POLITECNICO DI TORINO

Corso di Laurea Magistrale in Engineering and Management

Anno accademico 2022/2023

Sessione di laurea Aprile 2024

Assessing Value Creation in Italian M&A Transactions: A Regression Analysis and Event Study Approach

Relatore:
Prof. Enrico Luciano

Candidato:
Leonardo Zorza

Correlatore:
Prof. Francesco Luigi Milone

ABSTRACT

Merger and Acquisition (M&A) play a crucial role in reshaping the corporate environment and driving strategic growth across various industries. In recent decades, M&A activity has become increasingly prevalent, with companies leveraging these transactions to achieve synergies, expand market presence, achieve long-term growth objectives and enhance shareholder value.
Despite the potential strategic benefits and value creation opportunities associated with M&A transactions, they are not without challenges and risks and it is common to see examples of M&A deals leading to a loss of value for shareholders. Understanding the dynamics, drivers, and outcomes of M&A transactions is therefore essential for stakeholders, including investors, managers, policymakers, and academics.

This master's thesis aims to analyse the value creation potential of M&A transactions within the peculiar context of the Italian market, characterized by the preference of companies for the debt market and the presence of small-sized transactions mostly focused on the mid-market.

The First Chapter of this thesis introduces the concept of M&A, explaining the possible objectives, the different elements impacting deal structure and the phases that characterize an M&A transaction, as well as providing a global and Italian overview of the M&A phenomenon and trends.

Chapter 2 presents a review of the academic literature that has examined the topic of M&A and in particular their ability to create value, providing ideas to better understand these phenomena and create the models necessary to test the hypotheses of this research.

Chapter 3 describes the construction of the sample and of the control group (the Group of Peers). The sample includes deals carried out in Italy between 2015 and 2018 for a total of 92 companies and 46 M&A transactions, divided into 27 Acquisitions and 19 Mergers.
Both treated companies and peers were observed over a time horizon of a decade, from 2012 to 2022, and financial data was extracted from the database AIDA.

Chapter 4 is the most important and substantial of the entire research. It includes the description of the research questions and variables, the definition of the statistical methods applied and the interpretation of the results.
The study provides a regression analysis under the methodology of Staggered Differences-in-Differences and focuses on the search for an increase in the value of equity post-deal for the companies undergoing an M&A transaction.

We first evaluate the aggregate generic case, then we discriminate among Bidder and Target companies and finally among Acquisitions and Mergers. The same models are used to look for evidence of an effect of the M&A deal on corporate profitability (EBITDA margin) and financial strength metrics (Net Debt/EBITDA).
Additionally, the same hypothesis are tested using the methodology of Event Studies. Event studies in finance are typically used in relation to the Cumulative Abnormal Returns after the announcement of the deal, but as they are an extension of Differences-in-Differences they allow to observe how a certain variable evolves in each period after the event (in our case the M&A transaction) and see if there are any changes that can be attributed to the event itself. Therefore, this methodology is applied using our variables (rather than stock prices), in order to increase the robustness of the research.

Finally, chapter 5 reports a summary of the research results, together with a description of the limitations and proposals for future investigations of the topic.
The findings show how companies undertaking an M&A transaction experience on average a significant increase in the value of equity. This is consistent both in the aggregate case (i.e. all companies together) and when distinguishing between Acquisitions and Mergers or between Bidder and Target companies. In particular, M&A transactions in Italy seem to create more value in Mergers and for shareholders of the Bidder company. This second result conflicts with some traditional studies (Jensen and Ruback (1983) and Jarrell, Brickley and Netter (1988)) for which Target companies in takeovers tend to capture the majority of the value created. However, it is assumed that this result may be due to a lack of information and to the maturity reached by the Italian M&A market several years after these studies, where Italian Bidders might have improved their ability to select Targets and extract value.
Concerning the other financial measures, this study outlines a very slight decrease in EBITDA margin following an M&A deal in the aggregate case and for Mergers, while there seems not to be any evidence of an existing relationship between undertaking an M&A transaction and the financial strength ratio Net Debt/EBITDA.

Table of Contents

CHAPTER 1: AN OVERVIEW ON M&A TRANSACTIONS

An M&A transaction can be considered as any process in which a seller, a party which is willing to sell its assets, subsidiaries, or the entity as a whole, gives up control to a bidder, the party which acquires/takes the ownership of those assets, in exchange for a certain compensation, either cash, stock, or a mix of the two.
The term **M&A encompasses** all transactions resulting in a transfer of ownership, therefore it incorporates not only the most common type of corporate finance transactions such as **acquisitions and mergers**, **but also** other types of deals such as **divestitures**, **restructurings**, or **joint ventures**.
This is very important to understand, as including divestitures and restructuring transactions among M&A deals explains why, despite its **cyclicality**, the M&A market remains active not only in healthy economic conditions, but also in weaker ones.
Indeed, during **economic booms**, **companies** experience stronger profits and higher stock prices which incentivize them to take advantage of this prosperity to **acquire** new products, technologies, production facilities, and/or entire companies in order to **boost their growth** and develop faster than their competitors. However, **in economic downturns**, the **M&A market** remains **active for** many **different reasons**.

First, financial difficulties force companies to refocus on their core business and **divest non-core assets** in order to increase their cash reserves.

Second, the expansionary monetary policies often undertaken by central banks during periods of economic recession lead to **lower interest rates**, and companies frequently take advantage of those relatively low interest rates to effectively **utilize debt** to finance their acquisition-based growth strategies.

Finally, lower stock price valuations also play an important role in difficult economic times as they result in **lower acquisition prices**, giving strong/cash-rich companies the opportunity to begin bargain shopping, picking off distressed competitors at a fraction of their market value compared to expectations just a couple of months earlier.

Overall, we can clearly see that at least from a corporate point of view, **M&A is a major component of corporate strategy as it enables firms to pursue their growth objectives while adapting to the fast-changing economic conditions.** However, no board of directors should take for granted that those strategies should be implemented based on the above-mentioned economic outlooks; corporations need to investigate the possible value creation options that are available to them and opt for the strategy that would maximize the Net Present Value of Cash Flows to the equity.
Nonetheless, it is essential to take into account other **reasons** that may lead a company to opt **for an external growth strategy** rather than an internal growth strategy even though the latter is more profitable (from an NPV perspective).

Caselli (2021)[1] suggests 5 of them:

1. **Speed of execution**: sometimes, achieving objectives through organic growth may require a high level of patience and may result in some lost opportunities. For instance, it is much more complex to enter a foreign market alone than to partner with or acquire a local player.

2. **Resource availability**: sometimes companies cannot access some resources, technology, raw materials, etc. and the only solution might be to integrate the supply chain (acquiring a supplier) in order to have greater control over essential inputs.

3. **Ego/Hubris**: managers might be motivated to pursue mergers and acquisitions in order to boost their compensation or to follow empire building strategies, even though this is not a good reason for pursuing external growth instead of growing internally.

4. **Strategic realignment:** restructuring or reorganization to better align with their strategic goals, objectives, and market positioning, which may occur for:

    - **Market consolidation**: companies decide to pursue external growth to increase their size;
    - **Adaptation or reaction to abrupt and disrupting market changes**: industrial and technological changes are important drivers of merger waves. Indeed, the prospect of industry or technological disruption within a particular sector drives M&A activity, as it forces managers to promptly enhance their capabilities to innovate or simply survive in the industry.

5. **Synergies**: corporations may opt for acquisitions due to the implementation of potential synergies that will create long-term value for their shareholders. Synergies can be defined as the expected reduction in costs, potential for growth, and other financial advantages resulting from the integration of two businesses. There are several types of synergies falling into **two main categories**:

    - **Operating synergies** are linked to **cash flow improvement**. They can be *cost synergies* (i.e. reduction in operating expenses and capital expenditures), asset synergies (one-off increases in cash flows coming from extraordinary disposal of redundancies), tax synergies (net operating losses transferred from the target to the bidder), and *revenue synergies* (cross-selling, lower competition, distribution, access to distribution networks, brands, complementarity in products, pricing power, etc.);

[1] Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.

- **Financial synergies** derive either from **lower** pro-forma **cost of capital**, or from an improved or optimised capital structure.

To **sum up**, in many instances, **growth through an acquisition represents not only a cheaper way** (higher NPV), **but also a faster and less risky option than building a business from scratch**. Developing a new facility, expanding into a new geographic region, and/or moving into a new product line or distribution channel is typically more risky, costly, and time-consuming than buying an existing company with an existing business model, infrastructure, and customer base. This can explain why corporations tend to prefer external means of growth in their pursuit of growth and enhanced profitability.

Corporations are often guided by a **variety of acquisition strategies**. Three main categories are suggested by Caselli (2021)[2]:

Horizontal integration: acquisition of a company at the **same level of the value chain** as the acquirer. Such a combination generally aims at potentially:

- **Increasing** the **market share** of a business in that particular industry by expanding the acquirer's geographic reach, product lines, services, and/or distribution channels;
- Achieving both **economies of scale and scope** by leveraging the fixed cost base and know-how for greater production efficiencies.

Horizontal deals can usually be easily recognized as, due to the strategic fit of the combined entities, they often result in significant *cost synergies* (reduction of costs due to the elimination of redundant costs between the two entities and from leveraging the acquirer's existing infrastructure and overheads) and *revenue synergies* (increase of revenue achieved thanks to the acquirer's greater size and by leveraging each respective company's distribution network, customer base, and technologies).
Nonetheless, despite all the benefits that come from this type of transaction, horizontal integration deals tend to be risky, as they are often subject to the scrutiny of antitrust authorities, which ensure that the combination of companies' strengths does not distort the competitive dynamics of a particular industry.

Vertical integration: a company either **expands upstream in the supply chain** by acquiring an existing or potential supplier, **or downstream** by acquiring an existing or potential customer. Vertical integration is often motivated by multiple potential advantages, including increased control over key raw materials and other essential inputs, the ability to capture upstream or downstream profit margins, improved

[2] Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.

supply chain coordination, and moving closer to the end user to own the customer relationship.

Conglomerates' growth strategy: a **deal between** two or more **unrelated business entities** that basically have no business activity in common. This kind of deal is not very common nowadays and is usually undertaken either by conglomerates such as 3M, General Electric, and Siemens, or so-called "Holdings" such as Exor that invest in different sectors and hold a diversified portfolio of companies. The rationale behind those this type of strategy is typically to:

- Bring different businesses under a common corporate umbrella and leverage not only the use of best practices, but also a common management team, infrastructure, and balance sheet;
- **Diversify operations**, leading to more stable cash flows while giving managers the flexibility to strategically invest in a higher growth segment.

1.1. HOW M&A TRANSACTIONS ARE STRUCTURED

There is virtually an infinite number of ways in which a corporate merger or acquisition may be structured. Lecturers and practitioners often refers to **three** broad **types of M&A structures:**

- Acquisitions:
- Mergers;
- Consolidations

Acquisitions

An acquisition is the purchase of a majority or minority stake or of specific assets. Although often used interchangeably, an acquisition differs from a merger in that in an acquisition **the two companies remain** separated (there is merely an exchange of ownership), while in a merger there is the integration of one company into the other one. Additionally, in an acquisition the **acquiring company is** typically **significantly larger** than the asset or entity being purchased.

Acquisitions can take **two main forms** Caselli (2021)[3]:

- **Acquisition of Assets**: the buyer purchases either all the assets or only a selection of the business's assets and takes on only the liabilities directly associated with the assets selected. Under this structure, the target firm legally remains in existence post-transaction even if the acquirer purchases all the assets linked to the firm.

- **Acquisition of Equity** (Stock Purchases): the acquirer purchases an equity interest in an other business entity. As it will purchase the equity (or portion of it) of the target, the bidder will not have the opportunity to acquire only some assets of the target, and therefore, it will have to acquire the entire business entity or a minority stake, including the related assets and liabilities.

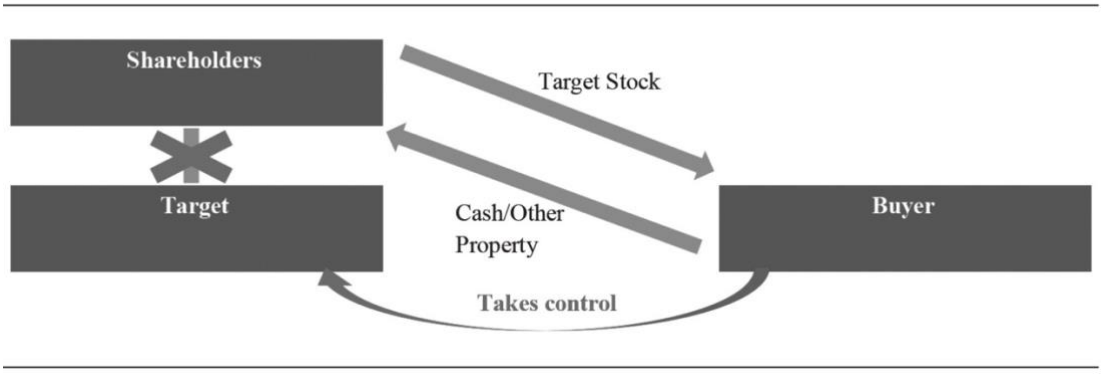

Figure 1.2.1: Stock purchase deal.
Source: Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.

Mergers

A merger is the combination of two or more **business entities** that are **typically similar in size** and in which **only one entity remains**.
This type of M&A structure requires the approval of both the bidder's and the target's (i.e. the seller) shareholders' as the target's shareholders will need to approve the extinction of their legal entity and the bidder's shareholders will need to approve the issuance of additional shares that will be given to the target's shareholders at the time of the combination.
Those shares will be issued to the target's shareholders in exchange for the target's shares and the number of shares received by the target's shareholders for every share held will depend on the so-called *exchange ratio*.

[3] Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.

Exchange Ratio = Target Equity Value/Bidder Equity Value × Bidder/Target shares ratio

The main advantage of this deal structure is that it is **relatively safer** than any other M&A structure. Indeed, as the target's shares are exchanged against the bidder's shares, usually no debt is raised to afford the purchase price, thus minimizing the financial risk. Also, the operational risk is shared by the bidder and the seller, and the shareholders still own part of the broader company and therefore may benefit from the potential upsides, such as the impact of synergies generated by the merger.

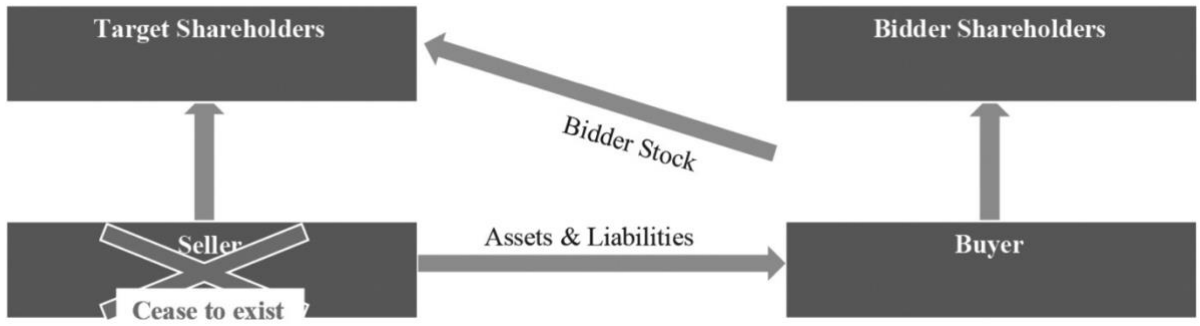

Figure 1.2.1: Merger deal.
Source: Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.

Consolidations

Similarly to mergers, consolidations are combinations of more than one business entity. However, what differentiates consolidations from mergers is that in consolidations the business entities are merged into an entirely new entity. As a consequence, the former entities transfer all their assets and liabilities to the new entity, and they cease to exist legally. The new entity will then issue newly-created shares to shareholders of the combined entities. As all entities cease to exist, combinations require the approval of a majority (usually two-thirds) of the shareholders of every entity.

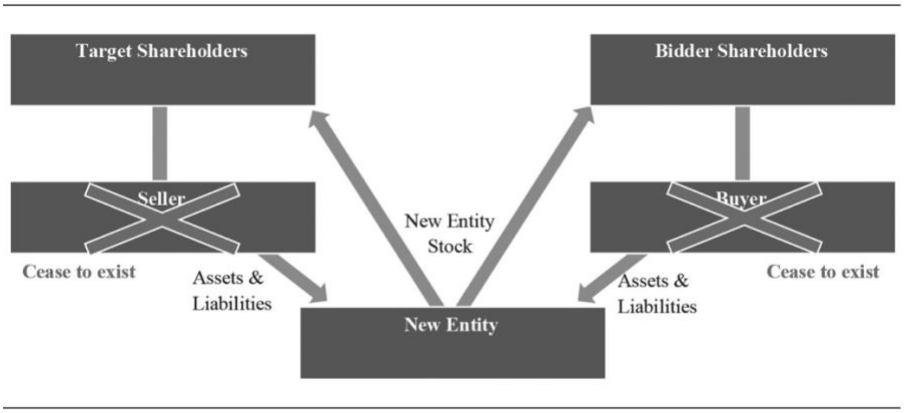

Figure 1.2.1: Example of consolidation transaction.
Source: Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.

THE DIFFERENT ELEMENTS IMPACTING DEAL STRUCTURE

There are **several variables** that **impact the structure of deals**, among which we can find:

- **The nature of the bidder:** strategic buyer or financial sponsor;
- **The source of financing:** cash on hand, debt financing or equity financing;
- **The consideration paid to target's shareholders:** cash, stock or mixed;
- **The status of the bidder and the target:** private vs public;
- **The approach:** friendly or hostile.

The impact of the bidder's nature on deal structure

In M&A deals, bidders are identified as either *Strategic Buyers* or *Financial Buyers*. Those two categories of bidders are clearly distinguished and differ significantly in their reasons for acquiring companies and in the financing, structure, and target prices of their acquisitions.

Strategic Buyers are more often companies that operate in the **same industry as** the **target** (or in a related/adjacent one) and are interested in acquiring a company that would fit in their long-term business plans and corporate strategy. Strategic buyers are often able to **pay relatively high multiples** for a particular target **because they can implement synergies** that will make the combined enterprise more valuable than the sum of the two companies alone. In other words, as opposed to financial buyers, strategic buyers are often willing to pay a price higher than the current market value, as they can consider part of the estimated synergies.

Strategic Buyer Acquisition Price = Market Value of the Target + Part of the Estimated Synergies

Financial Buyers such as private equity firms and hedge funds are generally classified as investors **interested in the return** they can achieve **from buying and subsequently selling a business**. They usually target returns greater than 15% and try to achieve such returns by acquiring businesses with strong cash flows, **maximizing leverage** and implementing operational improvements aimed at growing cash flows in different ways, such as revenue enhancement, cost reductions, or by creating economies of scale. Their goal is to **improve** the financial **performance** of the company **in a** relatively **short period of time** (usually 3 to 5 years) and re-sell the company at a higher price than the one at which they acquired it.

The impact of the source of financing on deal structure

A second important factor that can impact the deal structure is the type of financing. In general, M&A transactions can be financed in **three different ways**:

1. **Cash on hand**: the acquisition is financed by using the acquirer's excess of cash;
2. **Debt Financing**: the acquisition is financed by raising additional debt such as loans, bonds, etc.;
3. **Equity Financing**: the acquisition is financed by raising equity or by distributing outstanding shares directly to the target's shareholders.

The choice between those financing solutions or a combination of them will depend not only on the availability of sufficient funds (cash on hand), the state of capital markets, and the macroeconomic environment, but also on the preferences of both the bidder and the target's shareholders. In fact, the form of financing will determine the form of consideration that will be paid to the target's shareholders, and therefore, it is important that both parties agree on the type of consideration before raising the necessary financing.
Cash on hand and debt are less expensive and therefore result in more accretive transactions, but they also reduce the firms' flexibility and might negatively impact the rating assessment. Even though equity is much more expensive than debt financing, it is a key element of M&A financing particularly for large-scale public transactions as it has the strong advantage of providing issuers with greater flexibility.

The impact of the consideration type on deal structure

The type of consideration that can be offered to the target's shareholders also impacts the deal structure. In fact, if a bidder is unwilling to co-exist with the target's shareholders or simply does not want to issue shares, then it will opt for a cash transaction, eliminating the possibility to structure the deal as a merger, a consolidation, or any type of stock deal. In the same way, if the seller wants to secure the economic consideration, it will negotiate for a cash deal.
Note that the consideration offered to the target's shareholders in an M&A deal also depends on the type of financing chosen by the acquirer, which itself already impacts the structuring of a deal.
The **consideration** that can be offered to the target's shareholders are **mainly three**:

1. **Cash**: in an all-cash deal the bidder pays the seller in cash;
2. **Equity**: in a merger or a stock-swap, the bidder pays the seller with its own shares, in exchange for the target's shares;
3. **Mixed**: in some deals, the bidder may decide to pay the seller with a mix of cash and its own shares.

Cash is the most common type of consideration offered in M&A deals, with the exception of large-scale transactions, that are very difficult to finance entirely with cash. The popularity of this consideration is mainly due to three different reasons.
First, debt and cash on hand are cheaper than equity, and therefore, result in more accretive transactions.
Second, even though the use of cash reserves decreases financial flexibility, it allows the acquiring shareholders to remove target shareholders from the structure, and therefore results in a governance advantage.
Finally, cash is also the type of consideration that is most often preferred by the target's shareholders, as it eliminates the economic risk linked to the deal's value. This is not the case in stock transactions, in which the seller is exposed to the performance of the bidder's share price. If that price decreases after the transaction, the target's shareholder will still own the same amount of the acquirer's stock, but it will have lost part of its value.
The strong advantage of stock transactions is that they offer the seller certain tax benefits that cash transactions do not provide; they enable shareholders to defer the capital gain, and thus defer the tax payments.
Furthermore, the target's shareholders may sometimes find stock compensation more attractive than cash offers if they believe that the acquirer's shares have upside potential.
However, most of the time, the selling shareholders are suspicious about stock transactions as, according to the signalling theory, they imply that the bidder's stock is overvalued. Thus, selling shareholders usually request extra compensation in order to bear the risk of accepting the bidder's stock as consideration.

