0.37	0.35	0.59	0.07	-0.64%	2.25%
	<b>Total:</b>	<b>-2.34</b>	<b>-1.41</b>	<b>1.35</b>	<b>-0.29</b>	<b>-0.54</b>	<b>-1.08</b>	<b>-3.98</b>	<b>0.11%</b>	<b>1.56%</b>
	<b>Integrated Oil and Gas Exploration and Production</b>									
19	Chevron Corp.	-0.2	-0.03	0.63	0.48	0.13	0.2	0.28	-1.86%	5.83%
20	Exxon Mobil Corp.	-1.44	-0.19	-0.03	0.31	-0.63	0.29	1.99	0.80%	-0.67%
	<b>Total:</b>	<b>-0.82</b>	<b>-0.11</b>	<b>0.3</b>	<b>0.395</b>	<b>-0.25</b>	<b>0.245</b>	<b>1.14</b>	<b>-0.53%</b>	<b>2.58%</b>
	<b>Banking</b>									
21	Societe Generale S.A.	-0.08	0.21	-0.02	-0.08	-0.13	0.04	-1.02	-0.80%	-0.82%
22	Huntington Bancshares, Inc.	-1.71	-3.05	3.13	1.56	-2.27	-3.14	-1.66	-10.04%	4.56%
23	Danske Bank A/S	-0.67	-0.07	-1.05	-0.71	-0.87	-0.38	0.66	0.91%	-1.52%
	<b>Total:</b>	<b>-0.82</b>	<b>-0.97</b>	<b>0.69</b>	<b>0.26</b>	<b>-1.09</b>	<b>-1.16</b>	<b>-0.67</b>	<b>-3.31%</b>	<b>0.74%</b>
	<b>Insurance</b>									
24	Willis Towers Watson Plc	-1.33	-1.41	-0.67	-1.42	-1.53	-2.09	-6.17	-0.85%	-0.54%
25	Precision Castparts Corp.	-1.81	0.77	1.91	0.22	0.15	-0.31	-2.58	0.20%	4.33%
26	Chubb Ltd.	1.3	1.69	3.01	1.98	2.77	2.5	6.66	0.11%	3.23%
	<b>Total:</b>	<b>-0.61</b>	<b>0.35</b>	<b>1.42</b>	<b>0.26</b>	<b>0.46</b>	<b>0.03</b>	<b>-0.70</b>	<b>-0.18%</b>	<b>2.34%</b>
	<b>Investment Services</b>									
27	BlackRock, Inc.	0.14	0.5	0.76	1.27	0.63	1.23	4.44	-0.22%	0.33%
28	Kohlberg Kravis Roberts & Co. LP	-0.15	0.91	-0.95	-0.44	-0.86	0.21	0.89	-0.93%	-0.28%
29	Morgan Stanley	0.07	-0.74	-1.59	0.21	-3.14	-1.83	-2.13	-4.77%	-1.89%
	<b>Total:</b>	<b>0.02</b>	<b>0.22</b>	<b>-0.59</b>	<b>0.35</b>	<b>-1.12</b>	<b>-0.13</b>	<b>1.07</b>	<b>-1.97%</b>	<b>-0.61%</b>
	<b>Real Estate</b>									
30	CBRE Group, Inc.	1.65	2.67	0.01	1.19	1.6	2.98	6.5	1.10%	0.60%
31	Kimco Realty Corporation	0.78	0.96	0.72	1.63	1.5	2.12	5.68	2.10%	-0.77%
32	Prologis, Inc.	0.55	-0.45	-0.62	-0.98	1.04	1.63	-4.72	-2.83%	-0.35%
33	Vonovia SE	0.2	-0.44	0.54	0.54	1.27	0.61	1.12	2.24%	0.40%
	<b>Total:</b>	<b>0.80</b>	<b>0.69</b>	<b>0.16</b>	<b>0.60</b>	<b>1.35</b>	<b>1.84</b>	<b>2.15</b>	<b>0.65%</b>	<b>-0.03%</b>



	<b>Specialty Finance and Services</b>									
34	AerCap Holdings NV	2.95	4.47	3.35	3.66	3.51	5.15	8.69	-3.88%	9.38%
35	Visa Inc.	0.05	1.09	-0.52	-0.27	-0.31	0.54	0.23	-0.05%	-0.12%
36	Afterpay Australia	0.17	-0.16	0.06	0	0.07	-0.16	0.09	-1.47%	1.57%
	<b>Total:</b>	<b>1.06</b>	<b>1.80</b>	<b>0.96</b>	<b>1.13</b>	<b>1.09</b>	<b>1.84</b>	<b>3.00</b>	<b>-1.80%</b>	<b>3.61%</b>
	<b>Biopharmaceuticals</b>									
37	AbbVie, Inc.	-0.23	-1.99	4.49	4.7	-6.63	-4.46	-6.1	-17.62%	3.19%
38	Johnson & Johnson	0.13	-0.07	0.21	-0.45	0.26	-0.32	1.44	0.19%	0.21%
39	Bristol-Myers Squibb Co.	1.67	1.22	1.97	0.61	-1.71	-1.47	4.53	-12.20%	0.73%
40	ABIOMED, Inc.	0.81	0.02	-0.23	-0.97	0.3	-0.68	-0.54	-0.33%	-1.16%
41	Takeda Pharmaceutical Co., Ltd.	-0.19	-0.31	1.22	-1.54	0.8	-1.14	-1.31	0.24%	0.83%
42	GlaxoSmithKline Plc.	0.34	0.22	1.24	0.77	2.28	1.51	1.52	2.88%	0.86%
43	Pfizer Inc.	-1.85	-2.36	-1.46	-1.97	-2.73	-3.35	-10.15	-1.33%	-0.37%
44	AstraZeneca PLC	1.03	0.78	-0.62	-0.66	-1.63	-1.19	-2.1	-5.75%	-2.26%
45	Merck & Co., Inc.	0.22	-0.07	-0.3	1.09	-0.76	0.21	-0.97	-7.02%	-0.30%
	<b>Total:</b>	<b>0.21</b>	<b>-0.28</b>	<b>0.72</b>	<b>0.18</b>	<b>-1.09</b>	<b>-1.21</b>	<b>-1.52</b>	<b>-4.55%</b>	<b>0.19%</b>
	<b>Healthcare Services</b>									
46	Sopharma AD	1.47	1.77	-0.93	-1.95	0.23	-0.2	-4.75	-0.33%	-2.09%
47	Express Scripts, Inc.	-1.06	-0.38	-1.25	-1.68	-1.37	-1.33	2.2	0.23%	-1.01%
48	Cigna Holding Co	2.74	2.7	-1.49	1.93	-4.97	-0.75	12.8	-11.26%	0.12%
49	Cerner Corp.	0.28	0.33	1.48	1.79	1.08	1.41	4.14	-0.09%	3.29%
	<b>Total:</b>	<b>0.86</b>	<b>1.11</b>	<b>-0.55</b>	<b>0.02</b>	<b>-1.26</b>	<b>-0.22</b>	<b>3.60</b>	<b>-2.86%</b>	<b>0.08%</b>
	<b>Healthcare Equipment</b>									
50	Boston Scientific Corp.	-5.27	-6.71	-1.08	-1.41	-6.33	-7.04	-17.47	-4.58%	-0.43%
51	Medtronic Inc.,	-0.9	-1.83	3.22	1.74	0.8	-0.51	-2.33	-1.48%	2.05%
52	Assure Tech (Hangzhou) Co. Ltd.	0.15	0.56	1.77	1.18	1.27	1.21	-0.58	0.31%	1.64%
	<b>Total:</b>	<b>-2.01</b>	<b>-2.66</b>	<b>1.30</b>	<b>0.50</b>	<b>-1.42</b>	<b>-2.11</b>	<b>-6.79</b>	<b>-1.92%</b>	<b>1.09%</b>
	<b>Industrial Manufacturing</b>									
53	Vestas Wind Systems A/S	-0.09	0.03	0.14	0.19	0.06	0.17	-0.11	0.26%	0.15%
54	Siemens Gamesa Renewable Energy, S.A	0.79	0.4	-1.91	-0.52	-0.07	0.35	1.01	3.79%	-3.21%