The impact of the status of bidder and target on deal structure

Another element that contributes to the diversity of M&A transactions while restricting the flexibility of deal structuring is the status of the target and the bidder prior to the deal announcement. There are **two** different **possible** types of **status**:

1. **Private**: the target/bidder is private, i.e. not listed on the public markets;
2. **Public**: the target/bidder is publicly listed on stock markets and their shares can be purchased in the open market.

As private companies have less pressure to publish and disclose their financial information to the market, a private target adds additional risk for the bidder, and thus impacts how the deal may be structured and also its overall feasibility. On their side, bidders will discount the target's value in order to take into account this very specific risk, therefore it is convenient for the target to try to reduce opacity and asymmetric information.
Furthermore, it is most often very difficult to convince a seller to take stock in another private company as consideration for the transaction due to the low liquidity of private companies' shares. Therefore, if the bidder is private, then it has very little chance of concluding a stock transaction such as a merger or consolidation.

The impact of the acquisition approach on deal structure

Finally, one last variable that impacts the structure of M&A transactions is the way the target has been approached by the bidder and whether the target's management team is open to the transaction or not.
Practitioners refer to *Friendly Acquisition,* when the acquisition is accomplished in agreement with the target company's management and board of directors.
However, sometimes acquisitions are accomplished without the agreement of the target company's management or board of directors, or even against their will. In that case, the acquisition is a *Hostile Takeover* and is conducted through other means to obtain acquisition approval, such as dealing directly with the company's shareholders. This type of approach is very risky from the bidder's perspective, as it will not have access to inside information, which will result in a more difficult and imprecise valuation process.
The most common ways to secure support from shareholders of public corporations without obtaining explicit consent from company management are:

1. **Tender offer**: the bidder makes a public offer at a fixed price above the current market price directly to the target's shareholders;

2. **Proxy fight:** the bidder tries to persuade enough shareholders (usually a simple majority) to replace the management with new management who will approve the takeover;
3. **Creeping tender offer:** the bidder quietly purchase enough stock of the target on the open market to effect a change in management.

Target companies have a number of takeover defenses which come into play once the hostile bid is made and are designed to prevent the bid from being successful. These strategies include poison pills, staggered boards, golden parachutes and recapitalization[4].

1.2. THE M&A PROCESS

As we just saw in the previous section, the sale or acquisition of a company, division, subsidiary, or collection of assets can be a life-changing and lucrative event for its owners, management, employees, and other stakeholders. However, it is also a **process** which is very **complex**, **expensive**, and which requires a significant amount of information, money, and time (usually spanning several months).
As companies do not necessarily have the competencies, resources and time to handle the transaction, most of the time, either for a buy-side or a sell-side mandate, they hire several external advisors including **M&A advisors** or investment bankers, corporate lawyers, and strategic consultants to ensure that key objectives are met and a favourable result is achieved.
Due to the complexity of the transaction, investment banks tend to follow a standardized M&A process which is adapted to the specific structure of the *Sale* or *Purchase*. For instance, the timeline of a transaction structured as a "Negotiated Deal" is usually shorter and more flexible than a "Broad Auction."
According to Caselli (2021)[5]: an M&A transaction can follow two main types of processes: **Auctions** and **Negotiated Deals**.

AUCTIONS

An auction is a staged process whereby a target is marketed to **multiple** prospective **buyers/bidders**. This environment encourages bidders to present their most

[4] Berk J., DeMarzo J., Corporate Finance, 4th Edition, Pearson, pp. 994-1020.
[5] Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.

competitive offer on both price and terms, and helps **increase** the **speed of execution** by encouraging quick action by buyers.
A successful auction requires significant dedicated resources, experience, and expertise. For this reason the role of financial advisors or investment bankers is extremely relevant.

There are **two** primary **types** of auctions[6]:

- **Broad Auctions:** maximize the number of prospective buyers approached and in turn the competitive dynamics. This may involve contacting dozens of potential bidders (both strategic and financial sponsors).
- **Targeted Auctions:** focuse on few clearly defined buyers that have been identified as having a strong strategic fit and/or desire, as well as the financial capacity to purchase the target.

The traditional auction is structured as a **two-round** bidding **process** that generally spans from **three to six months** (or longer) from the decision to sell until the signing of a definitive agreement with the winning bidder. As per Rosenbaum et al. (2009)[7], it follows **five main steps**:

- Organization and Preparation
- First Round
- Second Round
- Negotiation
- Closing

During the **Organization and Preparation** phase the Investment bank (or sell-side advisor) helps the seller identify its objectives, determine an appropriate sale process and select the group of potential buyers. Furthermore it performs *sell-side advisor due diligence*, *preliminary valuation analysis* and it prepares *marketing materials* (teaser and confidential information memorandum) and *confidentiality agreement*.

The **First Round** begins with the contact of the *prospective buyers* (which is typically done by the advisors) and the negotiation and execution of *confidentiality agreements* with interested parties.
Then the *confidential information memorandum* and *initial bid procedures letter* (which states the date and time by which interested parties must submit their written, non-binding preliminary indications of interest and the exact information that should be

[6] Rosenbaum J., Pearl J., 2009. "Investment Banking – Valuation, Leveraged Buyouts, and Mergers & Acquisitions"; John Wiley & Sons, pp. 251-282
[7] Rosenbaum J., Pearl J., 2009. "Investment Banking – Valuation, Leveraged Buyouts, and Mergers & Acquisitions"; John Wiley & Sons, pp. 251-282

included in the bid) are distributed and a data room is set up to exchange share and store detailed information about the target.
Finally the initial bids are collected and the buyers that will proceed to the second round are selected.

The **Second Round** of the auction centers on facilitating the prospective buyers in conducting detailed **due diligence** and analysis so they can submit strong, final binding bids by the set due date. The due diligence process is meant to be exhaustive, typically spanning several weeks, depending on the target's size, sector, geographies, ownership and buyer's profile. The sell-side advisor plays a central role during the second round by coordinating management presentations and facility site visits, monitoring the data room, and maintaining regular dialogue with prospective buyers.

During the **Negotiation** phase the sell-side advisor works together with the seller and its legal counsel to conduct a thorough analysis of the final bids. Often, the sell-side advisor recommends that the seller negotiates with two (or more) parties, especially if the bid packages are relatively close until the winning bid is selected.
Once the seller's board of directors votes to approve the deal, the definitive agreement is executed by the buyer and the seller. A formal transaction announcement agreed to by both parties is made with key deal terms and the two parties then proceed to satisfy all of the **Closing** conditions to the deal, including obtaining regulatory approvals (such as antitrust, banking, or insurance) and shareholder approvals.
Shareholder approval is typically determined by a majority vote, or 50.1% of the voting stock. Some companies, however, may have corporate charters, or are incorporated in states, that require higher approval levels for certain events, including change of control transactions. In parallel with obtaining all necessary approvals and consents as defined in the definitive agreement, the buyer proceeds to source the necessary capital to fund and close the transaction. This financing process timing may range from relatively instantaneous (e.g., the buyer has necessary cash-on-hand or revolver availability) to several weeks or months for funding that requires access to the capital markets (e.g., bank, bond, or equity financing).

NEGOTIATED DEALS

Even though auctions have become increasingly prevalent with the surge of Private Equity Funds that seek to maximize their return on investment and therefore run broad auctions to maximize the exit multiple of their assets, a substantial number of mergers and acquisitions are conducted throughout negotiated transactions, especially in situations involving a natural strategic buyer with clear synergies and strategic fit.

Although negotiated deals are often initiated in the case of a buy-side mandate (a buyer looking for targets in order to grow its business), the process can also be initiated by a seller.

In contrast to auctions, in a negotiated deal the seller will focus its efforts on discussing and **negotiating with a single** (or few) prospective **buyer**(s).
The negotiated deals process is fairly similar to that of an auction, but with a more compressed timetable and includes the **Organization and Preparation** phase, the **Negotiations** and the **Closing** phase.
The only **steps** that are **unique** to a Negotiated Sale are:

- The identification of potential targets, where the advisor (in the case of a buy-side mandate) helps the buyer select potential targets based on the business and financial profile;
- The distribution of the letter of intent (LOI).

In a negotiated deal, after the organisation and preparation phase, the buyer may draft a letter of intent which describes the desired objectives and gives an overview of the proposed financial and operational aspects of the transaction. The LOI is an important step because it lays out the basics of the final deal including essential elements of the transaction (transaction structure, valuation range, due diligence procedure, confidential obligations). However, the issuance of a letter of intent depends on the type of negotiated deal. While in a transaction involving a public company an LOI is a required document, in transactions involving private companies, it is considered optional and is not always used in the deal process.

1.3. THE WORLDWIDE M&A LANDSCAPE

The value of **M&A** deals globally **has risen** over the **past decade** and tends to mirror the state of the economy overall. In 2010, the total value of M&A deals worldwide was estimated to be approximately 2.5 trillion dollars according to Thomson Reuters.
Downturns can be seen in the years during and following a recession, and corporate acquisitions increase in periods of economic growth. However, M&A activity fluctuated significantly in the past few years, before reaching new heights in **2021**, where a **peak value** of over **5.2 trillion dollars** was recorded.
In 2022, the international economic picture was strongly influenced by the effects of the pandemic that began in 2020 and by the persistence of the emergency in various regions of the world, including new lockdowns in China. The situation suddenly worsened due to the onset of the conflict in Ukraine.

Commodities, especially energy products, represented the main vehicle for transmitting the impact of the war, with a sudden increase in their prices on global markets. The resulting inflationary spiral, together with the difficulties in supplying some raw materials and the problems in transport and logistics, aggravated by the restrictive monetary policies adopted by the main countries and by the uncertainty linked to the evolution of the conflict, have contributed to slowing down the economy. M&A activity was affected by this climate of strong instability and, having archived a record-breaking 2021, in 2022 the global mergers and acquisitions market recorded a contraction in both values and volumes, closing at around 3.4 trillion dollars (-20% compared to the previous year) and approximately 50 thousand transactions (-12%)[8]. This result was particularly affected by the decline in M&A activity in the United States (-30% in value) and in Asia Pacific (-24% in volumes), while the European market showed greater stability, albeit with differences within individual countries. In particular, as pointed out by the article of KPMG Advisory Corporate Finance (2022)[9] the American market stood at 1,691 billion dollars and 15,589 completed transactions, down 30% and 11% respectively compared to the record results recorded in 2021.

Despite having once again confirmed its leadership at a global level, for the first time since 2012, the contribution to global M&A activity from the Americas fell below 50% in value (just under 48%, compared to 55% in 2021), while the relative weight in terms of volumes remained unchanged (36%).

The M&A market in Europe, by contrast, has remained relatively stable, despite the impact of the Russian-Ukrainian conflict. The countervalues rose slightly to 1,053 billion dollars (+4%, equal to 30% of the global figure), while the deals fell slightly to 15,280 (-2%). The Asia Pacific M&A market is decelerating, with 700 billion dollars (-16% compared to 2021) and 10,932 completed transactions (-24%), effectively eliminating the progress and records achieved the previous year, returning to levels of 2020.

The contraction in M&A activity mainly affected domestic transactions, down 23% in value and 15% in volumes, compared to a more contained loss in cross border transactions which, fell by 10% in value.

1.3.1. THE ITALIAN CONTEXT

The historical evolution of the Italian M&A market can be divided into two large periods. The first, which developed between 1988 and 1998, is linked to the start of the privatization season and at the same time to the progressive development of the middle market with the appearance of the first private equity funds. The second, which covers the years between 1999 and 2010, is characterized first by Italy's entry

[8] Statista Research Department (May 2023)

[9] KPMG Advisory Corporate Finance, 2022. "Report Mergers & Acquisitions 2022: the year of uncertainty"

into the Euro area, subsequently by the processes of economic globalization, which contributed to the development of cross-border operations, and finally by the advent of the global crisis. Despite a substantially stable number of operations, the values have grown considerably since the end of the 1990s, recording a real leap in size.

According to KPMG International[10] findings, between 1988 and the first half of 2010, 12,402 M&A transactions were finalized in Italy, for a total value of 1,256 billion euros.

In the article "20 Years of M&A: mergers and acquisitions in Italy from 1988 to 2010"[11] the phenomena of internationalization (cross-border deals), privatisation and private equity were analyzed, drawing a series of considerations relating to the Italian M&A panorama.
Despite the prevalence of domestic M&A transactions, cross-border acquisitions have represented an important and growing share of the market. Observing the number of acquisitions made in Italy by foreign operators, the high appeal of our companies in the eyes of international investors emerges. The operations carried out abroad by Italian companies, instead, reflect the evolution of the internationalization processes of Italian companies which went from an initial stage of pure delocalisation of cost centers to strategies of entry, establishment and consolidation in foreign markets.

The process of privatization of the Italian economy, which passed through the market especially during the 1990s, was a pervasive phenomenon whose effects were not limited to the sphere of state shareholdings, but structurally modified the economic and financial balance of the country. Privatizations have redrawn the industrial and financial map of Italian capitalism in some sectors crucial to the Italian's development model: from banks to telecommunications, from electricity to steel.

Finally, the development of the private equity phenomenon was particularly rapid during the 1990s, before declining and returning to vogue in recent years before the current global financial crisis.

KPMG Advisory Corporate Finance (2022)[12] provides insightful data about Italian M&A environment in the last years. To date, M&A activity **in** Italy has closed **2022** with values of **86.4 billion euros**, down 14% compared to the previous year, but which still represents the third best result since 2007, and 1,271 operations completed, new all-time high.

Cross-border M&A activity began to **rise** again (+13%) marking a new record of 656 completed transactions, equal to 52% of the overall volumes. The countervalues,

[10] KPMG International, 2010. "20 Years of M&A: mergers and acquisitions in Italy from 1988 to 2010". EGEA 2010.
[11] KPMG International, 2010. "20 Years of M&A: mergers and acquisitions in Italy from 1988 to 2010". EGEA 2010.
[12] KPMG Advisory Corporate Finance, 2022. "Report Mergers & Acquisitions 2022: the year of uncertainty"

however, stood at 49.7 billion euros, down 33% compared to the previous year, bringing the relative contribution of cross-border activity to the entire Italian market to 58%, from 74% in 2021.
During 2022, financial investors and Private Equity funds completed 189 direct acquisitions, the second best result ever, and equal to 15% of the entire Italian market, for a record figure of 19.7 billion euros (equal to 23% of the overall values).
In 2022 there was a significant **incidence of mega deals** (i.e. deals with value greater than 1.0 billion euros) which particularly affected strategic sectors such as concessions, technologies, energy and financial services. During the year, 16 mega deals were finalized, which overall generated values of 53.0 billion euros.
The average value of Italian transactions, which rose in 2021 to 83 million euros, contracted again, reaching 68 million euros.

To conclude, in **Italy** the **M&A environment**, although demonstrating its **relevance** in corporate strategies and having proved a high level of **resilience**, is **still** relatively **underdeveloped compared to** countries such as the **United States or UK**, also due to the frequent recourse of Italian companies to market of debt rather than to equity capital markets.
The industry is characterized by a relatively **small** average **deal size** concentrated on the **middle market**, but also by a **high cross-border** deal activity and by the stable presence of financial investors and **Private Equity** funds promoting various mega deals.

CHAPTER 2: A REVIEW OF THE LITERATURE

According to Caselli (2021)[13]: the key part of an M&A transaction is the identification of the right price to be paid, as the final objective of the entire process turns out to be the transfer of control in exchange for compensation. Ideally, as M&A deals should result in the creation of synergies, the bidder should acquire the target for its fair value plus part of the synergies created. In that way, both parties will benefit from the transaction (the seller will be able to sell its assets at a premium to market price, capturing part of synergies resulting from the merger while the bidder will capture the remaining).
However, finding the right price is in reality a very difficult task as the bidder should estimate not only the fair value of the target, which is already difficult per se, but also the expected synergies. The bidder could overvalue the target's fair value or could be over-optimistic relative to the creation of synergies and both errors might lead to overpay for the target.
As the success of M&A deals is heavily sensitive to the price paid, it is interesting to see how much and to whom M&A transactions have proven to be value accretive up to now.

It is widely recognized that **mergers and acquisitions tend to occur in waves.** As specified by Martynova & Renneboog (2008)[14] five completed waves have been so far examined in the academic literature: those of the early 1900s, the 1920s, the 1960s, the 1980s, and the 1990s.
Takeovers usually occur in periods of economic recovery, that coincide with rapid credit expansion and stock market booms and are often stimulated by economic, technological, financial, regulatory, and political changes. Furthermore, takeover activity can be significantly impacted by managers' personal objectives and there is evidence that managerial hubris and herding behaviour increases during takeover waves, often leading to poor acquisitions.

The **first wave** started in the late 1890s during a period of radical changes in technology, economic expansion and innovation in industrial processes. The wave was characterized by horizontal consolidation of industrial production and led to the creation of several giant monopolistic companies. The wave came to an end around 1903–1905, when the equity market crashed.

The **second wave** started in the late 1910s and continued through the 1920s. As per Stigler (1950)[15] small companies left outside the monopolies created during the

[13] Caselli, S., Gigante, G., & Tortoroglio, A. 2021. "Corporate and Investment Banking: A Hands-On Approach". Egea Editore.
[14] Martynova, M. & Renneboog, L. (2008) "A century of corporate takeovers: What have we learned and where do we stand?". Journal of Banking and Finance 32 (10).
[15] Stigler, G., 1950. "Monopoly and oligopoly power by merger." Am. Econ. Rev. 40, pp. 23–34.

previous wave decided to merge together to achieve economies of scale and be able to compete with the dominant firm in their industries, with the consequent establishment of several oligopolies. The wave came to an end with the economic depression in 1929.

The **third wave** took off in the 1950s following the Second World War and lasted for nearly two decades. During this wave companies sought diversifying takeovers that led to the development of large conglomerates that allowed them to benefit from growth opportunities in new markets. The wave collapsed in 1973, when the oil crisis pushed the world economy into a recession.

The **fourth wave** started in 1981 and coincided with changes in anti-trust policy, the creation of new financial instruments and markets (e.g. the junk bond market) and the deregulation of the financial services sector (Martynova & Renneboog (2008)[16]). This wave was characterized by an extraordinary number of divestitures, hostile takeovers, and private-equity transactions (LBOs and MBOs). Like the earlier waves, the fourth one declined after the stock market crash of 1987.

The **fifth wave** started in 1993, along with the increasing economic globalisation, technological innovation, deregulation and privatisation. This. Wave is characterized by a large number of cross-border transactions that allowed previously domestically-oriented companies to survive the tough international competition created by global markets. The fifth wave finished with the equity market collapse in 2000.

More recent studies identify a **sixth merger wave** between 2004 and 2007 triggered by relaxed antitrust rules and innovation in credit derivatives. Similarly to the fourth wave, the actors involved were mostly private equity firms. The wave ended in 2007, a the beginning of the economic crisis.
We have seen that takeovers are typically triggered by several industry shocks. When this happens and managers act in the best interests of shareholders, M&A activity is expected to lead to shareholders value creation. In contrast, **deals driven by herding** (i.e. the tendency of managers to make investment decisions based on the perceived wisdom of the majority rather than their own judgment), **managerial hubris** (i.e. confidence and optimism bias that induce managers to engage in excessive risk taking and overoptimistic estimates) **and other agency problems might lead to value-destroying takeovers** following M&A deals that created value. **The literature demonstrates that no single theory is able to explain takeover activity and M&A waves.**
The most consistent finding, according to Martynova & Renneboog (2008), is that takeovers occurring early in the wave are triggered by industry shocks. These

[16] Martynova, M. & Renneboog, L. (2008) "A century of corporate takeovers: What have we learned and where do we stand?". Journal of Banking and Finance 32 (10).

takeovers tend to generate substantial short-term wealth to target shareholders and the combined companies are expected to create gains from synergies. Conversely, the majority of value-destroying acquisitions tend take place in the second half of the wave and are generally the result of agency problems and managerial hubris.

To determine the success of a takeover, and in turn its value creation effect**, two main perspectives** can be taken.
First, one can **evaluate M&A deals from the viewpoint of the target's or bidder's shareholders**, or calculate the combined shareholder wealth effect. **Second**, one can look at the **impact** of the takeover **on a wider range of stakeholders** (e.g. creditors, employees, consumers). As the interests of different stakeholders diverge, an M&A transaction may benefit one class of stakeholder but damage the other classes.
Finance theories usually consider **shareholder wealth as the primary objective** because shareholders are the residual owners of the company.

The wide **literature studies concerning M&A value creation** and performances can be grouped into **four main segments** according to the methodology chosen to conduct the analysis:

1. **Event studies**, that consist in assessing the value created by a takeover by observing the stock price (assumed to be the present value of expected future cash flows) of the entities involved before, during and after the announcement date. Event studies draw their results based on the so called cumulative abnormal stock returns (CARs) that can be seen as the difference between the realized returns and an expected return (benchmark), that would be realized in case the takeover bid does not take place. Usually, the benchmark is determined by the capital asset pricing model (CAPM) or, more simply, by the return on a major market index, like the S&P 500[17]. Furthermore, event studies rely on the assumption that stock markets are efficient, rational and that there is no arbitrage.
2. **Accounting studies**, that examine the accounting statements of acquirers before and after acquisitions to identify signs of outperformance of the acquirer firm compared to its market comparables. Examples of financial performance indicators that are often used in this studies are return on assets (ROA), return on equity (ROE), EBITDA margin, Net Income, Earning Per Shares (EPS), etc.
3. **Clinical studies**, that are an inductive analysis of past transactions with the aim of assessing on a case-by-case basis the drivers of value creation or destruction for shareholders for a specific deal.
4. **Surveys of executives,** that involve providing executives with a standardized questionnaire and aggregating the responses to derive general conclusions.