55	ABB Ltd.	0.65	0.84	-0.02	0.3	0.39	0.77	1.75	-0.01%	-0.48%
	<b>Total:</b>	<b>0.45</b>	<b>0.42</b>	<b>-0.60</b>	<b>-0.01</b>	<b>0.13</b>	<b>0.43</b>	<b>0.88</b>	<b>1.35%</b>	<b>-1.18%</b>
	<b>Industrial Services</b>									
56	Ryanair Holdings Plc	0.96	0.16	-1.37	-1.44	-0.38	-0.94	-2	-0.41%	-1.74%
57	Canadian Pacific Railway Ltd.	-1.76	-2.15	-1.23	-1.75	-2.15	-1.55	-5.82	0.92%	-1.46%
58	Bouygues SA	0.23	0.51	1.77	0.69	0.87	0.54	0.27	-0.97%	0.93%
	<b>Total:</b>	<b>-0.19</b>	<b>-0.49</b>	<b>-0.28</b>	<b>-0.83</b>	<b>-0.55</b>	<b>-0.65</b>	<b>-2.52</b>	<b>-0.15%</b>	<b>-0.76%</b>
	<b>Chemical, Plastic and Rubber Materials</b>									
59	BASF SE	-0.77	-0.51	0.44	1.02	-0.46	0.18	1.35	-0.49%	0.10%
60	Covestro AG	-0.06	0.14	0.92	0.81	-0.85	-0.3	1.17	-6.95%	0.42%
61	Clariant AG	-0.82	-1.42	0.29	0.5	0.21	-0.25	-6.72	1.29%	0.49%
62	Huntsman Corp	-0.03	0.07	2.2	1.29	1.49	0.99	3.06	0.46%	3.30%
	<b>Total:</b>	<b>-0.42</b>	<b>-0.43</b>	<b>0.96</b>	<b>0.91</b>	<b>0.10</b>	<b>0.16</b>	<b>-0.29</b>	<b>-1.42%</b>	<b>1.08%</b>
	<b>Mining and Mineral Products</b>									
63	Sandfire Resources Ltd.	1.62	-0.32	-2.18	-1.24	-0.45	-1.12	0.47	-0.37%	1.05%
64	Holcim Ltd. (Switzerland)	4.04	3.35	-0.97	-3.32	2.56	0.44	-4.02	1.27%	-2.07%
65	HeidelbergCement AG	-1.57	-2.81	0.62	-0.96	0.62	-0.96	-3.06	-0.06%	1.05%
	<b>Total:</b>	<b>1.36</b>	<b>0.07</b>	<b>-0.84</b>	<b>-1.84</b>	<b>0.91</b>	<b>-0.55</b>	<b>-2.20</b>	<b>0.28%</b>	<b>0.01%</b>
	<b>Food and Staples Retail</b>									
66	Jumbo SA	-0.07	2.26	-0.58	-0.38	-1.03	0.86	0.66	-3.37%	-1.89%
67	The Kroger Co.	-0.87	-0.61	-0.9	-1.5	-0.62	-1.08	-7.88	1.12%	-0.49%
68	7-Eleven, Inc	0.82	0.82	1.88	1.29	1.15	1.05	0.17	-1.97%	4.94%
	<b>Total:</b>	<b>-0.04</b>	<b>0.82</b>	<b>0.13</b>	<b>-0.20</b>	<b>-0.17</b>	<b>0.28</b>	<b>-2.35</b>	<b>-1.41%</b>	<b>0.85%</b>
	<b>Food and Tobacco Production</b>									
69	Atlantic Grupa dd	-4.01	-2.7	-5.21	-5.08	-5.55	-5.05	-11.87	0.35%	-3.27%
70	Bunge Ltd.	0.7	-2.14	-1.57	-2.51	-0.35	-3	-9.64	0.43%	-1.46%
71	Anheuser-Busch InBev SA	-0.23	-1.99	4.49	4.7	-6.63	-4.46	-6.1	-17.62%	3.19%
72	H.J. Heinz Co.	-1.44	-2.17	3.39	1.94	14.19	8.59	-4.61	31.12%	0.84%
	<b>Total:</b>	<b>-1.25</b>	<b>-2.25</b>	<b>0.28</b>	<b>-0.24</b>	<b>0.42</b>	<b>-0.98</b>	<b>-8.06</b>	<b>3.57%</b>	<b>-0.18%</b>
	<b>Household Products</b>									

73	L'Oreal S.A.	1.77	0.79	0.67	0.23	0.51	-0.01	1.63	-2.17%	-0.10%
74	De'Longhi SpA	-0.07	0.14	-0.34	-0.78	-0.12	-0.34	-0.93	0.42%	-0.52%
75	Reckitt Benckiser Group Plc.	-0.49	-0.75	-1.74	-0.43	0.23	0.31	-3.53	3.32%	-0.54%
	<b>Total:</b>	<b>0.40</b>	<b>0.06</b>	<b>-0.47</b>	<b>-0.33</b>	<b>0.21</b>	<b>-0.01</b>	<b>-0.94</b>	<b>0.52%</b>	<b>-0.39%</b>
	<b>Electronic Components and Manufacturing</b>									
76	Broadcom Inc.	0.53	1.75	0.74	-1.49	0.84	0.2	2.18	0.13%	1.89%
77	Advanced Micro Devices, Inc.	1.38	0.48	0.57	0.26	0.52	0.01	-2.13	-4.71%	2.18%
78	Analog Devices, Inc.	-0.02	-0.2	-0.19	-0.42	-0.44	-0.63	-0.36	-3.32%	-0.51%
	<b>Total:</b>	<b>0.63</b>	<b>0.68</b>	<b>0.37</b>	<b>-0.55</b>	<b>0.31</b>	<b>-0.14</b>	<b>-0.10</b>	<b>-2.63%</b>	<b>1.19%</b>
	<b>Hardware</b>									
79	Cisco Systems, Inc.	-2.61	-4.05	-2.56	-3.61	-5.39	-6.59	-17.29	-4.68%	-1.34%
80	Toshiba Tec Corp.	-0.54	-0.1	-0.05	-1.51	-0.86	-1.41	1.07	-2.54%	0.32%
	<b>Total:</b>	<b>-1.58</b>	<b>-2.08</b>	<b>-1.31</b>	<b>-2.56</b>	<b>-3.13</b>	<b>-4.00</b>	<b>-8.11</b>	<b>-3.61%</b>	<b>-0.51%</b>
	<b>Software and Consulting</b>									
81	Splunk, Inc.	1.05	0.81	0.01	-1.41	0.91	-0.24	5.02	1%	-6.39%
82	Zynga, Inc.	2.9	1.12	-1.39	-1.52	1.66	0.21	-1.36	4.57%	-1.58%
83	Citrix Systems, Inc.	-1.2	-1.35	0.01	-0.36	-1.46	-1.63	-6.95	-3.56%	-1.45%
84	Take-Two Interactive Software, Inc.	-0.09	-0.38	-0.86	-1.06	-0.46	-0.87	-1.42	0.51%	0.51%
85	International Business Machines Corp.	-2.02	-0.14	-5.39	-2.31	-7.03	-3.23	-2.98	-4.06%	-5.21%
86	London Stock Exchange Group plc	0.68	0.57	-0.81	0.77	-0.85	0.39	1.87	-1.53%	-1.21%
87	Capgemini SE	0.93	1.19	3.64	2.61	3.14	2.73	-0.44	0.60%	8.22%
88	Adobe, Inc.	1.38	1.82	-0.02	0.67	1.26	1.94	6.31	1.99%	-0.56%
89	Microsoft Corp.	0.47	0.35	-0.16	0.24	-0.26	0.09	0.83	-1.47%	-0.38%
90	Meta Platforms (Facebook, Inc.)	1.09	2.68	1.51	2.44	2.79	4.22	10.98	4.71%	3.15%
91	S&P Global, Inc.	0.81	-0.87	-2.23	1.02	-0.8	0.17	-1.54	0.31%	-1.59%
92	Salesforce.com, Inc.	0.29	-0.97	-2.39	-1.2	-1.79	-1.78	-0.69	-2.83%	-9.16%
	<b>Total:</b>	<b>0.52</b>	<b>0.40</b>	<b>-0.67</b>	<b>-0.01</b>	<b>-0.24</b>	<b>0.17</b>	<b>0.80</b>	<b>0.02%</b>	<b>-1.30%</b>
	<b>Telecommunications</b>									
93	Telecom Italia SpA	-1.3	-1.26	-0.36	0.22	-1.14	-0.77	-4.2	-0.30%	-0.81%
94	CCH I LLC	-0.17	-0.54	-1.18	-0.14	0.43	0.41	2.58	4.37%	-2.16%

95	T-Mobile US, Inc.	-1	-0.49	-4.22	-4.26	-5.54	-4.71	-5.8	-6.66%	-3.22%
96	Orange SA	-2.03	-1.52	0.42	0.04	-1.14	-1.08	-0.23	-0.29%	-0.50%
97	Softbank Group Corp.	-1.79	-0.78	0.25	0.28	-0.94	-0.32	0.46	0.15%	0.17%
	<b>Total:</b>	<b>-1.26</b>	<b>-0.92</b>	<b>-1.02</b>	<b>-0.77</b>	<b>-1.67</b>	<b>-1.29</b>	<b>-1.44</b>	<b>-0.55%</b>	<b>-1.30%</b>
	<b>Utilities</b>									
98	Veolia Environnement SA	-0.03	-0.24	-0.63	-0.76	0.85	0.18	-0.83	6.79%	-2.95%
99	RWE AG	0.09	-0.03	-0.08	0.15	0.1	0.14	0.04	0.75%	0.0%
100	E.ON SE	-0.33	0.68	3.53	0.74	4.05	2.32	1.07	4.64%	5.49%
	<b>Total:</b>	<b>-0.09</b>	<b>0.14</b>	<b>0.94</b>	<b>0.04</b>	<b>1.67</b>	<b>0.88</b>	<b>0.09</b>	<b>4.06%</b>	<b>0.85%</b>

Table 3: Event Study Results by industries

Source: Own creation

#### Appendix 4:

<b>№</b>	<b>Index</b>	<b>Country</b>
1	S&PTX Composite	Canada
2	CROBEX	Croatia
3	CAC 40	France
4	ASX	Australia
5	DAX	Germany
6	Euronext 100	Europe countries
7	FTSE 100	UK
8	FTSE Greece	Greece
9	FTSE MIB	Italy
10	IBEX 35	Spain
11	JSX	Indonesia
12	Nikkei 225	Japan
13	NASDAQ, S&P 500, NYSE	USA
14	OMX	Copenhagen
15	SOFIX	Bulgaria
16	SSE	China
17	SMI	Switzerland
18	BIST	Turkey