[17] Bruner, R.F. 2002. "Does M&A pay? A survey of evidence for the decision-maker." *Journal of Applied Finance*, 12(1), pp. 48-68.

Since the 1970s, **event studies** analyzing short-term shareholder wealth effects **represent the prevailing approach to assess value creation**. However, **this research will have a strong focus on the Italian landscape and the best way to navigate the Italian M&A context is through accounting studies** as most of the Italian transactions are relatively small in value and the companies involved are rarely listed on stock exchanges, thus lacking of a market stock price. In this research, the low number of listed companies do not allow for traditional short-term event studies based on Cumulative Abnormal Returns. Therefore, we will carry out accounting studies through regression models and we will also implement long-term event studies based on the same accounting measures to improve the robustness of the results.

The pre-1980 and 1980s empirical literature is examined in depth by Jensen and Ruback (1983)[18] and by Jarrell, Brickley and Netter (1988)[19]. Both studies, which base their results on the announcement-period stock price reaction to mergers, conclude that mergers create value for the shareholders of the combined firms, where most of the gains go to the shareholders of the target company.
Jarrell and Poulsen (1987a)[20] conducted a study in which they estimated the premiums paid in 663 successful tender offers from 1962 to December 1985. Their results, that are consistent with the 13 studies of pre-1980 data contained in Jensen and Ruback (1983), show average premiums of 19 percent in the 1960s, 35 percent in the 1970s, and 30 percent in the 5-year period from 1980 to 1985. This evidence underlines that **shareholders of target companies** clearly benefit from takeovers.
While Target firm shareholders are clearly winners in merger transactions, the evidence on value creation for acquiring firm shareholders is not so clear cut. According to the same study (Jarrell and Poulsen (1987a)), for the sample period 1962-1985, bidders realized gains of around 5 percent during the 1960s, 2 percent during the 1970s, while the 159 cases from the 1980s show statistically insignificant losses to bidders.
To sum up, these articles suggest that **target companies in takeovers tend to capture the majority of the value created** and these returns are not offset by losses to acquirers. Since the shareholders of the target companies experience substantial positive abnormal returns **and** the **shareholders of the acquiring companies do not lose on average**, takeovers are expected to increase the combined market value of the merging firms.
According to Bradley, Desai and Kim (1988)[21], investors who hold an equal stake in both the acquiring and target companies one week before the event and sell their

[18] Jensen, Michael C. and Richard S. Ruback. 1983. "The Market for Corporate Control: The Scientific Evidence." *Journal of Financial Economics*. 11, pp. 5-50.
[19] Jarrell, Gregg A., James A. Brickley and Jeffrey M. Netter. 1988. "The Market for Corporate Control: The Empirical Evidence Since 1980." *Journal of Economic Perspectives*. 2, pp. 49-68.
[20] Jarrell, Gregg A., and Annette B. Poulsen, 1987a. "Bidder Returns", working paper.
[21] Bradley, M., Desai, A., Kim, E.H., 1988. "Synergistic gains from corporate acquisitions and their division between the stockholders of target and acquiring firms". J. Finan. Econ. 21 (1), pp. 3-40.

entire holdings one week after the event day will have earned an abnormal return of 7 to 8 percent over the period 1963–1984.
An important factor in determining how these takeover gains are split seems to be how many bidders are trying to acquire the target company. In fact, the decline in the stock returns to bidders during the period 1962-1985 probably reflects the increased competition among bidders and the rise of auction-style contests during the 1980s (Jarrell, Brickley and Netter (1988)[22]), as also suggested by Bradley, Desai, and Kim (1984)[23] who underline how targets gain more in multiple bidder than single bidder contests.
Jarrell, Brickley and Netter (1988) also contend the view of many critics of acquisition activity (such as the Business Roundtable) for which any gains to a given party are simply redistributions resulting from losses to someone else, finding that such criticisms lack a solid foundation, and in turn determining that the gains to shareholders must be real economic gains achieved through the efficient rearrangement of resources, and that battles for corporate control play a beneficial function for the economy.

Andrade te al. (2001)[24] carried out an anlysis of the immediate stock market response to more than 4,000 mergers completed during the 1973-1998 that concurs with these previous results. They are inclined to defend the traditional view that mergers improve efficiency and that the gains to shareholders at merger announcement accurately reflect improved expectations of future cash flows, but the conclusion must be defended from some recent challenges that they identified.

A **first challenge** is the evidence of a decrease in the stock price of acquiring firms following merger transactions, which would imply that the gains from takeovers are overstated or nonexistent. However, these studies are doubted due to methodological issues, and to the difficulties in accurately measuring long-term abnormal returns[25].

A **second challenge** is that, even though the stock market acknowledges the positive impact of mergers, the specific sources of these gains remain unclear. Moreover, the research conducted in this regard has not provided significant insights into the precise mechanisms through which mergers generate value and this area of research remains wide open.

[22] Jarrell, Gregg A., James A. Brickley and Jeffrey M. Netter. 1988. "The Market for Corporate Control: The Empirical Evidence Since 1980." *Journal of Economic Perspectives*. 2, pp. 49-68.
[23] Bradley, M., Desai, A., Kim, E.H., 1984. "Determinants of the Wealth Effects of Corporate Acquisitions," working paper, The University of Michigan.
[24] Andrade, G., Mitchell, M., & Stafford, E., 2001. "New evidence and perspectives on mergers."*Journal of Economic Perspectives*, 15(2), pp. 103-120.
[25] To measure long-term abnormal returns reliably, one must first be able to measure long-term expected returns precisely—and no one has provided a convincing way to do this (Andrade et al. (2001)).

A **third challenge** to the argument that mergers generate value arises from the observation that all the benefits from mergers seem to be captured by the shareholders of the target company. In an efficient economy, it is logical to assume that mergers occur for valid reasons, and their outcomes would align with the expectations of the parties involved in negotiations. However, the absence of apparent benefits for acquiring firms raises concerns about this analysis. The problem here might be that bidders may pursue mergers for a mix of reasons. On one hand firms can pursue mergers as a strategic tool for growth and success, seeking economies of scale, synergies, and greater efficiency. On the other hand, mergers sometimes appear to be the result of empire-building behaviors by managers. As indicated by Andrade et al (2001), if mergers could be sorted by the true underlying motivations, it is possible that those pursued for valid reasons indeed yield benefits for acquirers. However, when looking at the overall statistics, the positive effects of these mergers might be counterbalanced by mergers pursued for less favourable purposes.

A relatively different opinion on event studies is given by Zollo (2008)[26]. According to his work, short-term window event studies estimate the market sentiment about how a given acquisition should perform, rather than the actual performance.
His study suggests that, as the financial market typically lacks sufficient information to consistently predict the outcome of an acquisition based on the publicly available knowledge at the time of the announcement, researchers that desire to use short-term event studies, should refer to their dependent variable as "market expectation about firm performance", rather than acquisition performance per se and, even better, they should complement the short-term window study with a long-term one, in order to better support their model for acquisition performance.

According to Andrade et al (2001), several recent long-term event studies measuring negative abnormal returns over the three to five years following merger completion raise concerns on the interpretation of traditional short-window event study outcomes reported above. Based on these studies, investors systematically fail to assess quickly the full impact of merger announcements, with the implication that interpretations based on announcement-period event windows are imperfect, particularly those that try to assess the wealth effect of the event.
Indeed, certain authors discover that the long-term decreasing trend in the bidder stock prices outweighs the positive combined stock price reaction at announcement, resulting in a negative net wealth effect.
As suggested by Andrade et al. (2001), the most intense long-term abnormal performance comes from certain subsets of bidder companies. For example, Loughran and Vijh (1997)[27] separately calculate the long-term abnormal returns for bidders using

[26] Zollo M., Meier D., 2008. "What is M&A performance?" Academy of Management Perspectives Archive 22(3): pp. 55–77.
[27] Loughran, Tim and Anand M. Vijh. 1997. "Do Long-Term Shareholders Benefit from Corporate Acquisitions?" *Journalof Finance*. 52.

stock financing (all-stock deals) and those paying with cash (all-cash deals) over the period 1970-1989. They find that acquiring firms using stock financing have significantly negative long-term abnormal returns (around -24 percent) over the five-year period after the merger, whereas all-cash bids are followed by positive returns (18.5 percent).

The evidence here above on long-term abnormal returns indicates that takeovers lead to a decline in share prices over several years subsequent to the transaction. However, **there are several methodological concerns with long-term event studies**.

First, the difference between short-term and long-term returns arises from the fact that long-term performance studies may be subject to methodological problems such as the difficulty to isolate the pure takeover effect from the impact of other events (such as other strategic and operational decisions or changes in the financial policy) occurring in the years subsequent to the acquisition.

Second, the studies of both long-term and short-term effects assume capital market efficiency. Market participants may tend to overestimate the potential merger gains when the bid is announced, and revise their expectations downwards when more information about the takeover process is released over time.

For Fama (1970)[28] the main problem with long-term event studies is the fact that all tests of long-term abnormal performance are joint tests of stock market efficiency and a model of market equilibrium. This problem is is relatively minor in the context of short-window event studies where three-day expected returns are virtually negligible regardless of the chosen model for expected returns. In such cases, returns of 1 to 3 percent over three days during the announcement period are easily distinguishable as abnormal when the expected return is around 0.05 percent. However, the model of expected returns becomes crucial for multiyear horizons. Expected returns over three years can easily range from 30 to 65 percent, in relation to the model used, thus it is very difficult to determine whether an abnormal return of 15 percent is statistically significant.

The takeaway is that, when long-term expected returns can only be roughly estimated, the estimates of long-term abnormal returns are necessarily imprecise and so are long-term event studies.

An additional issue with long-term event studies is that the test statistics assume abnormal returns to be independent across firms. However, mergers are not random events, thus event samples are unlikely to consist of independent observations (Andrade et al., 2001). As mentioned earlier, mergers tend to occur in waves over time and within industries. These waves create positive cross-correlations in abnormal

[28] Fama, Eugene F. 1970. "Efficient Capital Markets: A Review of Theory and Empirical Work." *Journal of Finance*. 25, pp. 383-417.

returns, resulting in the test statistics that assume independence to be significantly overstated.

Caselli (2021) makes a thorough **summary** of the event studies that have been conducted in the literature and underlines **three main points** that we can retain and that find evidence in the several studies mentioned above.

First, the literature has found that cumulative abnormal returns (CARs) for target shareholders are systematically positive regardless of the transaction's success (Eckbo, 1983)[29] and the type of consideration paid (Andrade et al., (2001)). This empirical evidence demonstrates that **target shareholders always benefit from M&A deals.**

Second, academics have found that **stock deals seemed to bring less value to target shareholders**, because as explained by Andrade et al. (2001), raising equity (i.e. paying via stock) entails information asymmetry between investors and the issuer resulting in the possibility that firms decide to issue equity when they believe their stock is overvalued. Consequently, cash only deals are seen as being more transparent and fairly valued, and therefore generate superior returns for the target shareholders.

Third, bidder shareholders seem to earn low to no abnormal returns. However, the effect of M&As on bidder shareholders is not entirely clear, as the research provides conflicting results.

In conclusion, the vast literature on the topic seems to generally agree on the fact that **M&A generates positive returns for target shareholders, break-even values for bidders, and on the aggregate, positive returns for the shareholders of the combined entity** (Healy, Palepu and Ruback, 1992; Andrade et al., (2001); Bruner, 2002).

The results mentioned above are primarily derived from event studies that, as already said, are by far the most frequently used method to evaluate acquisitions performance.
Right after the event studies, accounting studies are the second most common kind of analysis implemented to assess M&A value creation, but the literature on these methods is much more limited.
While event studies have shown similar outcomes across different research, accounting studies produce divergent results. As noted by Caselli (2021), among the numerous studies conducted over time, some highlight the value destructive effects of takeovers, while others show synergies, cash flow and profitability improvements. Many other studies fall in between, presenting no significant evidence of a clear-cut impact of M&A on value.

[29] Eckbo, B.E. (1983). "Horizontal mergers, collusion, and stockholder wealth." *Journal of Fi- nancial Economics*, 11 (1-4), pp. 241-273.

For example, Ravenscraft and Scherer (1989)[30] and Healy, Palepu and Ruback (1992)[31] are two operating performance studies that have been particularly influential in reinforcing perceptions about the gains to acquiring firms. These two papers reach different conclusions about gains from mergers, however, each study exhibits limitations in their data, which raise concerns about the generality of the findings.
Ravenscraft and Scherer's research **suggests that the targets suffer a loss in profitability** following the merger. **Their conclusion is that, on average, mergers destroy value, which contradicts the results from** the announcement-period stock market reaction (i.e. **event studies**).
On the other hand, Healy, Palepu, and Ruback (1992) focus on the post-merger operational performance of the 50 largest mergers between 1979 and 1984. Their findings indicate that merged firms achieve improvements in asset productivity, resulting in higher operating cash flows compared to their industry peers. Interestingly, their results reveal that, on average, the operating cash flows of merged firms decrease from their pre-merger levels, but the non-merging firms in the same industry experience even more substantial declines. As a result, post-merger operational performance improves relative to the industry benchmark.
When we focus on improvements in profitability, we can find similar results across studies. In fact, **many studies agree that some of the primary drivers of M&A transactions substantially and positively influence pro-forma profitability** (Bruner, 2002). Among the most optimistic findings, **synergies** (in particular cost synergies) **are considered the strongest driver of value creation**, while also low book-to-value ratios, all-cash transactions, and tender offers contribute to value creation.
As already said, accounting studies often reported different results as suggested by Martynova, Oosting and Renneboog (2006)[32], who carried out an empirical study on 155 intra-European deals that document **insignificant changes in profitability** of the combined firm following the takeover. This research is important for us because they focus on four profitability measures based on EBITDA, including EBITDA margin that we will use too, and find results coherent with our research, as indicated in section 5.

That said, the retrospective focus of accounting studies, their sensitivity to inflation and deflation due to historical cost method, and their lack of uniformity in terms of accounting standards of the observed data (making cross-border comparisons difficult) are all reasons that motivated papers such as Bruner (2002) to resort to alternative approaches such as clinical studies and surveys of executives.

[30] Ravenscraft, David J. and F. M. Scherer. 1989. "The Profitability of Mergers." *Journal of Indus- trial Economics*. 7, pp. 101-16.
[31] Healy, Paul M., Krishna G. Palepu and Rich- ard S. Ruback. 1992. "Does Corporate Performance Improve after Mergers?" *Journal of Finan- cial Economics*. 31.
[32] Martynova, M., Oosting, S., Renneboog, L., 2006. "The Long-term performance of European mergers and acquisitions". CentER Discussion Paper; Vol. 2006-111. Finance.

To sum up and integrate the results gathered from the different approaches analyzed in this literature review, **the emerging picture of M&A performances is** fragmented and **not very clear**.
However, **what seems not to be challenged is that mergers and acquisitions prove to create value for both the target's shareholders and the shareholders of the combined entity, while bidding shareholders tend not to lose**.
Therefore, evidence demonstrating the benefits arising from M&A transactions explains, in most cases, why M&A transactions are still pursued by managers.

CHAPTER 3: THE CONSTRUCTION OF THE SAMPLE

The construction of the sample under study involved the collection, from the database Mergermarket, of all the deals announced between January 1st 2015 and December 31st 2018 in Italy. This time frame was chosen to ensure that the evaluation horizon is extended to at least the three years before and after the conclusion of the transaction.

Following the collection of all the deals, the selection of the transactions to be added to the sample was based on those deals that had a disclosed *Deal Value* and *Completion Date*, that involved the acquisition of the **majority stake and** that had a **deal value** of **at least 15 million euros**. Deals with minority shareholdings (acquired stake of less than 50%) and with a deal value lower than 15 million euros were excluded.

The result of this first selection consists of 40 transactions with the preservation of the Target companies (i.e. in which no mergers or incorporations of the Target into the Bidder takes place) and 26 transactions with the incorporation of the Target (Mergers), for a total of 132 companies between Targets and Bidders.

However, of 132 companies, 9 are duplicates (there are 121 unique companies), as in the 4-year period analyzed, 7 of them completed 2 operations and 2 of them completed 3. It was therefore decided to remove the 20 deals involving these 9 companies, with the consequent removal of 9 Bidders and 20 Targets, for a total of 29 companies removed from the sample.

The final analysis sample therefore includes **92 companies**, involved in a total of **46 M&A transactions** divided as follows:

- **27 acquisitions** (i.e. operations in which the Target remains a separate entity);

- **19 mergers** (operations in which there is incorporation of the Target into the Bidder).

The complete list of deals included in the sample is reported in Attachments 2 and 3 at the end of the thesis.

As we can see from these numbers related to the sample, it is important to note that the Italian M&A context, characterized by a limited number of transactions compared for instance to the United States or UK, and by the presence of many very small deals and some megadeals, which constitute outliers, does not allow to isolate a relatively homogeneous sample of large dimensions and therefore to carry out an exceptionally accurate analysis as could be done in other countries.
This reduces the quality and accuracy of the statistical models that we will create in the next chapter and represents one of the obstacles of this research.

Subsequently, for each of the 92 companies, the financial data necessary to complete the analysis were searched and extracted from the database AIDA (Bureau van Dijk), which contains information and financial data of the main Italian companies.

Since AIDA tracks exclusively the financial data of registered Italian companies, this selection unfortunately excludes cross-border deals, in which the purchasing company is foreign, and operations that are backed by Private Equity investors, for which it was not possible to find exhaustive financial information and data that can be integrated into the research.
As seen in section 1.3.1., cross-border deals and private equity represent an important and growing phenomenon in Italy and the impossibility to find financial data for these companies represents another obstacle to this research.

Finally, the ultimate dataset was organized in the form of a *Panel Data* in which for each company, the various financial variables were observed over a time horizon of 11 years, from 2012 to 2022. A panel data set is a type of dataset that follows a given sample of individuals over time, and thus provides multiple observations on each individual in the sample[33].

Since not for all companies we find data for each year of this time horizon, the panel data is classified as *unbalanced*[34]. Indeed, especially for Target companies involved in a merger, the financial data of the Target will be missing in the years following the deal, as in these cases the Bidder is the only company remaining after the transaction is closed.
The use of **panel data** brings **several advantages**, that are identified by Baltagi (1995)[35] as the following:

1. Since panel data relate to individuals, firms, states, countries, etc. over time, there is bound to be heterogeneity in these units. The techniques of panel data estimation can take such heterogeneity explicitly into account by allowing for subject-specific variables. We use the term subject in a generic sense to include microunits such as individuals, firms, states, and countries.
2. By combining time series of cross-section observations, panel data gives more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency.
3. By studying the repeated cross section of observations, panel data are better suited to study the dynamics of change.

[33] Hsiao, C. 201 4. "Analysis of Panel Data", Cambridge University Press, Cambridge, pp. 1-2.
[34] Wikipedia, "Panel data": an unbalanced panel is a dataset in which *at least one* panel member is not observed every year. Therefore, if an unbalanced panel contains N panel members and T periods, then the following strict inequality holds for the number of observations (n) in the dataset: $n < N \cdot T$.
[35] Badi H. Baltagi, 1995. "*Econometric Analysis of Panel Data",* John Wiley and Sons, New York.

4. Panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data. For example, the effects of minimum wage laws on employment and earnings can be better studied if we include successive waves of minimum wage increases in the federal and/or state minimum wages.
5. By making data available for several thousand units, panel data can minimize the bias that might result if we aggregate individuals or firms into broad aggregates.

In short, panel data can enrich empirical analysis in ways that may not be possible when using only cross-section or time series data.

THE CONTROL GROUP

In order to be complete, the analysis of the performance of a company should be accompanied by a comparison with a Control Group, which constitutes an approximation of the performance of the company's operating sector and helps to contextualise certain business trends.
The M&A activity is strongly cyclical and dependent on the macroeconomic environment. In the event of favorable external economic contingencies, an M&A transaction could bring an increase in value and positive financial results even for inefficient and poorly structured deals. At the same time, potentially efficient and well-structured operations could be penalized by negative circumstances in the company's operating sector.
To overcome this problem and avoid drawing misleading conclusions, it is necessary to introduce an external control to the *Treated* companies analyzed, evaluating their actions with respect to a Control Group, the *Group of Peers*.
The Group of Peers is made up of companies proposed by the database AIDA, which are comparable in terms of sector of operation and size to the Treated companies, but that were not involved in any M&A transaction.

For each of the 92 Treated companies, 10 peers were selected by AIDA. However, some of these peers proposed were already part of our sample of Treated companies as they engaged in an M&A transaction; thus these companies were removed from the Group of Peers. The total number of peer companies included in the ultimate dataset is 893.

As for the Treated companies, also for the Group of Peers the accounting data for the time horizon from 2012 to 2022 was extracted from AIDA and added to the panel data. The Group of Peers will be used within the regression models to evaluate whether the companies under study (i.e. which have been involved in a deal) have higher or lower results than those of the Group of Peers (i.e. which have not supported any deal).