*Table 4: Index Information and Country*

*Source: Own creation*

## Appendix 5:

No	...	Industry	Type M&A	Country	CAR	t-test
<db1>	<chr>	<db1>	<chr>	<chr>	<db1>	<db1>
1	1	TransUnion	1010 CB	US	0.638	4.90
2	2	Equifax, Inc.	1010 D	US	0.0991	0.698
3	3	Endeavor Group Holdings, Inc	1510 D	US	0.287	1.74
4	4	Hilton Worldwide Holdings, In	1510 D	US	-0.00530	-0.0517
5	5	TUI AG	1510 CB	Germany	-0.292	-2.01
6	6	Fox Corp.	1515 D	US	-0.544	-4.44
7	7	Warner Bros. Discovery, Inc.	1515 D	US	-2.29	-8.50
8	8	The Walt Disney Co.	1515 D	US	-0.715	-9.23
9	9	Prada SpA	2010 D	Italy	0.421	2.61
10	10	Burberry Group Plc.	2010 CB	UK	0.198	1.45
11	11	Ralph Lauren Corp.	2010 CB	US	0.161	1.08
12	12	Luxottica Group SpA	2010 CB	Italy	-0.175	-1.38
13	13	Essilor International SA	2010 CB	France	-0.0242	-0.237
14	14	ConocoPhillips	2510 CB	US	-0.987	-6.28
15	15	Occidental Petroleum Corp.	2510 D	US	0.234	1.73
16	16	Permian Resources Corp.	2510 D	US	6.18	30.7
17	17	Enbridge, Inc.	2515 D	Canada	-0.883	-8.04
18	18	Turkiye Petrol Rafinerileri AS	2515 D	Turkey	0.0144	0.0723
19	19	Chevron Corp.	2520 D	US	-0.141	-0.281
20	20	Exxon Mobil Corp.	2520 CB	US	0.216	1.99
21	21	Societe Generale S.A.	3010 D	France	-0.476	-1.02
22	22	Huntington Bancshares, Inc.	3010 D	US	-0.211	-1.66
23	23	Danske Bank A/S	3010 D	Denmark	0.111	0.662
24	24	Willis Towers Watson Plc	3015 CB	UK	-0.790	-6.17
25	25	Precision Castparts Corp.	3015 D	US	-0.256	-2.58
26	26	Chubb Ltd.	3015 CB	Switze...	0.682	6.66
27	27	BlackRock, Inc.	3020 CB	US	0.642	4.44
28	28	Kohlberg Kravis Roberts & Co. LP	3020 D	US	0.216	0.893
29	29	Morgan Stanley	3020 D	US	-0.188	-2.13
30	30	CBRE Group, Inc.	3025 CB	US	0.524	6.50
31	31	Kimco Realty Corporation	3025 D	US	0.867	5.68
32	32	Prologis, Inc.	3025 D	US	-0.544	-4.72
33	33	Vonovia SE	3025 D	Germany	0.125	1.12
34	34	AerCap Holdings NV	3030 D	Ireland	2.83	8.69
35	35	Visa Inc.	3030 CB	US	0.0266	0.235
36	36	Afterpay Australia	3030 CB	US	0.0749	0.0942
37	37	AbbVie, Inc.	3510 CB	US	-0.464	-6.10
38	38	Johnson & Johnson	3510 D	US	-0.256	-1.44
39	39	Bristol-Myers Squibb Co.	3510 D	US	0.555	4.53
40	40	ABIOMED, Inc.	3510 D	US	-0.105	-0.535
41	41	Takeda Pharmaceutical Co., Ltd.	3510 CB	Japan	-0.0840	-1.31
42	42	GlaxoSmithKline Plc.	3510 CB	UK	0.138	1.52
43	43	Pfizer Inc.	3510 D	US	-0.850	-10.1
44	44	AstraZeneca PLC	3510 CB	US	-0.256	-2.10
45	45	Merck & Co., Inc.	3510 D	US	-0.386	-0.967
46	46	Sopharma AD	3515 D	Bulgar...	-0.550	-4.75
47	47	Express Scripts, Inc.	3515 D	US	-0.234	-2.20
48	48	Cigna Holding Co	3515 D	US	1.01	12.8
49	49	Cerner Corp.	3515 CB	US	0.485	4.14
50	50	Boston Scientific Corp.	3520 CB	US	-1.39	-17.5
51	51	Medtronic Inc.,	3520 CB	US	-0.208	-2.33
52	52	Assure Tech (Hangzhou) Co. Ltd.	3520 D	China	-0.133	-0.576
53	53	Vestas Wind Systems A/S	4010 CB	Denmark	-0.0368	-0.111
54	54	Siemens Gamesa Renewable Energy,...	4010 CB	Germany	0.243	1.01
55	55	ABB Ltd.	4010 CB	Switze...	0.130	1.75
56	56	Ryanair Holdings Plc	4015 CB	Ireland	-0.275	-2.00
57	57	Canadian Pacific Railway Ltd.	4015 CB	Canada	-0.638	-5.82
58	58	Bouygues SA	4015 D	France	0.0264	0.267
59	59	BASF SE	4510 D	Germany	0.106	1.35
60	60	Covestro AG	4510 CB	Germany	0.236	1.17
61	61	Clariant AG	4510 CB	Switze...	-0.641	-6.72
62	62	Huntsman Corp	4510 D	US	0.469	3.06
63	63	Sandfire Resources Ltd.	4515 CB	Austra...	0.0716	0.473
64	64	Holcim Ltd. (Switzerland)	4515 CB	Switze...	-0.336	-4.02

65	65 HeidelbergCement AG	4515 CB	Germany	-0.484	-3.06
66	66 Jumbo SA	5010 D	Greece	0.146	0.664
67	67 The Kroger Co.	5010 D	US	-0.715	-7.88
68	68 7-Eleven, Inc	5010 CB	Japan	0.0240	0.167
69	69 Atlantic Grupa dd	5015 CB	Croatia	0.297	5.16
70	70 Bunge Ltd.	5015 D	US	-0.800	-9.64
71	71 Anheuser-Busch InBev SA	5015 CB	Belgium	-0.188	-1.48
72	72 H.J. Heinz Co.	5015 D	US	-0.445	-4.61
73	73 L'Oreal S.A.	5020 CB	France	-0.137	-1.63
74	74 De'Longhi SpA	5020 CB	Italy	-0.114	-0.931
75	75 Reckitt Benckiser Group Plc.	5020 CB	UK	-0.287	-3.53
76	76 Broadcom Inc.	5510 D	US	0.353	2.58
77	77 Advanced Micro Devices, Inc.	5510 D	US	-0.567	-2.13
78	78 Analog Devices, Inc.	5510 D	US	-0.156	-0.361
79	79 Cisco Systems, Inc.	5515 D	US	-1.54	-17.3
80	80 Toshiba Tec Corp.	5515 D	Japan	0.227	1.07
81	81 Splunk, Inc.	5520 D	US	0.830	5.02
82	82 Zynga, Inc.	5520 CB	US	-0.349	-1.35
83	83 Citrix Systems, Inc.	5520 D	US	-1.42	-6.95
84	84 Take-Two Interactive Software, I...	5520 CB	US	-0.202	-1.42
85	85 International Business Machines ...	5520 D	US	-0.208	-2.98
86	86 London Stock Exchange Group plc	5520 D	UK	0.151	1.87
87	87 Capgemini SE	5520 D	France	-0.0432	-0.435
88	88 Adobe, Inc.	5520 D	US	1.28	6.31
89	89 Microsoft Corp.	5520 D	US	0.107	0.826
90	90 Meta Platforms (Facebook, Inc.)	5520 D	US	1.82	11.0
91	91 S&P Global, Inc.	5520 CB	US	-0.188	-1.54
92	92 Salesforce.com, Inc.	5520 D	US	-0.170	-0.693
93	93 Telecom Italia SpA	6010 D	Italy	-0.533	-4.20
94	94 CCH I LLC	6010 D	US	0.353	2.58
95	95 T-Mobile US, Inc.	6010 D	US	-0.692	-5.80
96	96 Orange SA	6010 CB	France	-0.0211	-0.225
97	97 Softbank Group Corp.	6010 CB	Japan	0.0780	0.458
98	98 Veolia Environnement SA	6510 D	France	-0.178	-0.826
99	99 RWE AG	6510 D	Germany	0.0136	0.0413
100	100 E.ON SE	6510 D	Germany	0.0983	1.07

Figure 5 CAR and T-statistics Summary.

Source: Own creation in R

## Appendix 6:

№		Industry	Type M&A	Country	Two days before	Five days before	Two days after	Five days after	+/-2 days	+/- 5 days	+/-40 days	Returns event day	Returns day one
1	TransUnion	1010	CB	US	0.99	1.89	0.61	-0.12	4.41	3.49	4.9	11%	-1.43%
2	Equifax, Inc.	1010	D	US	-3.29	-2.31	-0.57	-1.11	-1.76	-1.84	0.70	2.43%	-0.42%
3	Endeavor Group Holdings, Inc	1510	D	US	1.15	1.64	0.26	-2.88	0.02	-1.43	1.74	-3.56%	-1.03%
4	Hilton Worldwide Holdings, In	1510	D	US	-0.06	0.32	0.68	0.67	0.37	0.65	-0.05	-0.07%	0.13%
5	TUI AG	1510	CB	Germany	0.2	-0.35	-2.32	-2.05	0.51	-0.37	-2.01	6.68%	-2.83%
6	Fox Corp.	1515	D	US	-0.15	-1.64	2.59	0.43	1.57	-0.7	-4.44	0.10%	0.07%
7	Warner Bros. Discovery, Inc.	1515	D	US	-1.89	-2.86	-1.46	-1.09	-2.61	-2.99	-8.5	-3.28%	-2.23%
8	The Walt Disney Co.	1515	D	US	-0.99	-1.69	-1.76	-3.22	-0.61	-2.55	-9.23	2.18%	-0.61%
9	Prada SpA	2010	D	Italy	0.12	0.98	4.18	1.23	2.72	1.49	2.61	0.02%	-0.28%
10	Burberry Group Plc.	2010	CB	UK	-0.63	0.54	0.06	-0.4	-0.58	-0.05	1.45	-0.73%	-0.46%
11	Ralph Lauren Corp.	2010	CB	US	0.84	0.17	0.18	0.14	1.4	0.72	1.08	2.80%	2.42%
12	Luxottica Group SpA	2010	CB	Italy	0.24	0.5	0.75	-1.06	-1.06	2.05	-1.38	4.48%	3.03%
13	Essilor International SA	2010	CB	France	-1.9	-1.6	-0.12	-1.96	3.41	0.76	-0.24	11.87%	0.92%
14	ConocoPhillips	2510	CB	US	-0.46	-0.05	-2.06	-2.11	-2.5	-2.07	-6.28	-3.52%	-0.21%
15	Occidental Petroleum Corp.	2510	D	US	0.75	0.47	-0.04	-1.21	0.61	-0.39	1.73	0.55%	0.83%
16	Permian Resources Corp.	2510	D	US	6.33	8.83	4.37	7.03	8.58	11.92	30.7	9.11%	9.64%
17	Enbridge, Inc.	2515	D	Canada	-4.1	-3.45	1.36	-0.94	-1.42	-2.75	-8.03	0.86%	0.86%
18	Turkiye Petrol Rafinerileri AS	2515	D	Turkey	-0.58	0.64	1.34	0.37	0.35	0.59	0.07	-0.64%	2.25%
19	Chevron Corp.	2520	D	US	-0.2	-0.03	0.63	0.48	0.13	0.2	0.28	-1.86%	5.83%
20	Exxon Mobil Corp.	2520	CB	US	-1.44	-0.19	-0.03	0.31	-0.63	0.29	1.99	0.80%	-0.67%
21	Societe Generale S.A.	3010	D	France	-0.08	0.21	-0.02	-0.08	-0.13	0.04	-1.02	-0.80%	-0.82%
22	Huntington Bancshares, Inc.	3010	D	US	-1.71	-3.05	3.13	1.56	-2.27	-3.14	-1.66	-10.04%	4.56%
23	Danske Bank A/S	3010	D	Denmark	-0.67	-0.07	-1.05	-0.71	-0.87	-0.38	0.66	0.91%	-1.52%
24	Willis Towers Watson Plc	3015	CB	UK	-1.33	-1.41	-0.67	-1.42	-1.53	-2.09	-6.17	-0.85%	-0.54%
25	Precision Castparts Corp.	3015	D	US	-1.81	0.77	1.91	0.22	0.15	-0.31	-2.58	0.20%	4.33%
26	Chubb Ltd.	3015	CB	Switzerland	1.3	1.69	3.01	1.98	2.77	2.5	6.66	0.11%	3.23%
27	BlackRock, Inc.	3020	CB	US	0.14	0.5	0.76	1.27	0.63	1.23	4.44	-0.22%	0.33%