CHAPTER 4: ANALYSIS

4.1. DEFINITION OF THE VARIABLES

DEPENDENT VARIABLES

Regression analysis is concerned with the study of the dependence of one variable, the dependent variable, on one or more other variables, the explanatory variables, with a view to estimating and/or predicting the (population) mean or average value of the former in terms of the known or fixed (in repeated sampling) values of the latter[36].
The dependent variable is then the variable in a regression model that is being predicted or explained by the independent variables.

In this research it is believed that the **most suitable dependent variable** to explain the creation of value following M&A transactions is ***Equity***.
Indeed, Equity represents ownership in a company, and ultimately, the goal of most M&A transactions is to create value for the companies' owners (i.e. shareholders). By looking at changes in the equity value before and after an M&A deal, you can assess whether the deal has been successful in enhancing shareholders' value.
Additionally, Equity value is closely linked to a company's financial performance, as after each period it accumulates the net income that has not been distributed to shareholders and it reflects the long-term outlook and sustainability of value creation in M&A deals. Unlike short-term financial metrics, such as earnings or cash flow, changes in equity value capture the cumulative effects of strategic decisions and operational performance over time.
It is important to note that, before being used in the analysis, **Equity was adjusted for any capital increases and dividends distributed**, as an increase or decrease in Equity due to these two factors is not necessarily a symptom of value creation.
Furthermore, given the lack of homogeneity of the observations in the sample and the high presence of outliers, it was decided to use the natural logarithm of Equity[37].
Logarithmic transformation can help normalize the distribution of skewed variables. Variables that exhibit skewness or heteroscedasticity in their distributions may benefit from logarithmic transformation, making the data more symmetrical and stabilizing variance across different levels of the independent variable.

Another dependent variable that is believed to be an indicator of value creation in M&A transactions is the ***EBITDA margin***, given by the ratio between EBITDA and Revenues.

[36] Gujarati, D.N. 1995, "Basic Econometrics", McGraw-Hill Companies, New York. pp. 15.
[37] log_Equity_net = ln(1 + Equity_net)

EBITDA margin focuses on the operating performance of a company by measuring its earnings before accounting for non-operating expenses such as interest, taxes, depreciation and amortization, and for this reason it is often used as a proxy for cash flow generation. EBITDA margin allows to assess how well a company generates profits from its core business activities, providing insights into its operational efficiency and profitability.
Furthermore, in many cases increases in EBITDA margin can show the creation of value through the synergies (especially operational synergies) put in place after the conclusion of the M&A deal.

The third dependent variable covered by this study is the ***Net Debt/EBITDA*** ratio, where Net Debt is the difference between financial debt and cash and cash equivalents.

The Net Debt/EBITDA is a financial strength ratio that shows how many years it would take for a company to pay back its debt if net debt and EBITDA are held constant, and in turns it takes into account a company's ability to decrease its debt through its sole operating activities.

Among the three dependent variables selected, this is considered the **least effective in assessing value creation** through M&A transaction, however it might still be interesting to look at how this ratio changes before and after the finalization of an M&A deal.
Indeed, a reduction in this ratio post-acquisition may indicate successful integration efforts that have improved the combined entity's financial position or the set up of synergies, cost savings, or improved operational performance that may enhance value creation by increasing financial flexibility and reducing interest expense.
At the same time, a reduction of this ratio may improve investor confidence and support higher valuation multiples, potentially leading to value creation for shareholders.
Ratios higher than 4 or 5 usually raise concerns as they suggest that a company may struggle to manage its debt load, potentially limiting its ability to secure additional financing necessary for business expansion.

The **dependent variables** under study are therefore:
- Equity (*log_Equity_net)*
- EBITDA margin *(EBITDAmargin)*
- Net Debt/EBITDA *(NetDebtEBITDA)*

EXPLANATORY VARIABLES

The purpose of this study is to assess effect of M&A transactions on the three dependent variables mentioned above. For this reason, the two main explanatory variables are **two dummy variables** that were created specifically to allow us distinguish between Treated companies and peers and to separate the periods prior to the deal from those following.

- *TREAT* is a dummy variable that is worth 1 for Treated companies and is worth 0 for companies belonging to the Group of Peers. This variable allows to **distinguish between the Treatment group and the Control group** and is fundamental for the methodology used in this research.

- *MA_POST* is a dummy variable that is worth 1 starting from the year in which a company executes a deal and for all subsequent years, while it is worth 0 for the years preceding the deal and for all companies belonging to the Group of Peers . This is the most important variable for our study because it allows us to **evaluate the effect on the dependent variable before and after the deal** and therefore to evaluate the *Causality* effect of the deal itself. It is **the coefficient of MA_POST** that **will be used to draw the conclusions of this research.**

It is important to note that, although **these two variables** are similar and present a strong correlation, they were created to achieve the purpose of the research and therefore **should be used together**.

- *IsBidder* is a dummy variable that is worth 1 for Bidder company, while it is worth 0 for Targets and it is not defined for peers. This variable allows to **separate the Bidder from the Target**.

- *TARGET_INCORPORATION* is another dummy variable that is worth 1 for Mergers (i.e. for deals in which there is integration of the target into the bidder), while it is worth 0 for Acquisitions. This variable is used to distinguish between these two groups of deals.

- *GROUP* is a variable that matches a certain treated company with its respective peers and allows to compare the former with its specific peers rather than with the entire control group.

The following explanatory variables are included in the regression as **control variables** to mitigate the risk of omitting important factors that could confound the relationship between the independent and dependent variables. Omitted variable bias

occurs when a relevant variable is left out of the model, leading to biased estimates of the coefficients of the included variables.
Control variables help to improve the precision and accuracy of the estimates for the coefficient of the independent variable of interest by accounting for additional sources of variation in the dependent variable and therefore lead to more reliable and robust statistical inference.

- *log_Revenue* allows to **evaluate the effect of the size of the company** and to discriminate between companies that can, due to their size, complete more efficient deals. As with the dependent variable Equity_net, we decided to use the natural logarithm to normalize the distribution. For this variable it was also decided to use a lagged value (i.e. log_Revenue at time t-1) because it is believed that the previous year's revenue is more effective in identifying the size of the company before the deal. This was done in Stata through the command L1.log_Revenue.

- *log_CashAndEquivalents* allows **controlling for cash and equivalents**, thus helping ensure that any observed relationships between the dependent variables of interest and the dependent variables are not solely driven by differences in liquidity levels across companies. This control is important because the level of liquidity can significantly impact a company's financial health, and in turn its strategic decisions. Additionally, companies with higher levels of cash and equivalents tend to have greater financial flexibility and may be better positioned to invest in growth opportunities and finance acquisitions.

- *DebtEquity* represents the financial leverage ratio calculated as Net Debt/Equity. The Net Debt/Equity ratio can influence a company's valuation and cost of capital, which in turn affects its attractiveness as a target for M&A. Companies with lower Debt/Equity ratios may be perceived as less risky and therefore have higher valuations. Conversely, companies with higher leverage may face greater borrowing costs and a higher cost of equity capital, potentially impacting their valuation in M&A transactions. Including DebtEquity as a control variable, allows **accounting for the impact of capital structure** on the dependent variables. This ensures that any observed relationship between the independent variables of interest and the dependent variables are not solely due to differences in capital structure across companies.

- *NPeople* represent the **number of employees** working in a certain company and it is used as a proxy for the scale or size of a company's operations. Larger companies tend to have access to more resources, including financial, human, and technological resources, that can affect the company's ability to execute M&A transactions, invest in growth opportunities, or manage post-merger

integration. By including NPeople as a control variable, we are mitigating the potential impact of **company size** and resource availability on the dependent variables of interest.

- *ROE* represent Return on Equity that is a key measure of a company's profitability, indicating how efficiently it generates profits from shareholders' equity. Including ROE as a control variable allows accounting for the influence of profitability on the dependent variables and ensures that any observed effects of M&A activity on these variables are not solely due to differences in profitability across companies. Furthermore, ROE often reflects investors' confidence. Companies with higher ROE may be viewed more favorably by investors, which can affect their access to capital, cost of capital, and overall market valuation.

For the sake of completeness, Table 4.1.1. reports the main descriptive statistics for the control variables adopted in this study.

Variable	Mean	Median	Std. Dev.	min	max	N	p25	p75
Revenue	185.075	44.796	649.774	0,045	13.576.374	8.584	11.657	105.143
CashAndEquivalents	17.594	1752	119.597	0,001	3.323.000	8.845	290.872	7.092
DebtEquity	0,385	0,011	1,584	-7,615	12,426	8.261	-0,176	0,600
NPeople	326	85	997	1	18.225	8.216	23	253
ROE	0,093	0,078	0,287	-2,759	1.094	8.687	0,013	0,191

Table 4.1.1.: descriptive statistics for control variables

In our regression models it is key to accounts also for **fixed effects**. Two main variables are considered to account for fixed effects:

- *ATECO_group* is a categorical variable that has been created with the purpose of **dividing all the companies** in the sample into **groups based on their ATECO**[38] **macrocategory**. By including ATECO_group as a fixed effect in the regression model, we are controlling for potential differences in the effects of M&A activity across different sectors of the economy.

[38] ATECO stands for "ATtività ECOnomiche" and it is a system used to classify economic activities in Italy.

- *Years* denotes the progression of time throughout the dataset's duration and it is used as a **time dummy** that accounts for the overall time trend in the data by **treating each year as a separate category**.
  Including time fixed effects allows the regression model to control for any time-varying factors that may influence the dependent variable but are constant across all units. In essence, including Years as a fixed effect helps to control for time-related confounding factors, such as changes in market conditions, economic trends, or policy changes, that could otherwise bias the estimates of the coefficients for the other independent variables. In our case, the introduction of this control is very important as our time horizon (2012-2022) includes part of the effects of two major macroeconomic events that might otherwise distort the outcomes: the Great Financial Crisis of 2008 and the pandemic of COVID-19.

Fixed effects regression is a method for controlling for omitted variables in panel data when the omitted variables vary across entities (states) but do not change over time and can be used when there are two or more time observations for each entity[39].
Therefore, these fixed effects capture the average effect of unobserved characteristics that are specific to each entity and remain constant over time but may influence the outcome variable. They are categorical variables that represent each entity in the dataset, and they are included as additional independent variables in the regression model.
By accounting for these fixed effects, the model can better estimate the relationship between the independent variables of interest and the outcome variable, while controlling for individual-specific factors.

[39] Stock, J., Watson, M. 2005. "Introduction to econometrics". 4th edition. Pearson. pp. 368.

4.2. RESEARCH QUESTIONS

After describing the sample construction process and the variables of interest in our study, the time has now come to introduce the research questions.
As already mentioned, we want to test whether, for companies that take part in an M&A transaction (Treated companies), following the conclusion of the deal, the variables that we have selected as indicators of value creation (in particular log_Equity_net) grow more than those of companies that did not participate in a deal (Peers).
Ultimately, **we** therefore **want to evaluate whether, in Italy, taking part in a merger or acquisition is on average an effective strategy for creating value**.

As highlighted in Chapter 1.3.1., the Italian economic and financial scenario is very different from the global one due to the presence of a high portion of small-medium enterprises and the greater use of the debt capital market to the expense of the equity capital market.
For this reason, we expect that the results of the study may differ significantly from those of the literature, which in most cases bases its studies in countries such as the United States where the equity capital market is significantly more developed.

Here follows the formalization of the questions.

Question 1

Initially, **we ask ourselves whether, on average, the value of Equity tend to increase as a result of undertaking an M&A transaction.**
More formally, we want to discover if there is a causal link between the variable *MA_POST* and the variable *log_Equity_net* for Italian companies.
In this model we will evaluate the significance of the coefficient of the explanatory variable *MA_POST* with respect to the dependent variable *log_Equity_net* and in the case in which it is not possible to assume this coefficient equal to zero (with a confidence level of no less than 90%), then a significant relationship will be deduced between the two variables.
The model will then be modified to separate the Bidders from the Targets and evaluate the effect on these two groups of companies separately.
Similarly, the model will be modified to also separate the Acquisitions from the Mergers and evaluate the effect on these two groups of companies separately.
Finally, the first model will also be tested through the Event Study technique to try to give greater robustness to the analysis.

Question 2

Initially, **we ask ourselves how, on average, the value of EBITDA margin tend to change as a result of undertaking an M&A transaction.**
More formally, we want to discover if there is a causal link between the variable *MA_POST* and the variable *EBITDA_margin* for Italian companies.
In this model we will evaluate the significance of the coefficient of the explanatory variable *MA_POST* with respect to the dependent variable *EBITDA_margin* and in the case in which it is not possible to assume this coefficient equal to zero (with a confidence level of no less than 90%), then a significant relationship will be deduced between the two variables.
The model will then be modified to separate the Bidders from the Targets and evaluate the effect on these two groups of companies separately.
Similarly, the model will be modified to also separate the Aquisitions from the Mergers and evaluate the effect on these two groups of companies separately.
Finally, the first model will also be tested through the Event Study technique to try to give greater robustness to the analysis.

Question 3

Initially, **we ask ourselves whether, on average, the ratio Net Debt/EBITDA tend to change as a result of undertaking an M&A transaction.**
More formally, we want to discover if there is a causal link between the variable *MA_POST* and the variable *NetDebtEBITDA* for Italian companies.
In this model we will evaluate the significance of the coefficient of the explanatory variable *MA_POST* with respect to the dependent variable *NetDebtEBITDA* and in the case in which it is not possible to assume this coefficient equal to zero (with a confidence level of no less than 90%), then a significant relationship will be deduced between the two variables.
The model will then be modified to separate the Bidders from the Targets and evaluate the effect on these two groups of companies separately.
Similarly, the model will be modified to also separate the Aquisitions from the Mergers and evaluate the effect on these two groups of companies separately.
Finally, the first model will also be tested through the Event Study technique to try to give greater robustness to the analysis.

4.3. DESCRIPTIVE ANALYSIS OF THE DEPENDENT VARIABLES

Before applying the regression models that were developed to answer the questions of this research, the main descriptive statistics for the three dependent variables under study are reported below, which can help to better understand how the dataset was constructed and which are the average values of these variables for the companies that are part of it.

For each of the three dependent variables it was also decided to first analyze the research questions in a **non-rigorous manner** through descriptive statistics, to see what the data suggests and whether there are any trends or visible correlations at first glance.

4.3.1. Equity_net

	Mean	Median	Std. Dev.	min	max	N	p25	p75
Entire sample	149.295	13.528	1.364.665	-1.490.758	39.990.551	9.097	3.063	48.543
Treated	413.385	50.927	1.054.283	-7.058	7.586.000	770	14.209	307.037
Peers	124.874	11.906	1.387.384	-1.490.758	39.990.551	8.327	2.658	41.865
Bidders	694.755	168.488	1.338.509	2.138	7.586.000	431	54.374	533.658
Targets	55.655	14.209	142.454	-7.058	1.033.323	339	6.445	35.991
Acquisitions	484.741	49.401	1.193.474	-7.058	7.586.000	513	15.491	358.756
Mergers	270.951	52.553	677.899	14	4.911.457	257	12.247	241.170

Table 4.3.1.: descriptive statistics – Equity_net

Table 4.3.1. summarizes the main descriptive statistics for the variable Equity_net in the different cases that we are going to study, that is in the entire sample, for the treated companies and the peers, for the bidder and target companies, and for the companies that took part in an acquisition or in a merger. It is important to notice that the number of observations for Bidder companies is larger than the one for Targets because after the conclusion of a merger, only the target company remains.

It is intuitive to see that the data relative to the Equity in the dataset is characterized by a **large level of variability**, which is suggested by the huge value of standard deviation. Furthermore, the great difference between the mean and the median suggests that the distribution of the data is positively skewed and in turn that there are a few extremely high values that pull the mean upward, causing it to be significantly greater than the median.

Indeed, our sample includes either very small companies or large multinationals, for instance in the field of utilities. As already said, in the field of M&A deals and in particular in the Italian landscape, where the number of transactions is small, it is very difficult to isolate a large sample of homogeneous treated companies, and in our case with our resources it was not possible to do so.
However, as anticipated, in the regression models we will use the variable log_Equity_net, that has a much more normal distribution than Equity_net obtained by adopting the natural logarithm.

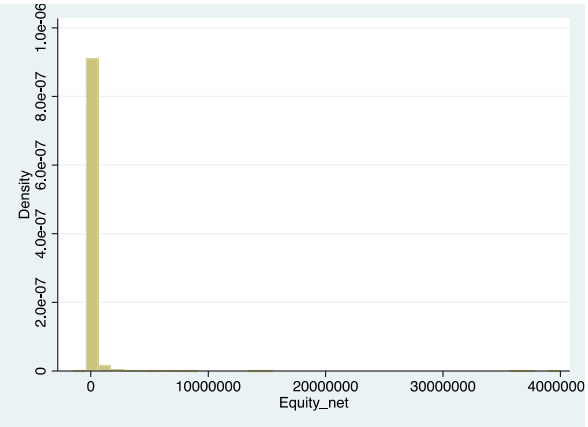

Figure 4.3.1.: distribution of Equity_net

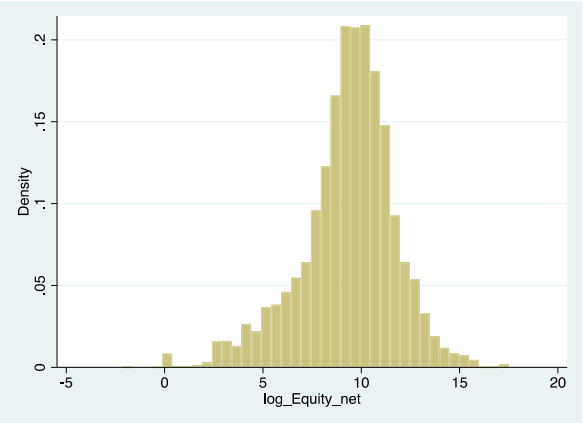

Figure 4.3.2.: distribution of log_Equity_net

Treated companies

We now want to consider all the companies in the sample (Bidders and Targets) that completed an M&A transactions (Treated Companies) and see how the value of Equity_net has changed in the three years following the deal. To do this, the change in Equity_net (Δ Equity_net) was calculated compared to year 0 (i.e. the year in which the operation took place) for the Treated companies and for their respective peers.

		0	1	2	3
Equity_net	Bidder + Target	355.712	418.643	444.171	477.429
	Peers	110.813	113.005	132.073	134.204
Δ Equity_net	Bidder + Target		0,20	0,24	0,42
	Peers		0,07	0,22	0,37

Table 4.3.2. – change in Equity_net in relation to the year of the deal. Δ Equity_net is computed for each individual firm and then the average is calculated.

What can be seen by observing Figure 4.3.3. is that while for peers the average growth of Equity_net seems to be constant, for Treated companies it seems to have a peak (+20%) in the first year after the conclusion of the deal and in the third year. In any

case, the average growth in the value of equity for Treated companies is always higher than that of peers, but much less than what would be expected from companies that have taken part in an extraordinary strategic operation. In fact, at the end of the third consecutive year following the deal, a Treated company sees on average the value of its equity increased by only 4% compared to its peers.

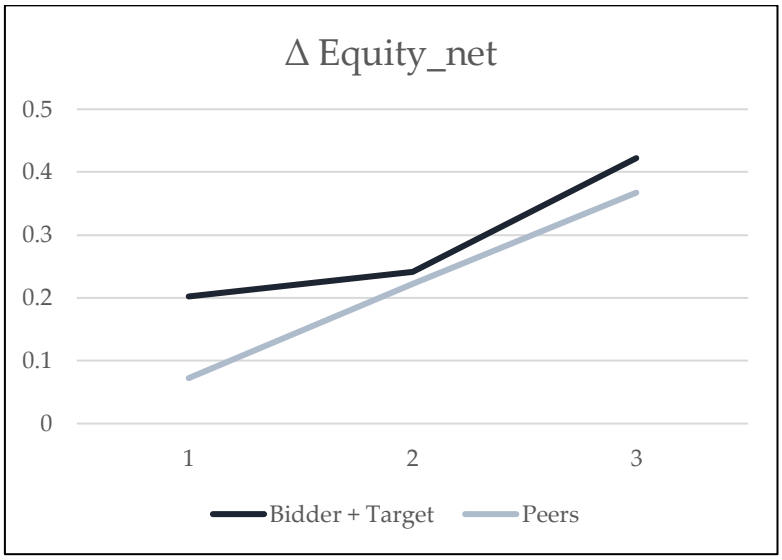

Figure 4.3.3.

Bidder companies

We now want to isolate the set of all Bidder companies present in the sample and see, again, how the value of Equity_net has changed in the three years following the deal.

		0	1	2	3
Equity_net	Bidder	595.726	663.331	690.266	715.198
	Peers	57.711	59.793	63.334	68.042
Δ Equity_net	Bidder		0,15	0,20	0,25
	Peers		0,20	0,27	0,29

Table 4.3.3. – change in Equity_net in relation to the year of the deal for Bidders. Δ Equity_net is computed for each individual firm and then the average is calculated.

This time, what seems to emerge from Figure 4.3.4. is that both for the Bidders and their peers the change in equity compared to the year of the deal grows in a rather constant and comparable manner. However, in each of the post-deal years, the change

in equity is significantly greater for peers than for Bidders. This means that on average, although bidders engaged in a merger or acquisition, they performed worse than similar companies that did not take part in any deal in terms of increasing the value of equity.