28	Kohlberg Kravis Roberts & Co. LP	3020	D	US	-0.15	0.91	-0.95	-0.44	-0.86	0.21	0.89	-0.93%	-0.28%
29	Morgan Stanley	3020	D	US	0.07	-0.74	-1.59	0.21	-3.14	-1.83	-2.13	-4.77%	-1.89%
30	CBRE Group, Inc.	3025	CB	US	1.65	2.67	0.01	1.19	1.6	2.98	6.5	1.10%	0.60%
31	Kimco Realty Corporation	3025	D	US	0.78	0.96	0.72	1.63	1.5	2.12	5.68	2.10%	-0.77%
32	Prologis, Inc.	3025	D	US	0.55	-0.45	-0.62	-0.98	1.04	1.63	-4.72	-2.83%	-0.35%
33	Vonovia SE	3025	D	Germany	0.2	-0.44	0.54	0.54	1.27	0.61	1.12	2.24%	0.40%
34	AerCap Holdings NV	3030	D	Ireland	2.95	4.47	3.35	3.66	3.51	5.15	8.69	-3.88%	9.38%
35	Visa Inc.	3030	CB	US	0.05	1.09	-0.52	-0.27	-0.31	0.54	0.23	-0.05%	-0.12%
36	Afterpay Australia	3030	CB	US	0.17	-0.16	0.06	0	0.07	-0.16	0.09	-1.47%	1.57%
37	AbbVie, Inc.	3510	CB	US	-0.23	-1.99	4.49	4.7	-6.63	-4.46	-6.1	-17.62%	3.19%
38	Johnson & Johnson	3510	D	US	0.13	-0.07	0.21	-0.45	0.26	-0.32	1.44	0.19%	0.21%
39	Bristol-Myers Squibb Co.	3510	D	US	1.67	1.22	1.97	0.61	-1.71	-1.47	4.53	-12.20%	0.73%
40	ABIOMED, Inc.	3510	D	US	0.81	0.02	-0.23	-0.97	0.3	-0.68	-0.54	-0.33%	-1.16%
41	Takeda Pharmaceutical Co., Ltd.	3510	CB	Japan	-0.19	-0.31	1.22	-1.54	0.8	-1.14	-1.31	0.24%	0.83%
42	GlaxoSmithKline Plc.	3510	CB	UK	0.34	0.22	1.24	0.77	2.28	1.51	1.52	2.88%	0.86%
43	Pfizer Inc.	3510	D	US	-1.85	-2.36	-1.46	-1.97	-2.73	-3.35	-10.15	-1.33%	-0.37%
44	AstraZeneca PLC	3510	CB	US	1.03	0.78	-0.62	-0.66	-1.63	-1.19	-2.1	-5.75%	-2.26%
45	Merck & Co., Inc.	3510	D	US	0.22	-0.07	-0.3	1.09	-0.76	0.21	-0.97	-7.02%	-0.30%
46	Sopharma AD	3515	D	Bulgaria	1.47	1.77	-0.93	-1.95	0.23	-0.2	-4.75	-0.33%	-2.09%
47	Express Scripts, Inc.	3515	D	US	-1.06	-0.38	-1.25	-1.68	-1.37	-1.33	2.2	0.23%	-1.01%
48	Cigna Holding Co	3515	D	US	2.74	2.7	-1.49	1.93	-4.97	-0.75	12.8	-11.26%	0.12%
49	Cerner Corp.	3515	CB	US	0.28	0.33	1.48	1.79	1.08	1.41	4.14	-0.09%	3.29%
50	Boston Scientific Corp.	3520	CB	US	-5.27	-6.71	-1.08	-1.41	-6.33	-7.04	-17.47	-4.58%	-0.43%
51	Medtronic Inc.,	3520	CB	US	-0.9	-1.83	3.22	1.74	0.8	-0.51	-2.33	-1.48%	2.05%
52	Assure Tech (Hangzhou) Co. Ltd.	3520	D	China	0.15	0.56	1.77	1.18	1.27	-1.21	-0.58	0.31%	1.64%
53	Vestas Wind Systems A/S	4010	CB	Denmark	-0.09	0.03	0.14	0.19	0.06	0.17	-0.11	0.26%	0.15%
54	Siemens Gamesa Renewable Energy, S.A	4010	CB	Germany	0.79	0.4	-1.91	-0.52	-0.07	0.35	1.01	3.79%	-3.21%
55	ABB Ltd.	4010	CB	Switzerland	0.65	0.84	-0.02	0.3	0.39	0.77	1.75	-0.01%	-0.48%
56	Ryanair Holdings Plc	4015	CB	Ireland	0.96	0.16	-1.37	-1.44	-0.38	-0.94	-2	-0.41%	-1.74%
57	Canadian Pacific Railway Ltd.	4015	CB	Canada	-1.76	-2.15	-1.23	-1.75	-2.15	-1.55	-5.82	0.92%	-1.46%
58	Bouygues SA	4015	D	France	0.23	0.51	1.77	0.69	0.87	0.54	0.27	-0.97%	0.93%