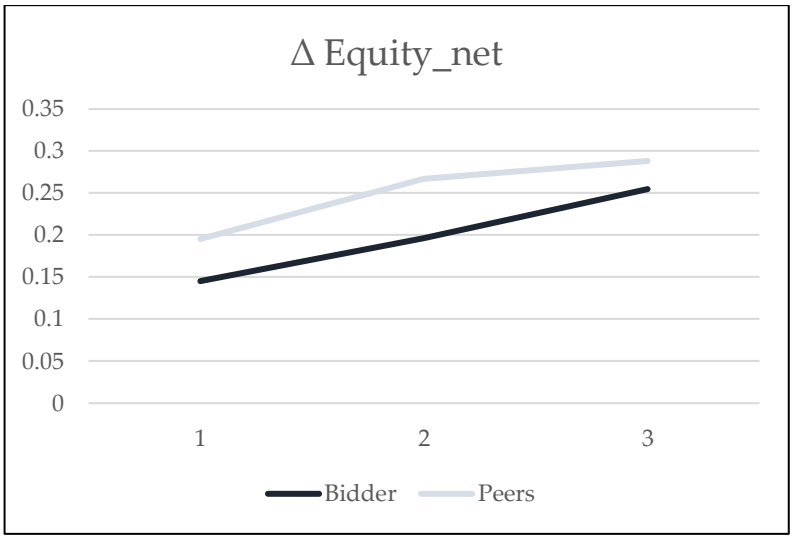

Figure 4.3.4.

Target companies

We now want to isolate the set of all Target companies present in the sample and see, again, how the value of Equity_net has changed in the three years following the deal.

		0	1	2	3
Equity_net	Target	49.027	62.558	64.299	70.342
	Peers	166.089	179.265	197.616	219.262
Δ Equity_net	Target		0,29	0,31	0,46
	Peers		0,09	0,18	0,35

Table 4.3.4. – change in Equity_net in relation to the year of the deal for Targets. Δ Equity_net is computed for each individual firm and then the average is calculated.

This time, Figure 4.3.5. appears to show that, after the first year following the deal, equity grows at a similar CAGR for Targets and peers, but in each period the average change of equity with respect to the year of the deal is significantly greater for Targets

than peers. In particular equity for Targets seems to grow by 30% on the first year which is three times as much as the increase for peers.
From this graph, Targets companies that took part in an M&A transaction seem to record on average better performance than their peers that did not take part in any deal, in terms of increasing the value of equity.

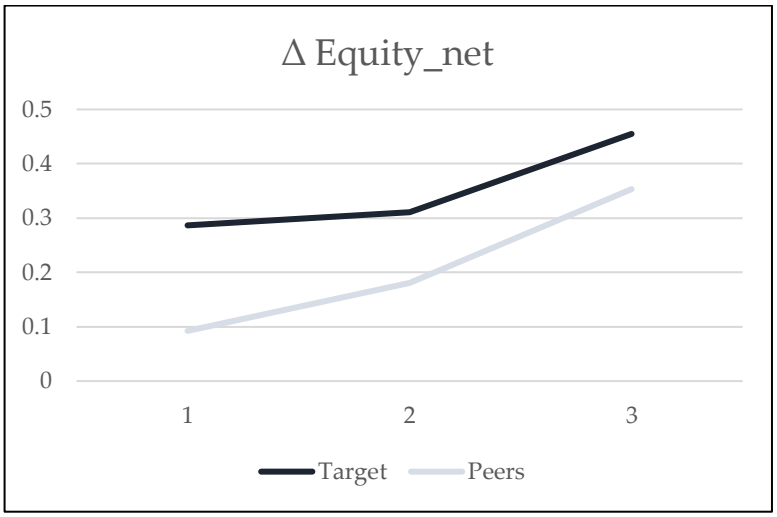

Figure 4.3.5.

4.3.2. EBITDA_margin

	Mean	Median	Std. Dev.	min	max	N	p25	p75
Entire sample	0,108	0,073	0,188	-0,994	0,984	8.440	0,030	0,150
Treated	0,156	0,112	0,232	-0,994	0,844	702	0,055	0,223
Peers	0,104	0,071	0,182	-0,952	0,984	7.738	0,029	0,143
Bidders	0,171	0,140	0,225	-0,994	0,822	381	0,065	0,230
Target	0,138	0,095	0,239	-0,888	0,844	321	0,042	0,200
Acquisitions	0,179	0,121	0,242	-0,888	0,844	478	0,056	0,242
Mergers	0,107	0,098	0,200	-0,994	0,799	224	0,050	0,189

Table 4.3.5.: descriptive statistics – EBITDA_margin

Table 4.3.5. summarizes the main descriptive statistics for the variable EBITDA_margin in the different cases that we are going to study, that is in the entire sample, for the treated companies and the peers, for the bidder and target companies and for the companies that took part to an acquisition or to a merger. It is important to notice that the number of observations for Bidder companies is larger than the one for Targets because after the conclusion of a merger, only the target company remains.

The distribution of EBITDA_margin appears to be relatively symmetrical and with no significant skewness, which is suggested by the fact that the mean and the median are quite similar. As already seen for Equity_net and as indicated by the quite high value of the standard deviation, a large level of variability is present also for the observations relative to EBITDA_margin. However in this case it is significantly lower than the variability affecting equity measures.
Indeed, data relative to EBITDA_margin was limited to values lower than 1,00 by dropping the few observations of EBITDA that resulted larger than Revenue. Such values of EBITDA are considered misreporting errors computed by the database and were as such removed, due to the fact that it is considered senseless to have EBITDA greater than Revenue.

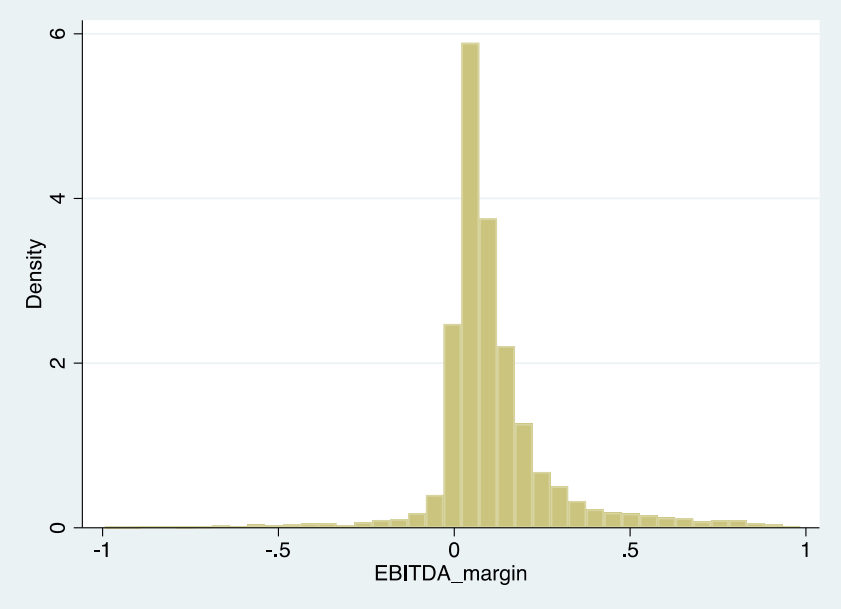

Figure 4.3.6.: distribution of EBITDA_margin

Treated companies

We now want to consider all the companies in the sample (Bidders and Targets) that completed an M&A transactions (Treated Companies) and see how the value of EBITDA_margin changes from the three years before the deal to the three years after the conclusion of the deal.

EBITDA_margin	-3	-2	-1	0	1	2	3
Bidder + Target	0,146	0,149	0,165	0,135	0,154	0,140	0,156
Peers	0,097	0,102	0,107	0,109	0,107	0,099	0,109

Table 4.3.6.: evolution of EBITDA_margin

According to Figure 4.3.7., EBITDA_margin seems to remain quite constant for both Treated companies and their peers. For Treated companies it slightly fluctuates but on average there is no clear evidence of an increase in operational efficiency.
However, in terms of operational profitability Treated companies tend to perform significantly better than their peers over the entire time horizon considered.

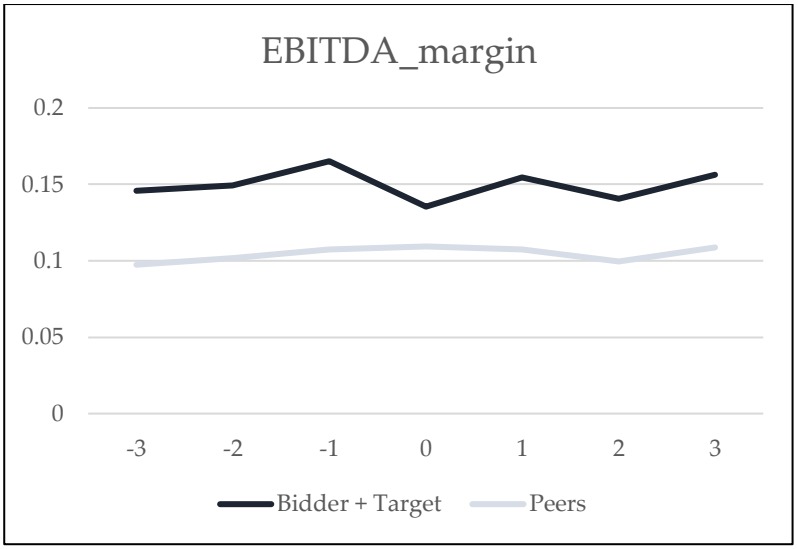

Figure 4.3.7.

Bidder companies

We now want to isolate the set of all Bidder companies present in the sample and see, again, how the value of EBITDA_margin changes over the period of interest.

EBITDA_margin	-3	-2	-1	0	1	2	3
Bidder	0,162	0,174	0,163	0,147	0,161	0,143	0,158
Peers	0,097	0,098	0,103	0,110	0,100	0,096	0,103

Table 4.3.7.: evolution of EBITDA_margin for Bidders

As per the previous case (Treated companies), Figure 4.3.8. suggests that EBITDA_margin seems to remain quite constant for both Bidder companies and their peers. For Bidders it slightly fluctuates, with a peak in the first year after the deal but on average there is no clear evidence of an increase in operational efficiency.
Again, in terms of operational profitability Treated companies tend to perform significantly better than their peers over the entire time horizon considered.

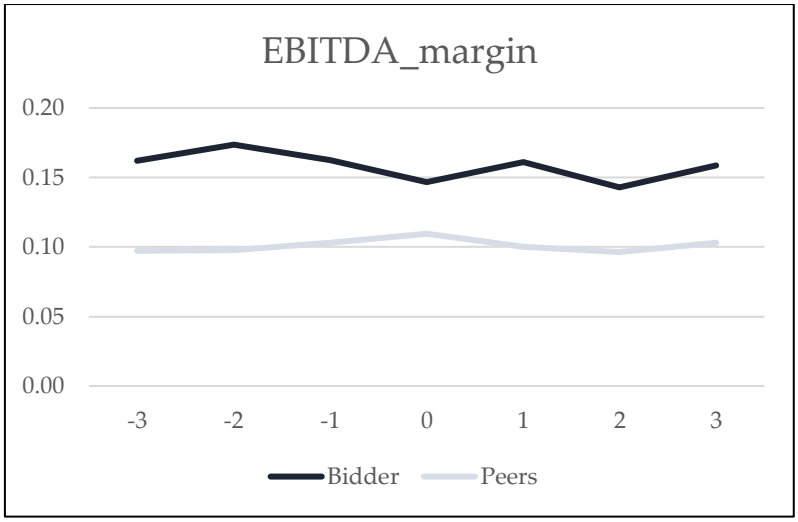

Figure 4.3.8.

Target companies

We now want to isolate the set of all Target companies present in the sample and see, again, how the value of EBITDA_margin changes over the period of interest.

EBITDA_margin	-3	-2	-2	0	1	2	3
Target	0,129	0,127	0,146	0,122	0,145	0,137	0,152
Peers	0,095	0,107	0,108	0,111	0,112	0,105	0,116

Table 4.3.8.: evolution of EBITDA_margin for Targets

In line with the previous two cases (Treated companies and Bidders), Figure 4.3.9. suggests that there is a very modest increase in EBITDA_margin for both Target companies and their peers.
Once again, in terms of operational profitability Treated companies tend to perform significantly better than their peers over the entire time horizon considered.

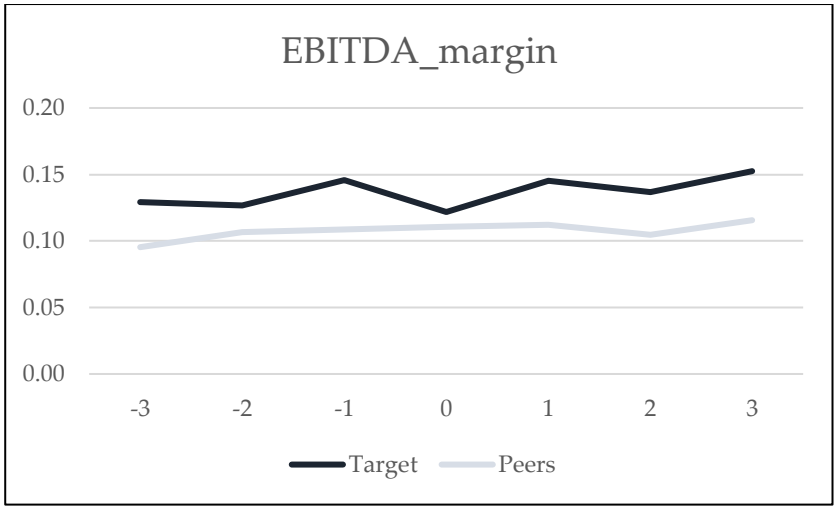

Figure 4.3.9.

4.3.3. NetDebtEBITDA

	Mean	Median	Std. Dev.	min	max	N	p25	p75
Entire sample	0,848	0,065	9,671	-74,978	75,877	8.239	-0,857	2,571
Treated	2,845	0,885	10,678	-71,411	74,922	691	-0,068	3,373
Peers	0,665	0,021	9,554	-74,978	75,877	7.548	-0,936	2,501
Bidder	2,801	1,059	10,060	-47,796	74,922	370	0,076	3,125
Target	2,896	0,729	1,365	-71,411	74,524	321	-0,287	3,590
Acquisitions	2,351	0,843	10,595	-71,411	55,480	447	-0,019	2,715
Mergers	3,751	1,096	10,791	-37,034	74,922	244	-0,149	4,493

Table 4.3.9.: descriptive statistics – NetDebtEBITDA

Table 4.3.9. summarizes the main descriptive statistics for the variable NetDebtEBITDA in the different cases that we are going to study, that is in the entire sample, for the treated companies and the peers, for the bidder and target companies and for the companies that took part to an acquisition or to a merger. It is important to notice that the number of observations for Bidder companies is larger than the one for Targets because after the conclusion of a merger, only the target company remains.

It is quite evident that the distribution of NetDebtEBITDA is characterized by a large level of variability, which is suggested by the huge value of standard deviation. The

majority of observations fall between -1 and 3, however there in a consistent presence of outliers that cause the distribution to be the one in Figure 4.3.10..

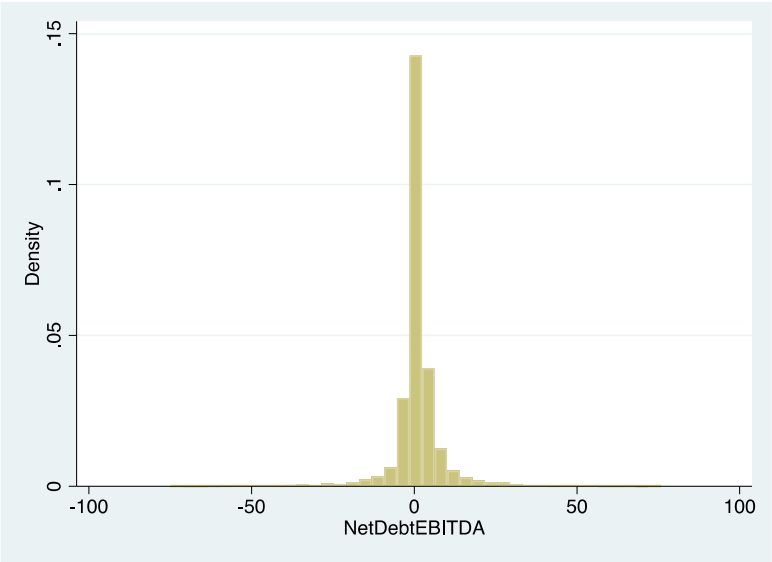

Figure 4.3.10.: distribution of NeDebtEBITDA

Treated companies

Also for the third dependent variable we want to consider all the companies in the sample (Bidders and Targets) that completed an M&A transactions (Treated Companies) and see how the value of NetDebtEBITDA varies from the three years before the deal to the three years after the conclusion of the deal.

NetDebtEBITDA	-3	-2	-1	0	1	2	3
Bidder + Target	4,01	3,29	2,86	2,66	3,60	1,76	2,54
Peers	1,84	0,78	1,50	1,16	1,76	1,11	1,44

Table 4.3.10.: evolution of NetDebtEBITDA

As suggested by Figure 4.3.11., the level of NetDebtEBITDA is much higher for Treated companies throughout the entire period of interest. The rationale might be that in many cases M&A transactions are financed through debt. At the same time, NetDebtEBITDA seems to decrease significantly for Treated companies, while it remains quite constant for their peers. This may be justified by several reasons, for instance the company may prioritize reducing or refinancing its debt levels post-

M&A. Also, as often happens, the company may decide to divest non-core or underperforming assets and use the proceeds to lower the amount of debt.

In general, what has been noticed is that the variable NetDebtEBITDA, and in particular the Net Debt, tend to fluctuate much more than Equity_net and EBITDA_margin. Intuitively this may make sense since a company can decide to change significantly its amount of debt even in the short term, for instance by taking on debt to finance net working capital. This debt can substantially increase the Net Debt of a certain year but already be repaid the following year.

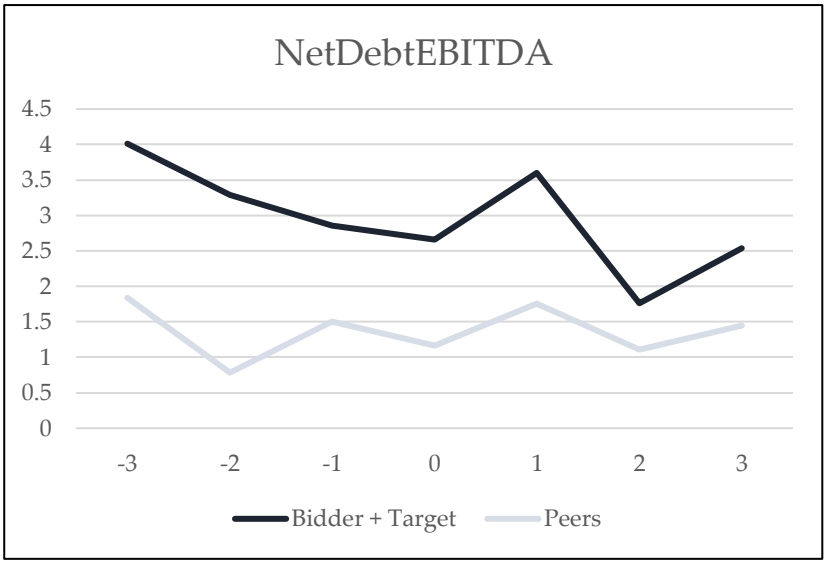

Figure 4.3.11.

Bidder companies

We now want to isolate the set of all Target companies present in the sample and see, again, how the value of NetDebtEBITDA changes over the period of interest.

NetDebtEBITDA	-3	-2	-1	0	1	2	3
Bidder	3,31	2,71	2,14	3,44	3,42	2,41	3,64
Peers	1,10	0,86	0,66	2,70	0,88	1,41	1,43

Figure 4.3.11.: evolution NetDebtEBITDA for Bidders

In this case, Figure 4.3.12. suggests that NetDebtEBITDA seems to fluctuate substantially for both Bidders and peers, without showing any evident decreasing trend.
Again the level of NetDebtEBITDA is much higher for Bidder companies throughout the entire period of interest and, as before, the rationale might lie in the fact that M&A transactions are often financed through debt.

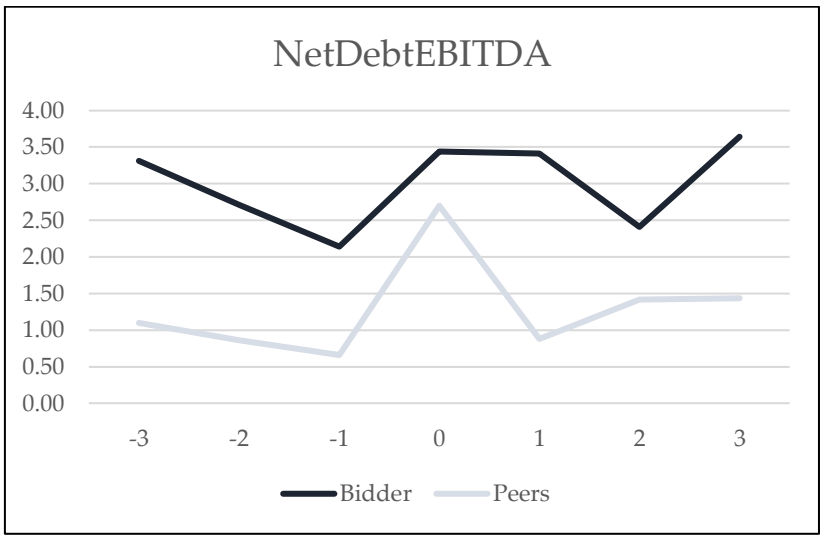

Figure 4.3.12.

Target companies

Lastly, we want to isolate the set of all Target companies present in the sample and see, again, how the value of NetDebtEBITDA changes over the period of interest.