59	BASF SE	4510	D	Germany	-0.77	-0.51	0.44	1.02	-0.46	0.18	1.35	-0.49%	0.10%
60	Covestro AG	4510	CB	Germany	-0.06	0.14	0.92	0.81	-0.85	-0.3	1.17	-6.95%	0.42%
61	Clariant AG	4510	CB	Switzerland	-0.82	-1.42	0.29	0.5	0.21	-0.25	-6.72	1.29%	0.49%
62	Huntsman Corp	4510	D	US	-0.03	0.07	2.2	1.29	1.49	0.99	3.06	0.46%	3.30%
63	Sandfire Resources Ltd.	4515	CB	Australia	1.62	-0.32	-2.18	-1.24	-0.45	-1.12	0.47	-0.37%	1.05%
64	Holcim Ltd. (Switzerland)	4515	CB	Switzerland	4.04	3.35	-0.97	-3.32	2.56	0.44	-4.02	1.27%	-2.07%
65	HeidelbergCement AG	4515	CB	Germany	-1.57	-2.81	0.62	-0.96	0.62	-0.96	-3.06	-0.06%	1.05%
66	Jumbo SA	5010	D	Greece	-0.07	2.26	-0.58	-0.38	-1.03	0.86	0.66	-3.37%	-1.89%
67	The Kroger Co.	5010	D	US	-0.87	-0.61	-0.9	-1.5	-0.62	-1.08	-7.88	1.12%	-0.49%
68	7-Eleven, Inc	5010	CB	Japan	0.82	0.82	1.88	1.29	1.15	1.05	0.17	-1.97%	4.94%
69	Atlantic Grupa dd	5015	CB	Croatia	-4.01	-2.7	-5.21	-5.08	-5.55	-5.05	-11.87	0.35%	-3.27%
70	Bunge Ltd.	5015	D	US	0.7	-2.14	-1.57	-2.51	-0.35	-3	-9.64	0.43%	-1.46%
71	Anheuser-Busch InBev SA	5015	CB	Belgium	-0.23	-1.99	4.49	4.7	-6.63	-4.46	-6.1	-17.63%	3.19%
72	H.J. Heinz Co.	5015	D	US	-1.44	-2.17	3.39	1.94	14.19	8.59	-4.61	31.12%	0.84%
73	L'Oreal S.A.	5020	CB	France	1.77	0.79	0.67	0.23	0.51	-0.01	1.63	-2.17%	-0.10%
74	De'Longhi SpA	5020	CB	Italy	-0.07	0.14	-0.34	-0.78	-0.12	-0.34	-0.93	0.42%	-0.52%
75	Reckitt Benckiser Group Plc.	5020	CB	UK	-0.49	-0.75	-1.74	-0.43	0.23	0.31	-3.53	3.32%	-0.54%
76	Broadcom Inc.	5510	D	US	0.53	1.75	0.74	-1.49	0.84	0.2	2.18	0.13%	1.89%
77	Advanced Micro Devices, Inc.	5510	D	US	1.38	0.48	0.57	0.26	0.52	0.01	-2.13	-4.71%	2.18%
78	Analog Devices, Inc.	5510	D	US	-0.02	-0.2	-0.19	-0.42	-0.44	-0.63	-0.36	-3.32%	-0.51%
79	Cisco Systems, Inc.	5515	D	US	-2.61	-4.05	-2.56	-3.61	-5.39	-6.59	-17.29	-4.68%	-1.34%
80	Toshiba Tec Corp.	5515	D	Japan	-0.54	-0.1	-0.05	-1.51	-0.86	-1.41	1.07	-2.54%	0.32%
81	Splunk, Inc.	5520	D	US	1.05	0.81	0.01	-1.41	0.91	-0.24	5.02	1%	-6.39%
82	Zynga, Inc.	5520	CB	US	2.9	1.12	-1.39	-1.52	1.66	0.21	-1.36	4.57%	-1.58%
83	Citrix Systems, Inc.	5520	D	US	-1.2	-1.35	0.01	-0.36	-1.46	-1.63	-6.95	-3.56%	-1.45%
84	Take-Two Interactive Software, Inc.	5520	CB	US	-0.09	-0.38	-0.86	-1.06	-0.46	-0.87	-1.42	0.51%	0.51%
85	International Business Machines Corp.	5520	D	US	-2.02	-0.14	-5.39	-2.31	-7.03	-3.23	-2.98	-4.06%	-5.21%
86	London Stock Exchange Group plc	5520	D	UK	0.68	0.57	-0.81	0.77	-0.85	0.39	1.87	-1.53%	-1.21%
87	Capgemini SE	5520	D	France	0.93	1.19	3.64	2.61	3.14	2.73	-0.44	0.60%	8.22%
88	Adobe, Inc.	5520	D	US	1.38	1.82	-0.02	0.67	1.26	1.94	6.31	1.99%	-0.56%
89	Microsoft Corp.	5520	D	US	0.47	0.35	-0.16	0.24	-0.26	0.09	0.83	-1.47%	-0.38%

90	Meta Platforms (Facebook, Inc.)	5520	D	US	1.09	2.68	1.51	2.44	2.79	4.22	10.98	4.71%	3.15%
91	S&P Global, Inc.	5520	CB	US	0.81	-0.87	-2.23	1.02	-0.8	0.17	-1.54	0.31%	-1.59%
92	Salesforce.com, Inc.	5520	D	US	0.29	-0.97	-2.39	-1.2	-1.79	-1.78	-0.69	-2.83%	-9.16%
93	Telecom Italia SpA	6010	D	Italy	-1.3	-1.26	-0.36	0.22	-1.14	-0.77	-4.2	-0.30%	-0.81%
94	CCH I LLC	6010	D	US	-0.17	-0.54	-1.18	-0.14	0.43	0.41	2.58	4.37%	-2.16%
95	T-Mobile US, Inc.	6010	D	US	-1	-0.49	-4.22	-4.26	-5.54	-4.71	-5.8	-6.66%	-3.22%
96	Orange SA	6010	CB	France	-2.03	-1.52	0.42	0.04	-1.14	-1.08	-0.23	-0.29%	-0.50%
97	Softbank Group Corp.	6010	CB	Japan	-1.79	-0.78	0.25	0.28	-0.94	-0.32	0.46	0.15%	0.17%
98	Veolia Environnement SA	6510	D	France	-0.03	-0.24	-0.63	-0.76	0.85	0.18	-0.83	6.79%	-2.95%
99	RWE AG	6510	D	Germany	0.09	-0.03	-0.08	0.15	0.1	0.14	0.04	0.75%	0.0%
100	E.ON SE	6510	D	Germany	-0.33	0.68	3.53	0.74	4.05	2.32	1.07	4.64%	5.49%

Table 4: Even Study results summary

Source: Own creation

Appendix 7:

Industry	Period	Current ratio	Cash ratio	ROE	ROA	Net Profit Margin	Debt-to-Equity	Eps
	-5	1.31	0.49	8.87	2.86	7.55	2.30	1.44
1010	M&A announcement year	1.01	0.24	18.7	5.89	13.55	2.31	3.73
	5	1.43	0.57	10.39	3.37	8.87	1.86	2.29
	-5	0.95	0.46	5.77	0.74	1.87	6.21	0.96
1015	M&A announcement year	0.86	0.34	16.98	2.94	5.62	4.51	2.05
	5	0.86	0.34	17.69	3.28	5.06	4.8	2.15
	-5	1.81	0.79	14.51	5.79	12.45	1.48	2.22
1515	M&A announcement year	1.82	0.8	4.14	3.53	2.85	1.31	1.48
	5	1.78	1.01	9.12	3.85	7.28	1.12	2.97
	-5	1.76	0.69	19.02	10.26	10.9	0.87	2.02
2010	M&A announcement year	1.92	0.9	16.68	9.14	10.22	0.97	2.49
	5	1.97	0.98	13.76	7.59	8.6	0.9	2.65
	-5	1.27	0.51	1.5	0.36	-5.87	0.91	0.19
2510	M&A announcement year	1.03	0.27	9.79	4.58	9.8	1.37	2.03
	5	1.18	0.41	13.74	6.73	6.49	1.61	3.54
	-5	0.97	0.25	15.05	5.25	3.57	2.34	0.73
2515	M&A announcement year	0.86	0.21	18.11	5.41	4.63	1.97	1.15
	5	0.78	0.26	18.78	5.5	7.92	2.19	1.72
	-5	0.97	0.18	8.36	4.93	5.76	0.81	4.17
2520	M&A announcement year	1.01	0.16	7.5	1.84	0.79	0.79	1.92
	5	1.19	0.27	13.26	7.36	7.72	0.81	7.93
	-5	1.11	0.18	10.48	0.58	15.1	16.67	5.83
3010	M&A announcement year	1.16	0.23	7.7	0.44	16.59	15.48	6.59
	5	1.08	0.23	6.61	0.51	19.05	14.31	3.51
	-5	1.41	0.3	13.24	6.17	11.57	0.5	6.56
3015	M&A announcement year	1.82	0.41	12.74	6.42	16.79	0.37	11.9
	5	2.01	0.19	12.35	5.29	17.6	0.5	11.75
	-5	1.5	0.28	12.07	2.62	25.1	5.63	9.51
3020	M&A announcement year	1.74	0.3	13.94	3.36	32.17	4.42	12.76

	5	1.85	0.32	14.06	2.51	21.15	5.96	17.06
	-5	1.29	0.71	12.65	5.05	38.41	0.95	2.27
3025	M&A announcement year	1.45	0.69	12.82	5.78	41.91	0.91	2.93
	5	1.18	0.63	9.4	4.4	23.88	0.75	1.82
	-5	1.33	1.15	14.05	6.37	30.63	2.48	3.82
3030	M&A announcement year	1.49	0.85	16.24	7.32	35.98	2.35	6.1
	5	1.50	1.04	25.05	11.75	40.80	1.60	4.63
	-5	1.76	0.94	34.36	7.25	15.33	3.24	2.27
3510	M&A announcement year	1.79	0.95	29.96	7.24	15.55	2.83	2.26
	5	1.78	0.93	29.56	7.96	15.32	2.90	2.21
	-5	1.40	0.35	10.24	9.03	5.34	1.48	4.86
3515	M&A announcement year	1.48	0.46	10.41	9.86	5.77	1.53	5.54
	5	1.62	0.51	11.26	10.21	6.92	1.40	5.15
	-5	2.16	0.94	13.30	11.10	15.80	1.01	1.50
3520	M&A announcement year	2.49	1.19	25.19	16.00	20.99	0.82	1.94
	5	2.86	1.36	24.30	15.70	21.52	0.79	1.89
	-5	1.20	0.49	6.60	2.39	2.08	2.63	1.05
4010	M&A announcement year	1.21	0.52	3.67	1.54	1.35	2.69	0.43
	5	1.22	0.60	4.91	2.00	2.19	2.54	0.48
	-5	0.98	0.60	19.01	6.19	14.13	1.83	1.97
4015	M&A announcement year	0.82	0.34	16.80	5.30	13.06	1.85	2.33
	5	0.81	0.29	15.25	4.65	11.66	1.86	2.41
	-5	1.65	0.31	12.99	5.11	5.06	1.78	4.48
4510	M&A announcement year	1.61	0.33	13.28	4.97	4.88	1.89	4.84
	5	1.54	0.32	13.91	4.96	4.84	1.95	5.76
	-5	1.79	1.10	7.80	5.22	7.35	1.02	1.43
4515	M&A announcement year	1.24	0.60	5.36	3.13	5.23	1.27	1.72
	5	1.06	0.42	6.39	3.03	4.95	1.37	2.75
	-5	2.51	1.33	17.13	7.07	9.67	3.26	0.91
5010	M&A announcement year	2.16	1.11	16.92	5.99	7.28	4.24	0.92
	5	1.75	0.85	15.19	5.25	5.95	5.06	0.74

	-5	1.32	0.29	11.59	3.76	6.61	1.89	2.65
5015	M&A announcement year	1.28	0.30	11.29	3.62	7.11	1.90	2.68
	5	1.22	0.30	10.11	3.30	6.67	1.76	2.49
	-5	1.38	0.47	17.84	9.40	12.18	0.91	4.01
5020	M&A announcement year	1.39	0.50	19.25	9.20	12.74	1.05	3.54
	5	1.26	0.44	17.01	7.80	11.03	1.29	2.86
	-5	2.61	1.46	21.24	11.20	15.88	1.17	6.65
5510	M&A announcement year	2.38	1.25	21.43	8.18	13.99	1.03	4.86
	5	2.28	1.11	18.59	6.70	14.31	0.86	3.76
	-5	1.61	0.69	14.82	5.89	10.63	1.37	1.64
5515	M&A announcement year	1.52	0.31	-6.45	-1.60	1.14	1.59	-1.17
	5	1.42	0.40	12.17	3.33	12.17	2.26	1.57
	-5	1.80	1.11	20.58	4.40	7.45	3.51	2.41
5520	M&A announcement year	2.45	1.67	33.89	7.53	11.82	2.85	3.00
	5	2.39	1.62	33.33	7.51	11.98	2.78	3.03
	-5	0.85	0.34	9.58	2.15	5.92	4.37	2.90
6010	M&A announcement year	0.84	0.33	8.27	1.93	4.51	4.31	2.70
	5	0.85	0.34	9.58	2.15	5.92	4.37	2.90
	-5	1.09	0.29	-2.46	0.52	1.02	5.03	0.39
6510	M&A announcement year	1.11	0.27	-4.01	0.40	0.89	5.68	0.32
	5	1.112	0.262	-0.321	0.604	1.160	5.961	0.42

Table 5 Ratio analysis  
Source: Own creation

## Appendix 7:

M&A	Mergers and Acquisitions
ESR	Expected Stock Return
CAPM	Capital Asset Pricing Model
AR	Abnormal Returns
D	Domestic
CB	Cross-Border
ESG	Environmental, Social and Governance

*Table 6 Abbreviations*

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<https://permianres.com/permian-resources-announces-strong-fourth-quarter-2023-results-and-provides-highly-capital-efficient-full-year-2024-plan/>

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