NetDebtEBITDA	-3	-2	-1	0	1	2	3
Target	3,71	3,88	4,65	1,63	2,11	0,76	0,95
Peers	2,53	2,15	2,59	1,65	2,68	1,62	2,00

Figure 4.3.12.: evolution NetDebtEBITDA for Bidders

This time, Figure 4.3.13. shows an evident and remarkable decrease in the NetDebtEBITDA for the Target companies, while for the peers the same variable, although fluctuating, seem to remain quite constant. In particular, the average value of NetDebtEBITDA for Targets passes from being quite high before the deal takes place, to being lower than the one of peers after the conclusion of the deal. This might

be the result of strategies undertaken by the acquirer of the Target to reduce the Target's debt burden and improve its capital structure.

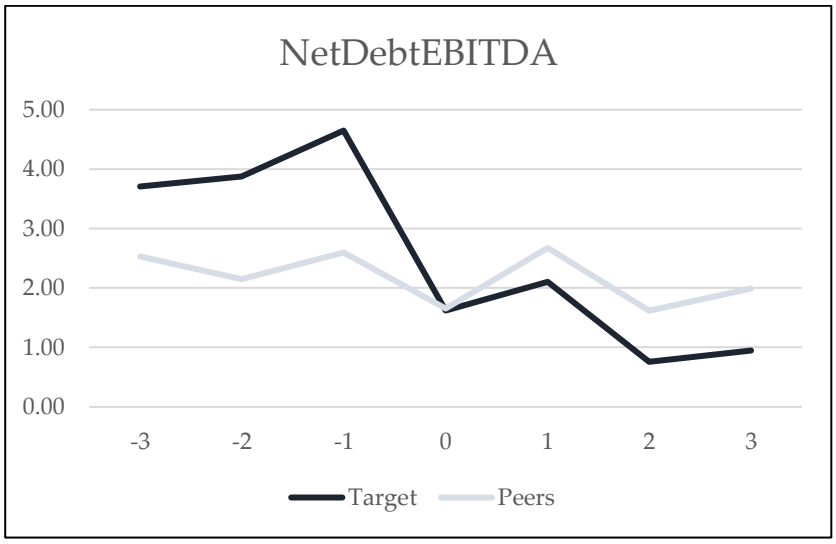

Figure 4.3.13.

Once again, it is important to note that **the statistics reported above are purely descriptive** and cannot be used to infer conclusions about the value creation of M&A in Italy.

4.4. INTRODUCTION TO THE MODELS

The regression models developed for this study employ the Staggered Differences-in-Differences (DiD) methodology to analyse the effects of M&A transactions on the selected dependent variables.
Difference-in-Differences is a quasi-experimental method extensively used to evaluate the causal impact of a treatment or intervention.
DiD allows estimation of the treatment effect by comparing changes in outcomes between a treatment group and a control group before and after the implementation of the treatment, that in our research would correspond to the undertaking of an M&A transaction.

If we observe both a treatment and a control group before and after the treatment and let Y be the sample average of a certain variable, the DiD estimator is the average change in Y for those in the treatment group minus the average change in Y for those in the control group[40]:

$$\beta^{\text{diffs-in-diffs}} = (Y^{\text{treatment, after}} - Y^{\text{treatment, before}}) - (Y^{\text{control, after}} - Y^{\text{control, before}}).$$

Translating this into regression notation, and adapting it to our research, we obtain the equation that explains our model, that is:

$$Y_{gt} = \beta_0 + \beta_1 MA\_POST_t + \beta_2 TREAT_g + \beta_3 MA\_POST_t \times TREAT_g + \beta_i X + U_{gt}$$

Where :

- MA_POST_t is the dummy variable equal to 1 when the company is in the post-treatment (i.e. post-M&A) period.
- $TREAT_g$ is the dummy variable equal to 1 if you are in the Treated group.
- $MA\_POST_t \times TREAT_g$ is an interaction term equal to 1 if you are in the treated group in the post-treatment period. In our case this is equal to MA_POST.
- X is the set of control variables adopted by the model.
- U_{gt} is the error.

The traditional DiD framework works well for cases with two groups and time periods. However, in our research Treated companies "receive" the M&A treatment in different years between 2015 and 2018.
A staggered design should offer some desirable properties over a DiD with only one treatment period. With a single treatment period, a typical concern is that contemporaneous trends driven by factors other than the treatment of interest could

[40] Stock, J., Watson, M. 2005. "Introduction to econometrics". 4th edition. Pearson. pp. 492.

confound the treatment effect with consequent violation of the parallel trends assumption. Staggered DiD designs have been generally viewed as more credible and robust because including multiple treatment periods plausibly alleviates concerns that the observed treatment effects are driven by contemporaneous trends.[41]

To ensure the validity of staggered DiD estimation, we rely on several key assumptions:

Staggered treatment adoption: This assumption posits that once units receive treatment, they remain treated throughout the observation period.

Parallel Trends Assumption with Never-Treated Units: the parallel trends assumption states that, in the absence of a treatment, the treated and control groups would have followed similar trends over time. This assumption implies that any differences in outcomes between the two groups before treatment can be attributed to pre-existing differences, as the trends are assumed to be parallel. It ensures the existence of a valid counterfactual outcome to compare the treated group. When we examine groups and periods where treatment is not applied, we assume the average potential outcomes for the group initially treated at time g. The group that never received treatment would have followed similar trends in all post-treatment periods $t \geq g$.

The **parallel trend assumption** relies on **two important conditions**:

- There must be a sufficiently large group of units that have never received treatment in our data.
- These never-treated units must be similar enough to the units that eventually receive treatment so that we can validly compare their outcomes.

In this study, the Parallel Trend Assumption has been tested for each dependent variable with a joint test of significance. The results of this test, that are reported in Table 4.4.1., seem not to violate this assumption.

Variable	F statistic	Prob > F
log_Equity_net	0,04	0,9972
EBITDA_margin	0,68	0,6032
NetDebtEBITDA	0,23	0,9222

Table 4.4.1: joint test of significance

[41] Baker, A. C., D. F. Larcker, and C. C. Wang, 2022. "How much should we trust staggered difference-in-differences estimates?" Journal of Financial Economics 144 (2).

EVENT STUDY

Event studies are a fundamental tool in financial economics used to analyze the impact of specific events on the value of financial assets. In the M&A context, event studies are typically used to assess the extent to which the value of financial assets (the stock of the listed companies involved) reacts to the announcement of the deal, by examining the abnormal returns observed around the event window.

However, these models are a generalized extension of differences-in-differences (or two-way fixed effect) models and can be used, in datasets covering a panel of observations over time, to estimate the impact of some events which occur in certain units and certain time periods. Therefore, they can be used in our study, with our variables, to try to provide further robustness to the regression models.

From Clarke and Schythe (2020)[42], the panel event study equation looks like this:

$$y_{st} = \alpha + \beta \text{PostEvent}_{st} + \mu_s + \lambda_t + X_{st}\Gamma + \varepsilon_{st}$$

where:

- $\text{PostEvent}_{st} = 1\ [t \geq \text{Event}_s]$. In our case PostEvent_{st} is MA_POST.
- μ_s and λ_t are state and time fixed effects.
- X_{st} are (optionally) time-varying controls.
- ε_{st} is an unobserved error term.

Lags and leads are binary variables indicating that the given state was a given number of periods away from the event of interest in the respective time period and capture the difference between treated and control states, compared to the prevailing difference in the omitted base period.

States in which the event never occurs act as pure controls. These units have 0s in all lag and lead terms, and act as the counterfactual on which the estimation of impacts is based.

In the absence of treatment, it is assumed that treated and control states would have maintained similar differences as in the baseline period.

[42] Clarke D., Schythe K. T. 2021. "Implementing the Panel Event Study." SAGE Publications 21 (4).

4.5. RESULTS

The results of the regression models discussed above are obtain through the software **Stata** by StataCorp.
As already mentioned, the data used for the development of the models is panel data which therefore allows to extract information from datasets composed, in this case, of information on multiple companies and at the same time considers the development of the variable in the time horizon.
The model also provides for the introduction of various fixed effects (such as time-specific factors or belonging to the same macro sector) which represent those characteristics that do not vary over time and which are quite difficult to observe.
In the models presented, since companies are included in the estimate for several consecutive years, if the fixed effects were not considered, they would fall within the error, distorting the estimates.

The final models for the regressions and for the event study will be applied separately to the three dependent variables. Furthermore, for each of these three variables, the regression model will be adapted to consider the three cases under study, i.e. the general case, the case in which Bidder and Target companies are observed separately and the case in which Acquisitions and Mergers are observed separately.

For each of the following models we will evaluate the coefficient of MA_POST, that is the dummy variable we use to assess the effect on the dependent variable before and after the deal and therefore to evaluate the *Causality* effect of the deal itself.
The other variables present in the models are added to the regression as control variables in order to mitigate the risk of omitting important factors that could confound the relationship between MA_POST and the dependent variables. This helps improve the precision and accuracy of the estimates for the coefficient of MA_POST by accounting for additional sources of variation in the dependent variable.

4.5.1. MODELS FOR EQUITY

General case

Model for log_Equity_net

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	1.2736***	1.7136***	0.6903***	0.5283***	0.4806***	0.4783***	0.4711***
	(0.1354)	(0.1327)	(0.1145)	(0.1136)	(0.1052)	(0.1008)	(0.0983)
MA_POST	0.9392***	0.2835*	0.3388**	0.3400**	0.3472***	0.2859**	0.3158***
	(0.1729)	(0.1710)	(0.1373)	(0.1362)	(0.1277)	(0.1226)	(0.1200)
log_Revenue (t - 1)			0.7488***	0.6329***	0.6329***	0.6230***	0.6229***
			(0.0098)	(0.0107)	(0.0108)	(0.0117)	(0.0115)
log_CashAndEquivalents				0.2044***	0.1891***	0.1900***	0.1816***
				(0.0083)	(0.0080)	(0.0079)	(0.0077)
DebtEquity					-0.0993***	-0.1080***	-0.1338***
					(0.0112)	(0.0108)	(0.0111)
NPeople						0.0002***	0.0002***
						(0.0000)	(0.0000)
ROE							-0.3070***
							(0.0621)
Constant	9.1638***	9.1592***	1.6783***	1.3864***	1.6158***	1.6028***	1.7323***
	(0.0261)	(0.0250)	(0.1021)	(0.0992)	(0.1037)	(0.1157)	(0.1140)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	8908	8908	7536	7396	6949	6683	6600
R^2	0.0483	0.1352	0.4980	0.5374	0.5346	0.5582	0.5678

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.1.: model for log_Equity_net

Model for log_Equity_net - firm's fixed effects

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	2.1654***	-0.1328**	0.0639	0.0842*	0.0862*	0.0550	0.0991**
	(0.1142)	(0.0596)	(0.0490)	(0.0492)	(0.0456)	(0.0456)	(0.0414)
log_Revenue (t - 1)			0.2771***	0.2532***	0.2452***	0.2576***	0.2689***
			(0.0114)	(0.0112)	(0.0112)	(0.0126)	(0.0116)
log_CashAndEquivalents				0.0804***	0.0658***	0.0634***	0.0518***
				(0.0054)	(0.0052)	(0.0053)	(0.0049)
DebtEquity					-0.0812***	-0.0858***	-0.0937***
					(0.0069)	(0.0069)	(0.0068)
NPeople						0.0003***	0.0002***
						(0.0000)	(0.0000)
ROE							0.2913***
							(0.0269)
Constant	9.2112***	9.3332***	6.6394***	6.2734***	6.6401***	6.4438***	6.4477***
	(0.0258)	(0.0083)	(0.1181)	(0.1174)	(0.1187)	(0.1328)	(0.1221)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8908	8894	7513	7372	6914	6655	6570
R^2	0.0388	0.9211	0.9544	0.9576	0.9582	0.9574	0.9643

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.2.: model for log_Equity_net absorbing firm's fixed effects

First, we shall begin our analysis by examining the model in Table 4.5.1.1., which reports the results of the regression of log_Equity_net on TREAT and MA_POST.

The coefficient of MA_POST is 0,3158 and it is statistically significant with a significance level of 1%.
This suggests that the treatment group experiences on average a 37,1%[43] increase in Equity_net compared to the control group (Group of Peers), ceteris paribus.

It is important to notice that the control group act as *counterfactual* to the treatment group, which means that observing the control group would be like observing the treatment group in the case it was not treated, that is in the case it did not underwent any M&A deal.
We can then say that companies that undergo an M&A transaction experience on average a 37,1% increase in Equity_net compared to the case in which they do not undergo any M&A transactions, ceteris paribus.

The model in Table 4.5.1.2. is simply an evolution of the previous one in which the fixed effects have been changed. While in the previous model we were controlling for time-specific factors (Years) and group-specific factors (ATECO_group), in this case we are still controlling for time-specific factors, but we also add a firm-specific fixed effect (ID[44]). This allows to for firm-specific factors that are constant over time but vary across different firms, such as the quality of management, which might have a great impact in the company's ability to conclude successful M&A transactions.
Furthermore, the interaction term Years*ATECO_group allows to control for the effect of the year on the specific ATECO sector.

From the model in Table 4.5.1.2. we observe that the coefficient of MA_POST is 0,0991 and it is statistically significant with a significance level of 5%.
This suggests that the treatment group experiences on average a 10,4% increase in Equity_net compared to the control group, ceteris paribus.

As we believe the change in Equity_net is the most relevant metric for assessing value creation after an M&A transaction, **we can conclude that, at an aggregate level** (i.e. without further distinguishing among Bidder and Target companies), **in Italy M&A is on average a successful strategy for creating value.**

[43] Derived from $e^{0,3158} = 1,371$.
[44] ID is a variable that uniquely identifies each company in the dataset.

Model for log_Equity_net - match Treated and Peers

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	2.1654***	-0.0162	0.0952**	0.0752	0.0674	0.0496	0.0890**
	(0.1142)	(0.0563)	(0.0460)	(0.0464)	(0.0440)	(0.0437)	(0.0403)
log_Revenue			0.3384***	0.3078***	0.3046***	0.2884***	0.2923***
			(0.0115)	(0.0116)	(0.0118)	(0.0135)	(0.0126)
log_CashAndEquivalents				0.0701***	0.0597***	0.0567***	0.0463***
				(0.0054)	(0.0052)	(0.0053)	(0.0049)
DebtEquity					-0.0651***	-0.0785***	-0.0878***
					(0.0067)	(0.0067)	(0.0066)
NPeople						0.0002***	0.0001***
						(0.0000)	(0.0000)
ROE							0.2450***
							(0.0272)
Constant	9.2112***	9.3461***	5.9312***	5.7205***	6.0032***	6.1363***	6.2147***
	(0.0258)	(0.0076)	(0.1196)	(0.1186)	(0.1225)	(0.1409)	(0.1306)
Years	no	yes	yes	yes	yes	yes	yes
Years*GROUP	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8908	8854	8411	8249	7733	7409	7309
R^2	0.0388	0.9393	0.9570	0.9602	0.9601	0.9606	0.9660

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.3.: model for log_Equity_net – match Treated and Peers

The model in Table 4.5.1.3. is a further evolution of the one in Table 4.5.1.2., where the interaction term of the fixed effects has been changed. Here the variable GROUP was introduced, that matches each Treated company with its unique set of peers. The introduction of this variable makes sure that each treated company is controlled by its own peers rather that by the entire control group (as was happening in the previous models). Therefore, this model can better control for any inherent differences between treated and control groups and ensures that the comparison is more tailored to the specific context of each treated company, minimizing the influence of confounding factors and leading to more reliable and robust results.

From the model in Table 4.5.1.3. we observe that the coefficient of MA_POST is 0,0890 and it is statistically significant with a significance level of 5%.
This suggests that each Treated company experiences on average a 9,3% increase in Equity_net compared to their control group, ceteris paribus.

This finding is in line with the results in Table 4.5.1.1. and 4.5.1.2. and **supports our thesis that M&A in Italy creates value**.

Separation Bidder and Target companies

Model for log_Equity_net - Bidder companies

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	2.5309***	3.1192***	1.1339***	0.8729***	0.7852***	0.7453***	0.7366***
	(0.1889)	(0.1828)	(0.1639)	(0.1683)	(0.1556)	(0.1501)	(0.1466)
MA_POST	0.6745***	-0.1298	0.2760	0.2968	0.4046**	0.3210*	0.3235*
	(0.2351)	(0.2281)	(0.1897)	(0.1936)	(0.1821)	(0.1752)	(0.1713)
log_Revenue (t - 1)			0.7432***	0.6324***	0.6321***	0.6276***	0.6268***
			(0.0100)	(0.0108)	(0.0109)	(0.0119)	(0.0117)
log_CashAndEquivalents				0.1994***	0.1840***	0.1859***	0.1792***
				(0.0085)	(0.0082)	(0.0080)	(0.0079)
DebtEquity					-0.0978***	-0.1067***	-0.1306***
					(0.0114)	(0.0110)	(0.0112)
NPeople						0.0002***	0.0002***
						(0.0000)	(0.0000)
ROE							-0.3053***
							(0.0643)
Constant	9.1638***	9.1598***	1.7415***	1.4329***	1.6653***	1.5922***	1.7154***
	(0.0261)	(0.0248)	(0.1039)	(0.1012)	(0.1058)	(0.1174)	(0.1159)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	8570	8570	7251	7121	6680	6416	6339
R^2	0.0711	0.1644	0.5107	0.5471	0.5458	0.5702	0.5786

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.4: model for log_Equity_net – Bidder companies

Model for log_Equity_net - Target companies

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	0.0083	0.3022*	0.2969*	0.2610*	0.2496*	0.2957**	0.2857**
	(0.1900)	(0.1822)	(0.1534)	(0.1485)	(0.1368)	(0.1301)	(0.1268)
MA_POST	0.7075***	0.1930	0.1810	0.1960	0.1388	0.1361	0.1925
	(0.2572)	(0.2473)	(0.1938)	(0.1887)	(0.1742)	(0.1662)	(0.1633)
log_Revenue (t - 1)			0.7674***	0.6576***	0.6600***	0.6581***	0.6578***
			(0.0102)	(0.0110)	(0.0111)	(0.0120)	(0.0118)
log_CashAndEquivalents				0.1961***	0.1805***	0.1851***	0.1767***
				(0.0085)	(0.0081)	(0.0080)	(0.0079)
DebtEquity					-0.1013***	-0.1090***	-0.1337***
					(0.0112)	(0.0108)	(0.0110)
NPeople						0.0002***	0.0002***
						(0.0000)	(0.0000)
ROE							-0.2798***
							(0.0620)
Constant	9.1638***	9.1630***	1.4756***	1.1828***	1.3884***	1.2628***	1.3908***
	(0.0261)	(0.0247)	(0.1068)	(0.1036)	(0.1081)	(0.1189)	(0.1172)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes	yes
Observations	8477	8477	7169	7064	6654	6395	6313
R^2	0.0019	0.1113	0.4731	0.5145	0.5204	0.5460	0.5550

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.5: model for log_Equity_net – Target companies

We now want to go further into the analysis and separate Bidder and Target companies to see if there is evidence of value creation for both cases or whether M&A tends to create more value for one category of companies.

Table 4.5.1.4. reports the results of the regression of log_Equity_net on TREAT and MA_POST for **Bidder** companies.
The coefficient of MA_POST is 0,3235 and it is statistically significant with a significance level of 10%.
This suggests that the treatment group experiences on average a 38,2% increase in Equity_net compared to the control group (Group of Peers), ceteris paribus.
This result is in line with our expectations and with the results of Table 4.5.1.1. and 4.5.1.2. and 4.5.1.3..

Table 4.5.1.5., instead, reports the results of the regression of log_Equity_net on TREAT and MA_POST for **Target** companies.
In this case, the coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero on log_Equity_net for the Target company. This goes against our expectation that M&A should create more value for Target than for Bidder companies.

It is important to notice that for Target companies that underwent a merger (19 out of 46 total Target companies) our dataset does not include post-deal data, as after a merger is concluded, only the Bidder company remains. This might have an impact in making the coefficient of MA_POST non significant for Target companies.

Model for log_Equity_net - Acquisitions

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	1.6035***	2.0180***	0.4403***	0.2948**	0.2594*	0.2444*	0.2367*
	(0.1747)	(0.1695)	(0.1446)	(0.1461)	(0.1352)	(0.1284)	(0.1252)
MA_POST	0.5480**	-0.1176	0.3002*	0.3094*	0.2780*	0.2388	0.2966**
	(0.2171)	(0.2118)	(0.1692)	(0.1707)	(0.1601)	(0.1525)	(0.1492)
log_Revenue (t - 1)			0.7723***	0.6617***	0.6659***	0.6616***	0.6612***
			(0.0099)	(0.0108)	(0.0109)	(0.0119)	(0.0116)
log_CashAndEquivalents				0.1907***	0.1744***	0.1758***	0.1677***
				(0.0083)	(0.0080)	(0.0079)	(0.0077)
DebtEquity					-0.1031***	-0.1114***	-0.1365***
					(0.0112)	(0.0108)	(0.0110)
NPeople						0.0002***	0.0002***
						(0.0000)	(0.0000)
ROE							-0.2810***
							(0.0617)
Constant	9.1638***	9.1641***	1.4412***	1.1945***	1.3851***	1.3079***	1.4348***
	(0.0262)	(0.0250)	(0.1031)	(0.1002)	(0.1048)	(0.1166)	(0.1148)
ATECO_group	yes	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes	yes
Observations	8651	8651	7326	7193	6752	6491	6408
R^2	0.0371	0.1295	0.5064	0.5419	0.5427	0.5692	0.5788

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Table 4.5.1.6.: model for log_Equity_net – Acquisitions

Model for log_Equity_net - Mergers

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	0.7853***	1.2980***	1.0142***	0.8258***	0.7536***	0.7728***	0.7621***
	(0.2119)	(0.2035)	(0.1772)	(0.1720)	(0.1580)	(0.1523)	(0.1489)
MA_POST	1.5804***	0.9497***	0.6468***	0.6198***	0.6629***	0.5552***	0.5194***
	(0.2957)	(0.2832)	(0.2260)	(0.2197)	(0.2030)	(0.1956)	(0.1913)
log_Revenue (t - 1)			0.7529***	0.6375***	0.6368***	0.6319***	0.6307***
			(0.0102)	(0.0110)	(0.0111)	(0.0120)	(0.0118)
log_CashAndEquivalents				0.2079***	0.1928***	0.1966***	0.1896***
				(0.0086)	(0.0082)	(0.0081)	(0.0080)
DebtEquity					-0.0968***	-0.1054***	-0.1287***
					(0.0114)	(0.0109)	(0.0112)
NPeople						0.0002***	0.0002***
						(0.0000)	(0.0000)
ROE							-0.2877***
							(0.0645)
Constant	9.1638***	9.1578***	1.6275***	1.3044***	1.5391***	1.4534***	1.5811***
	(0.0263)	(0.0248)	(0.1068)	(0.1036)	(0.1082)	(0.1193)	(0.1179)
ATECO_group	yes	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes	yes
Observations	8396	8396	7095	6993	6582	6320	6244
R^2	0.0164	0.1234	0.4780	0.5215	0.5249	0.5491	0.5568

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.7.: model for log_Equity_net – Mergers

We now want to separate Acquisitions and Mergers and see, at an aggregate level (i.e. without differentiating among Bidders and Targets), whether the former create more value than the latter.

Table 4.5.1.6. reports the results of the regression of log_Equity_net on TREAT and MA_POST for **Acquisitions**.
The coefficient of MA_POST is 0,2966 and it is statistically significant with a significance level of 5%.
This suggests that the treatment group experiences on average a 34,5% increase in Equity_net compared to the control group (Group of Peers), ceteris paribus.

Table 4.5.1.7. reports the results of the regression of log_Equity_net on TREAT and MA_POST for **Mergers**.
The coefficient of MA_POST is 0,5194 and it is statistically significant with a significance level of 1%.
This suggests that the treatment group experiences on average a 68,1% increase in Equity_net compared to the control group (Group of Peers), ceteris paribus.

Both results are in line with the general case (Table 4.5.1.1.) and with our expectations and imply that **on average operations such as Mergers , in which there is integration of the Target into the Bidder, tend to create more value for shareholders compared to Acquisitions.**

Event study

Model for log_Equity_net - Event study

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	-0.4454	0.2440	22.219	0.0000	0.0000	0.0000
	(1.6241)	(1.6748)	(1.5115)	(.)	(.)	(.)
lead5	-1.2582**	-0.3828	0.3910	0.0787	-0.0894	0.0017
	(0.5753)	(0.4704)	(0.4326)	(0.4530)	(0.4316)	(0.4123)
lead4	-0.6798	0.0160	0.3955	0.0771	-0.0563	0.0432
	(0.4709)	(0.3794)	(0.3461)	(0.3621)	(0.3439)	(0.3292)
lead3	-0.3390	-0.1345	0.0716	-0.0873	-0.1260	-0.0571
	(0.3698)	(0.2946)	(0.2756)	(0.2712)	(0.2598)	(0.2483)
lead2	-0.1758	-0.0928	-0.0038	-0.0489	-0.0556	-0.0348
	(0.3288)	(0.2616)	(0.2417)	(0.2366)	(0.2252)	(0.2146)
lag0	0.5216	0.3543	0.2797	0.2397	0.1902	0.1181
	(0.3345)	(0.2647)	(0.2459)	(0.2390)	(0.2261)	(0.2161)
lag1	0.8355**	0.4672	0.3236	0.2709	0.2352	0.1653
	(0.3781)	(0.2991)	(0.2800)	(0.2723)	(0.2577)	(0.2464)
lag2	1.1370**	0.6075*	0.3978	0.3763	0.3731	0.2614
	(0.4404)	(0.3490)	(0.3253)	(0.3163)	(0.2997)	(0.2874)
lag3	1.5212***	0.7772*	0.5307	0.4608	0.3552	0.2089
	(0.5013)	(0.3988)	(0.3727)	(0.3638)	(0.3478)	(0.3328)
lag4	1.9132***	1.0222**	0.7877*	0.5562	0.4544	0.4266
	(0.5668)	(0.4600)	(0.4250)	(0.4261)	(0.4079)	(0.3928)
lag5	2.0995***	0.9326*	0.6528	0.4929	0.4994	0.3629
	(0.6270)	(0.5107)	(0.4714)	(0.4777)	(0.4548)	(0.4363)
lag6	2.6933***	1.1811**	0.7312	0.3134	0.3461	0.4222
	(0.7013)	(0.5776)	(0.5350)	(0.5454)	(0.5200)	(0.4974)
lag7	3.4230***	1.4061*	0.9016	0.4610	0.2998	1.1004
	(0.9261)	(0.7657)	(0.7150)	(0.7333)	(0.6978)	(0.6918)
log_Revenue		0.5882***	0.3079***	0.2919***	0.1725***	0.1872***
		(0.0282)	(0.0335)	(0.0339)	(0.0367)	(0.0352)
log_CashAndEquivalents			0.3923***	0.3684***	0.2992***	0.2799***
			(0.0279)	(0.0280)	(0.0279)	(0.0272)
DebtEquity				-0.1697***	-0.1909***	-0.2643***
				(0.0470)	(0.0446)	(0.0464)
NPeople					0.0004***	0.0004***
					(0.0001)	(0.0001)
ROE						-0.5475***
						(0.1788)
Constant	10.2959***	3.9845***	3.8066***	4.3776***	6.0182***	6.1357***
	(0.2738)	(0.3744)	(0.3468)	(0.3592)	(0.4118)	(0.3943)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	769	736	681	636	624	617
R^2	0.1777	0.4919	0.6090	0.5850	0.6263	0.6496

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.8.: models for log_Equity_net – event study (if TREAT == 1)

To support the regression models reported above, it was also decided to apply the event study methodology. The model in Table 4.5.1.8. considers only the treatment companies (i.e. we applied the command "if TREAT == 1"), which means that the control is realised by those companies that have not received the treatment yet.
The variables *lead* and *lag* are dummies that indicate the "time distance" from the treatment, that is from the moment in which the M&A takes place[45].
As can be seen from Table 4.5.1.8. the coefficients of all the lead variables are not statistically significant. This, together with the joint test of significance carried out in section 4.4., confirms that the Parallel Trend assumption seems not to be violated.
In Model 1 the coefficients are significant, positive and increasing, which suggest that the Treated companies perform significantly better than those companies that have not received the treatment yet.
However, these coefficients are unrealistically high and this is explained by the fact that Model 1 does not take into account for all the important predictors that we are adopting.
When including all predictors (Model 6), all the coefficients become statistically not significant. However, from Figure 4.5.1.1., a correlation between log_Equity_net and the M&A treatment seem to be present as the estimates of these coefficients are all positive and increasing with time. The estimate of these coefficients probably suffers from the quality of the data, which presents relatively few observations for Treated companies with the presence of outliers and inaccuracies. It is believed that if the number of observations was greater, the coefficients of at least the latest lag dummies would be positive and significant, confirming what was highlighted by the regression models above, i.e. the presence of a causal effect of the M&A treatment on log_Equity_net.

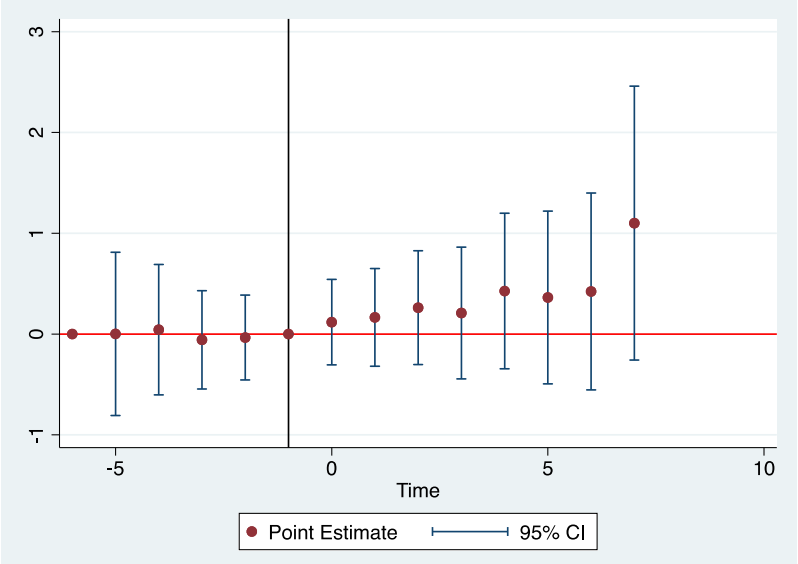

Figure 4.5.1.1.: models for log_Equity_net – event study (if TREAT == 1) graph

[45] For instance lead6 is equal to 1 for all the observations for which the variable REL_TIME is equal to -6 and lag6 is equal to 1 for all the observations for which the variable REL_TIME is equal to 6.

Model for log_Equity_net - Event study

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	1.5895***	0.7777***	0.5873***	0.5678***	0.5534***	0.5376***
	(0.2420)	(0.1753)	(0.1759)	(0.1631)	(0.1550)	(0.1508)
lead6	8.7467***	-0.1010	0.7429	0.0000	0.0000	0.0000
	(1.6351)	(1.6973)	(1.6441)	(.)	(.)	(.)
lead5	0.3193	-0.5023	-0.2103	-0.2318	-0.1776	-0.2197
	(0.5097)	(0.3918)	(0.3817)	(0.3755)	(0.3567)	(0.3470)
lead4	0.3801	-0.0310	0.0606	0.0348	0.0847	0.0957
	(0.4447)	(0.3294)	(0.3214)	(0.3237)	(0.3074)	(0.2990)
lead3	0.1006	-0.1996	-0.1600	-0.2229	-0.2097	-0.2091
	(0.3564)	(0.2568)	(0.2605)	(0.2416)	(0.2335)	(0.2271)
lead2	-0.0660	-0.0996	-0.1017	-0.0976	-0.0932	-0.1111
	(0.3409)	(0.2451)	(0.2458)	(0.2278)	(0.2170)	(0.2111)
lag0	0.3316	0.3324	0.3356	0.2687	0.2430	0.2037
	(0.3460)	(0.2481)	(0.2499)	(0.2309)	(0.2192)	(0.2132)
lag1	0.4233	0.2546	0.2521	0.1797	0.1400	0.1570
	(0.3525)	(0.2535)	(0.2551)	(0.2356)	(0.2237)	(0.2184)
lag2	0.4185	0.2250	0.2573	0.2135	0.1977	0.2104
	(0.3577)	(0.2564)	(0.2580)	(0.2394)	(0.2282)	(0.2229)
lag3	0.4245	0.2399	0.3126	0.2880	0.1647	0.1428
	(0.3598)	(0.2579)	(0.2607)	(0.2419)	(0.2338)	(0.2274)
lag4	0.3005	0.3390	0.3982	0.3530	0.2355	0.3658
	(0.3765)	(0.2824)	(0.2761)	(0.2719)	(0.2622)	(0.2592)
lag5	0.3390	0.2493	0.2905	0.3494	0.3599	0.3785
	(0.4224)	(0.3177)	(0.3097)	(0.3150)	(0.2991)	(0.2948)
lag6	0.5760	0.3681	0.3145	0.2000	0.1844	0.3787
	(0.4640)	(0.3519)	(0.3468)	(0.3454)	(0.3280)	(0.3247)
lag7	10.263	0.5676	0.3640	0.1480	0.0052	0.6982
	(0.7557)	(0.5643)	(0.5746)	(0.5625)	(0.5341)	(0.5573)
log_Revenue		0.7626***	0.6424***	0.6370***	0.6259***	0.6290***
		(0.0094)	(0.0104)	(0.0105)	(0.0115)	(0.0113)
log_CashAndEquivalents			0.2049***	0.1903***	0.1909***	0.1820***
			(0.0080)	(0.0078)	(0.0076)	(0.0075)
DebtEquity				-0.0936***	-0.1071***	-0.1384***
				(0.0106)	(0.0102)	(0.0105)
NPeople					0.0002***	0.0002***
					(0.0000)	(0.0000)
ROE						-0.4192***
						(0.0580)
Constant	9.1590***	1.4505***	1.2209***	1.5056***	1.5083***	1.6211***
	(0.0249)	(0.0985)	(0.0961)	(0.1003)	(0.1131)	(0.1110)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	8908	8460	8301	7791	7471	7376
R^2	0.1383	0.4968	0.5326	0.5291	0.5510	0.5627

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.1.9.: models for log_Equity_net – event study

The praxis in event studies is to consider only the treated group (as done in the previous model in Table 4.5.1.8.) and see the effect of the treatment (i.e. undertaking an M&A transaction) in each year after the treatment, compared to the years before the treatment.
Including also the peers in the event study might not be necessary, because for peers the dummy variables defined by this methodology are always zero (as the peer never undertakes an M&A transaction), thus the event study might lose its meaning.
However, as robustness check it was decided to report also this second case.

As per Table 4.5.1.8., also in Table 4.5.1.9. the coefficient of all the lead variables are not statistically significant and the Parallel Trend Assumption seems not to be violated.
All in all, the same consideration for model in Table 4.5.1.8. also apply to model in Table 4.5.1.9., as all the coefficients of the dummy variable are statistically not significant, but a correlation between log_Equity_net and the M&A treatment seems to be present as the estimates of these coefficients increasing with time.

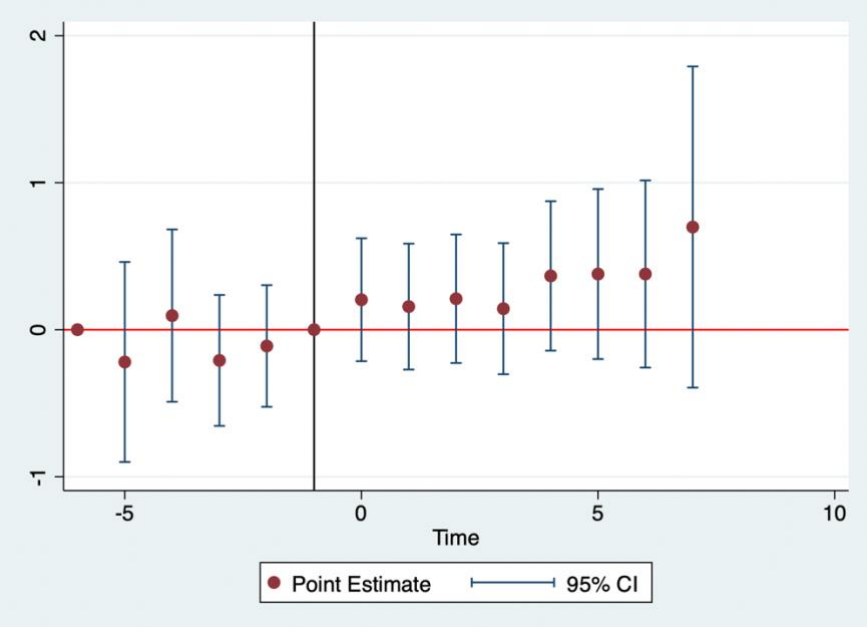

Figure 4.5.1.2.: models for log_Equity_net – event study graph

4.5.2. MODELS FOR EBITDA margin

General case

Model for EBITDA_margin

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	0.0510***	0.0463***	0.0599***	0.0578***	0.0550***	0.0564***	0.0571***
	(0.0112)	(0.0113)	(0.0132)	(0.0136)	(0.0133)	(0.0124)	(0.0119)
MA_POST	0.0021	-0.0019	-0.0145	-0.0214	-0.0304*	-0.0349**	-0.0238*
	(0.0144)	(0.0145)	(0.0158)	(0.0163)	(0.0161)	(0.0151)	(0.0144)
log_Revenue (t - 1)			-0.0019*	-0.0057***	-0.0057***	-0.0081***	-0.0079***
			(0.0011)	(0.0013)	(0.0014)	(0.0014)	(0.0014)
log_CashAndEquivalents				0.0064***	0.0066***	0.0084***	0.0067***
				(0.0010)	(0.0010)	(0.0010)	(0.0009)
DebtEquity					-0.0018	-0.0017	0.0003
					(0.0014)	(0.0013)	(0.0013)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1506***
							(0.0072)
Constant	0.1037***	0.1043***	0.1242***	0.1171***	0.1156***	0.1153***	0.1124***
	(0.0021)	(0.0021)	(0.0119)	(0.0120)	(0.0131)	(0.0141)	(0.0136)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	8440	8440	7481	7347	6921	6678	6554
R^2	0.0059	0.0673	0.0712	0.0761	0.0741	0.0674	0.1287

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.1.: model for EBITDA margin

Model for EBITDA_margin - firm's fixed effects

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	0.0513***	-0.0063	-0.0159	-0.0166	-0.0215**	-0.0282***	-0.0157*
	(0.0094)	(0.0094)	(0.0100)	(0.0104)	(0.0101)	(0.0096)	(0.0091)
log_Revenue (t - 1)			0.0102***	0.0084***	0.0110***	0.0153***	0.0151***
			(0.0024)	(0.0024)	(0.0025)	(0.0026)	(0.0025)
log_CashAndEquivalents				0.0033***	0.0030***	0.0040***	0.0028***
				(0.0011)	(0.0011)	(0.0011)	(0.0010)
DebtEquity					0.0002	0.0010	0.0031**
					(0.0013)	(0.0013)	(0.0014)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1231***
							(0.0056)
Constant	0.1055***	0.1085***	0.0025	-0.0024	-0.0306	-0.0987***	-0.0994***
	(0.0021)	(0.0013)	(0.0247)	(0.0255)	(0.0269)	(0.0280)	(0.0268)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8440	8422	7458	7323	6887	6652	6526
R^2	0.0035	0.7042	0.7399	0.7389	0.7490	0.7380	0.7663

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.2.: model for EBITDA margin absorbing firm's fixed effects

Table 4.5.2.1. reports the results of the regression of EBITDA_margin on TREAT and MA_POST.
The coefficient of MA_POST is -0,0238 and it is statistically significant with a significance level of 10%.
This suggests that the treatment group experiences on average a 2,4% decrease in EBITDA_margin compared to the control group (Group of Peers), ceteris paribus.
We can then say that **companies that undergo an M&A transaction experience on average a 2,4% decrease in EBITDA_margin compared to the case in which they do not undergo any M&A transactions, ceteris paribus.**

The model in Table 4.5.2.2. is simply an evolution of the previous one in which the fixed effects have been changed as specified in section 4.5.1..
From Table 4.5.2.2. we observe that the coefficient of MA_POST is -0,0157 and it is statistically significant with a significance level of 10%.
This suggests that the **treatment group experiences on average a 1,6% decrease in EBITDA margin compared to the control group, ceteris paribus.**

These results conflict with our expectations. Indeed, if taking part in an M&A transaction creates value as indicated by the equity models (section 4.5.1.), we would expect an increase in the EBITDA_margin resulting from the implementation of synergies, the increase in operational efficiency and from the access to new markets, resources and technologies.

However, it is important to note that, while the increase in the value of net equity is an unequivocal indicator of value creation for shareholders, the **EBITDA margin** is a less sophisticated indicator, which **does not take into account various factors such as the implementation of financial synergies and the increased efficiency of the capital structure.**
Although the EBITDA margin analysis could have provided greater robustness to the results found in section 4.5.1., it does not refute them.

Model for EBITDA_margin - match Treated and Peers

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	0.0513***	-0.0062	-0.0057	-0.0086	-0.0147	-0.0132	-0.0058
	(0.0094)	(0.0097)	(0.0096)	(0.0101)	(0.0096)	(0.0089)	(0.0085)
log_Revenue			0.0217***	0.0183***	0.0208***	0.0352***	0.0312***
			(0.0027)	(0.0028)	(0.0030)	(0.0031)	(0.0030)
log_CashAndEquivalents				0.0015	0.0006	0.0022**	0.0013
				(0.0012)	(0.0011)	(0.0011)	(0.0010)
DebtEquity					-0.0003	0.0005	0.0019
					(0.0013)	(0.0012)	(0.0013)
NPeople						0.0000**	0.0000***
						(0.0000)	(0.0000)
ROE							0.1103***
							(0.0054)
Constant	0.1055***	0.1082***	-0.1185***	-0.0946***	-0.1168***	-0.2976***	-0.2581***
	(0.0021)	(0.0013)	(0.0281)	(0.0290)	(0.0306)	(0.0323)	(0.0310)
Years	no	yes	yes	yes	yes	yes	yes
Years*GROUP	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8440	8388	8388	8229	7717	7407	7260
R^2	0.0035	0.7404	0.7430	0.7434	0.7680	0.7714	0.7946

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.3.: model for EBITDA margin – match Treated and Peers

The model in Table 4.5.2.3. is a further evolution of the one in Table 4.5.2.2., where the interaction term of the fixed effects has been changed.

The coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on EBITDA_margin for Treated companies.

This finding, as well as the results in Table 4.5.1.1. and 4.5.1.2., slightly conflicts with our expectation, but is in line with the paper of Martynova, Oosting and Renneboog (2006)[46] who carried out an empirical study on 155 intra-European deals that documents non-significant changes in profitability of the combined firm following the takeover.

[46] Martynova, M., Oosting, S., Renneboog, L., 2006. "The Long-term performance of European mergers and acquisitions". CentER Discussion Paper; Vol. 2006-111. Finance.

Separation Bidder and Target companies

Model for EBITDA_margin - Bidder companies

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	0.0692***	0.0574***	0.0732***	0.0696***	0.0601***	0.0587***	0.0533***
	(0.0159)	(0.0161)	(0.0192)	(0.0205)	(0.0201)	(0.0188)	(0.0180)
MA_POST	-0.0029	0.0042	-0.0064	-0.0084	-0.0200	-0.0287	-0.0214
	(0.0197)	(0.0198)	(0.0221)	(0.0234)	(0.0232)	(0.0217)	(0.0207)
log_Revenue (t - 1)			-0.0022*	-0.0050***	-0.0048***	-0.0072***	-0.0070***
			(0.0011)	(0.0013)	(0.0014)	(0.0014)	(0.0014)
log_CashAndEquivalents				0.0049***	0.0051***	0.0069***	0.0056***
				(0.0010)	(0.0010)	(0.0010)	(0.0009)
DebtEquity					-0.0021	-0.0020	-0.0002
					(0.0014)	(0.0013)	(0.0013)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1431***
							(0.0072)
Constant	0.1037***	0.1040***	0.1268***	0.1208***	0.1170***	0.1160***	0.1108***
	(0.0021)	(0.0020)	(0.0120)	(0.0121)	(0.0133)	(0.0141)	(0.0137)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	8119	8119	7204	7080	6657	6416	6299
R^2	0.0059	0.0661	0.0697	0.0733	0.0693	0.0628	0.1203

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.4.: model for EBITDA margin – Bidder companies

Model for EBITDA_margin - Target companies

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	0.0345**	0.0359**	0.0488***	0.0503***	0.0515***	0.0546***	0.0591***
	(0.0152)	(0.0150)	(0.0171)	(0.0172)	(0.0168)	(0.0157)	(0.0149)
MA_POST	-0.0004	-0.0177	-0.0343	-0.0457**	-0.0453**	-0.0426**	-0.0254
	(0.0207)	(0.0204)	(0.0217)	(0.0220)	(0.0215)	(0.0201)	(0.0192)
log_Revenue (t - 1)			-0.0060***	-0.0094***	-0.0095***	-0.0112***	-0.0111***
			(0.0012)	(0.0013)	(0.0014)	(0.0015)	(0.0014)
log_CashAndEquivalents				0.0055***	0.0059***	0.0081***	0.0065***
				(0.0010)	(0.0010)	(0.0010)	(0.0009)
DebtEquity					-0.0020	-0.0018	-0.0000
					(0.0013)	(0.0013)	(0.0013)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1482***
							(0.0071)
Constant	0.1037***	0.1040***	0.1656***	0.1610***	0.1603***	0.1519***	0.1482***
	(0.0021)	(0.0020)	(0.0122)	(0.0123)	(0.0135)	(0.0144)	(0.0138)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	8059	8058	7145	7044	6645	6407	6284
R^2	0.0013	0.0636	0.0706	0.0756	0.0758	0.0574	0.1215

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.5.: model for EBITDA margin – Target companies

We now want to go further into the analysis and separate Bidder and Target companies to see what are the effects of M&A transactions on EBITDA_margin for these two categories of companies.

Table 4.5.2.4. reports the results of the regression of EBITDA_margin on TREAT and MA_POST for **Bidder** companies.
The coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on EBITDA_margin for the Bidder company.

Table 4.5.2.5., instead, reports the results of the regression of EBITDA_margin on TREAT and MA_POST for **Target** companies.
Also in this case, the coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on EBITDA_margin for the Target company.

These results go against our expectation for which, as stated before, companies undertaking an M&A deal should experience an increase in the value of EBITDA margin.

Model for EBITDA_margin - Acquisitions

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	0.0609***	0.0476***	0.0579***	0.0556***	0.0522***	0.0541***	0.0577***
	(0.0140)	(0.0141)	(0.0164)	(0.0171)	(0.0167)	(0.0155)	(0.0148)
MA_POST	0.0235	0.0208	0.0129	0.0076	-0.0027	-0.0068	0.0020
	(0.0176)	(0.0176)	(0.0193)	(0.0201)	(0.0199)	(0.0185)	(0.0177)
log_Revenue (t - 1)			-0.0027**	-0.0068***	-0.0069***	-0.0095***	-0.0095***
			(0.0011)	(0.0013)	(0.0014)	(0.0014)	(0.0014)
log_CashAndEquivalents				0.0068***	0.0070***	0.0089***	0.0072***
				(0.0010)	(0.0010)	(0.0010)	(0.0009)
DebtEquity					-0.0021	-0.0019	-0.0000
					(0.0014)	(0.0013)	(0.0013)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1517***
							(0.0071)
Constant	0.1037***	0.1046***	0.1322***	0.1253***	0.1253***	0.1262***	0.1248***
	(0.0021)	(0.0021)	(0.0120)	(0.0121)	(0.0132)	(0.0142)	(0.0137)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	8216	8216	7292	7165	6744	6504	6380
R^2	0.0091	0.0699	0.0742	0.0796	0.0774	0.0707	0.1359

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.6.: model for EBITDA margin – Acquisitions

Model for EBITDA_margin - Merger

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	0.0341*	0.0424**	0.0642***	0.0631***	0.0610***	0.0603***	0.0566***
	(0.0179)	(0.0178)	(0.0205)	(0.0208)	(0.0203)	(0.0191)	(0.0182)
MA_POST	-0.0593**	-0.0600**	-0.0798***	-0.0856***	-0.0886***	-0.0931***	-0.0793***
	(0.0245)	(0.0241)	(0.0260)	(0.0264)	(0.0258)	(0.0242)	(0.0231)
log_Revenue (t - 1)			-0.0050***	-0.0075***	-0.0074***	-0.0092***	-0.0090***
			(0.0011)	(0.0013)	(0.0014)	(0.0014)	(0.0014)
log_CashAndEquivalents				0.0040***	0.0044***	0.0064***	0.0052***
				(0.0010)	(0.0010)	(0.0010)	(0.0009)
DebtEquity					-0.0019	-0.0018	-0.0001
					(0.0013)	(0.0013)	(0.0013)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1382***
							(0.0072)
Constant	0.1037***	0.1035***	0.1550***	0.1519***	0.1491***	0.1426***	0.1375***
	(0.0021)	(0.0020)	(0.0120)	(0.0121)	(0.0133)	(0.0141)	(0.0137)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	7962	7962	7058	6960	6558	6319	6203
R^2	0.0007	0.0615	0.0674	0.0708	0.0690	0.0514	0.1078

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.7.: model for EBITDA margin – Acquisitions

We now want to separate Acquisitions and Mergers and see, at an aggregate level (i.e. without differentiating among Bidders and Targets) what are the effects of M&A transactions on EBITDA_margin for these two categories of deals.

Table 4.5.2.6. reports the results of the regression of EBITDA_margin on TREAT and MA_POST for **Acquisitions**.
The coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on EBITDA_margin for Acquisitions.

Table 4.5.2.7. reports the results of the regression of EBITDA_margin on TREAT and MA_POST for **Mergers**.
The coefficient of MA_POST is -0,0793 and it is statistically significant with a significance level of 1%.
This suggests that the treatment group experiences on average a 7,6% decrease in EBITDA margin compared to the control group (Group of Peers), ceteris paribus.

Both results go against our expectation for which, as stated before, companies undertaking an M&A deal should experience an increase in the value of EBITDA margin.

Event study

Model for EBITDA_margin - Event study

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.4936**	0.4434**	0.5062**	0.0000	0.0000	0.0000
	(0.2248)	(0.2087)	(0.2086)	(.)	(.)	(.)
lead5	0.0818	0.1366**	0.1703***	0.1219*	0.1325**	0.0991
	(0.0639)	(0.0596)	(0.0604)	(0.0645)	(0.0641)	(0.0603)
lead4	0.0512	0.0883*	0.1053**	0.0773	0.0828	0.0347
	(0.0521)	(0.0485)	(0.0487)	(0.0522)	(0.0517)	(0.0490)
lead3	0.0303	0.0499	0.0681*	0.0511	0.0574	0.0324
	(0.0396)	(0.0368)	(0.0380)	(0.0384)	(0.0384)	(0.0362)
lead2	0.0216	0.0281	0.0376	0.0318	0.0372	0.0263
	(0.0352)	(0.0327)	(0.0334)	(0.0335)	(0.0333)	(0.0314)
lag0	-0.0320	-0.0387	-0.0452	-0.0466	-0.0487	-0.0351
	(0.0359)	(0.0333)	(0.0342)	(0.0341)	(0.0337)	(0.0317)
lag1	-0.0213	-0.0367	-0.0560	-0.0526	-0.0533	-0.0310
	(0.0405)	(0.0376)	(0.0389)	(0.0388)	(0.0384)	(0.0361)
lag2	-0.0380	-0.0612	-0.0886*	-0.0858*	-0.0905**	-0.0572
	(0.0472)	(0.0439)	(0.0452)	(0.0451)	(0.0446)	(0.0422)
lag3	-0.0084	-0.0436	-0.0827	-0.0752	-0.0980*	-0.0695
	(0.0539)	(0.0501)	(0.0518)	(0.0518)	(0.0517)	(0.0488)
lag4	0.0434	-0.0009	-0.0505	-0.0513	-0.0793	-0.0446
	(0.0623)	(0.0580)	(0.0592)	(0.0606)	(0.0605)	(0.0574)
lag5	-0.0029	-0.0462	-0.1020	-0.0933	-0.1176*	-0.0581
	(0.0689)	(0.0641)	(0.0654)	(0.0676)	(0.0671)	(0.0635)
lag6	0.0853	0.0126	-0.0678	-0.0536	-0.0833	-0.0411
	(0.0776)	(0.0724)	(0.0741)	(0.0769)	(0.0764)	(0.0719)
lag7	0.1750*	0.0725	-0.0349	-0.0326	-0.0686	-0.0189
	(0.1020)	(0.0952)	(0.0981)	(0.1030)	(0.1022)	(0.0995)
log_Revenue		0.0443***	0.0370***	0.0359***	0.0358***	0.0369***
		(0.0043)	(0.0062)	(0.0063)	(0.0075)	(0.0070)
log_CashAndEquivalents			0.0166***	0.0161***	0.0157***	0.0099**
			(0.0043)	(0.0044)	(0.0044)	(0.0043)
DebtEquity				0.0105	0.0094	0.0150**
				(0.0066)	(0.0065)	(0.0067)
NPeople					0.0000	0.0000
					(0.0000)	(0.0000)
ROE						0.2116***
						(0.0276)
Constant	0.1470***	-0.3510***	-0.3926***	-0.3802***	-0.3755***	-0.3641***
	(0.0292)	(0.0551)	(0.0578)	(0.0611)	(0.0768)	(0.0723)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	702	702	647	609	599	591
R^2	0.2467	0.3518	0.3839	0.3508	0.3648	0.4325

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.8.: models for EBITDA margin – event study (if TREAT == 1)

To support the regression models reported above, it was also decided to apply the event study methodology. The model in Table 4.5.2.8. considers only the treatment companies (i.e. we applied the command "if TREAT == 1"), which means that the control is realised by those companies that have not received the treatment yet.
The variables *lead* and *lag* are dummies that indicate the "time distance" from the treatment, that is from the moment in which the M&A takes place.

Table 4.5.2.8. shows that some of the coefficients of the *lead* dummy variables are statistically significant. However, the joint test of significance carried out in section 4.4. has a p-value of 0.6032 and thus confirms that the Parallel Trend assumption seems not to be violated.
If we consider the model that includes all the predictors (Model 6), the coefficients of the lag dummies are all statistically not significant. However, from Figure 4.5.2.1., a very slight negative correlation between EBITDA_margin and the M&A treatment seems to be present as the estimates of these coefficients are all negative.
The estimate of these coefficients probably suffers from the quality of the data, which presents relatively few observations for Treated companies with the presence of outliers and inaccuracies.
If the number of observations was greater, the coefficients of the lag dummies might be negative and significant and in that case the event study approach would detect a significant negative relationship between the EBITDA margin and the M&A treatment, that would support the findings of the regression model reported above (general case).

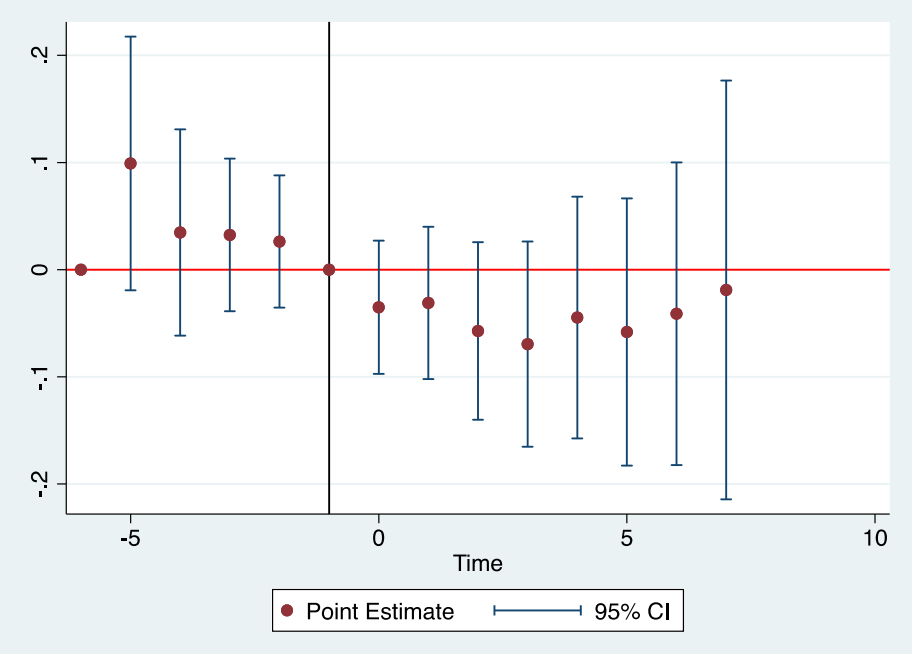

Figure 4.5.2.1.: model for EBITDA margin – event study (if TREAT == 1)

Model for EBITDA_margin - event study

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0439**	0.0455**	0.0410*	0.0431**	0.0444**	0.0509***
	(0.0202)	(0.0202)	(0.0211)	(0.0206)	(0.0191)	(0.0183)
lead6	0.4208**	0.4250**	0.4572**	0.0000	0.0000	0.0000
	(0.1947)	(0.1947)	(0.1961)	(.)	(.)	(.)
lead5	0.0195	0.0183	0.0272	-0.0032	0.0001	0.0048
	(0.0459)	(0.0459)	(0.0464)	(0.0478)	(0.0442)	(0.0423)
lead4	0.0088	0.0080	0.0121	-0.0127	-0.0105	-0.0279
	(0.0395)	(0.0395)	(0.0400)	(0.0422)	(0.0390)	(0.0373)
lead3	-0.0025	-0.0027	-0.0006	-0.0109	-0.0089	-0.0157
	(0.0296)	(0.0296)	(0.0312)	(0.0305)	(0.0287)	(0.0275)
lead2	0.0019	0.0019	0.0045	0.0046	0.0059	0.0048
	(0.0284)	(0.0284)	(0.0296)	(0.0289)	(0.0268)	(0.0257)
lag0	-0.0214	-0.0213	-0.0209	-0.0240	-0.0246	-0.0242
	(0.0288)	(0.0288)	(0.0301)	(0.0293)	(0.0271)	(0.0260)
lag1	-0.0037	-0.0036	-0.0044	-0.0073	-0.0097	-0.0082
	(0.0293)	(0.0293)	(0.0306)	(0.0298)	(0.0276)	(0.0265)
lag2	-0.0142	-0.0139	-0.0228	-0.0259	-0.0273	-0.0248
	(0.0296)	(0.0296)	(0.0310)	(0.0302)	(0.0280)	(0.0270)
lag3	0.0004	0.0008	-0.0067	-0.0095	-0.0240	-0.0262
	(0.0298)	(0.0298)	(0.0313)	(0.0306)	(0.0287)	(0.0275)
lag4	0.0261	0.0263	0.0272	-0.0121	-0.0182	-0.0109
	(0.0328)	(0.0328)	(0.0333)	(0.0344)	(0.0321)	(0.0313)
lag5	-0.0256	-0.0255	-0.0254	-0.0601	-0.0566	-0.0363
	(0.0366)	(0.0366)	(0.0370)	(0.0392)	(0.0363)	(0.0352)
lag6	0.0470	0.0474	0.0253	-0.0069	-0.0047	0.0059
	(0.0406)	(0.0406)	(0.0415)	(0.0430)	(0.0398)	(0.0387)
lag7	0.1593**	0.1600**	0.1046	0.0455	0.0320	0.1119*
	(0.0641)	(0.0641)	(0.0677)	(0.0698)	(0.0646)	(0.0662)
log_Revenue		-0.0013	-0.0051***	-0.0050***	-0.0067***	-0.0075***
		(0.0011)	(0.0013)	(0.0013)	(0.0014)	(0.0014)
log_CashAndEquivalents			0.0059***	0.0059***	0.0079***	0.0066***
			(0.0010)	(0.0010)	(0.0009)	(0.0009)
DebtEquity				-0.0015	-0.0013	0.0005
				(0.0013)	(0.0012)	(0.0012)
NPeople					0.0000***	0.0000***
					(0.0000)	(0.0000)
ROE						0.1458***
						(0.0068)
Constant	0.1042***	0.1182***	0.1150***	0.1148***	0.1047***	0.1096***
	(0.0021)	(0.0116)	(0.0117)	(0.0128)	(0.0140)	(0.0135)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	8440	8440	8284	7781	7483	7339
R^2	0.0691	0.0693	0.0729	0.0685	0.0606	0.1188

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.2.9.: models for EBITDA margin – event study

The praxis in event studies is to consider only the treated group (as done in the previous model in Table 4.5.2.8.) and see the effect of the treatment (i.e. undertaking an M&A transaction) in each year after the treatment, compared to the years before the treatment.
Including also the peers in the event study might not be necessary, because for peers the dummy variables defined by this methodology are always zero (as the peer never undertakes an M&A transaction), thus the event study might lose its meaning.
However, as robustness check it was decided to report also this second case.

All in all, model in Table 4.5.2.9. and model in Table 4.5.2.8. are quite similar.
As per Table 4.5.2.8., also in Table 4.5.2.9. the Parallel Trend Assumption seems not to be violated.
If we consider the model that includes all the predictors (Model 6), the coefficients of the lag dummies are all statistically not significant and no evident correlations between EBITDA_margin and the M&A treatment seem to be present, as all the coefficients of the lag dummies are negative and quite stable except the last two.

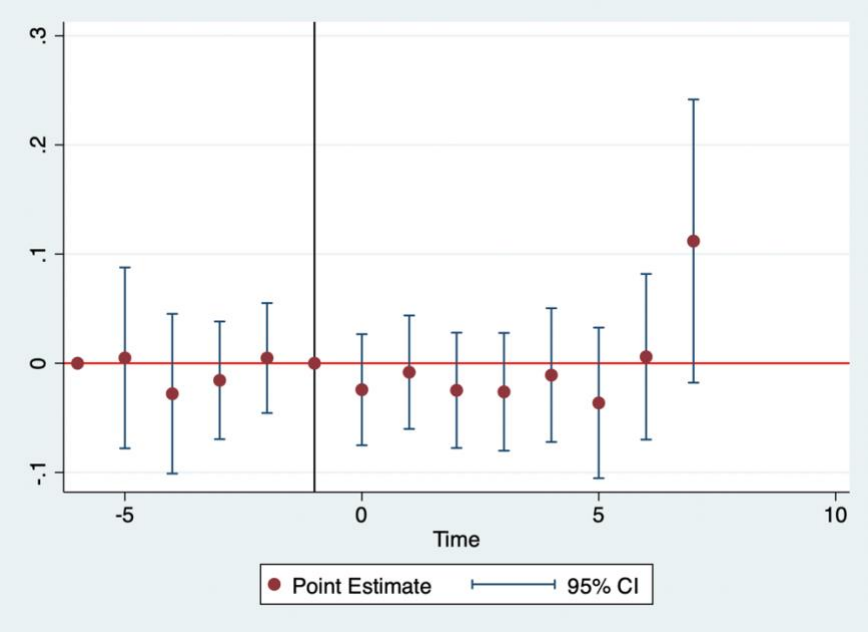

Figure 4.5.2.2.: model for EBITDA margin – event study

4.5.3. MODELS FOR Net Debt/EBITDA

General case

Model for NetDebtEBITDA

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	2.5133***	2.0320***	1.1328*	1.5278**	0.9111	0.8897	0.8867
	(0.5767)	(0.5876)	(0.6740)	(0.6927)	(0.6226)	(0.6113)	(0.6009)
MA_POST	-0.5758	0.0712	0.9319	0.7506	0.8537	0.7888	0.9535
	(0.7438)	(0.7630)	(0.8200)	(0.8416)	(0.7572)	(0.7446)	(0.7338)
log_Revenue (t - 1)			0.1133*	0.3993***	0.1792***	0.1328*	0.1301*
			(0.0636)	(0.0702)	(0.0638)	(0.0710)	(0.0704)
log_CashAndEquivalents				-0.5081***	-0.2077***	-0.2167***	-0.2125***
				(0.0518)	(0.0475)	(0.0479)	(0.0476)
DebtEquity					2.0012***	1.9590***	2.0257***
					(0.0652)	(0.0643)	(0.0677)
NPeople						-0.0000	-0.0001
						(0.0001)	(0.0001)
ROE							1.1126***
							(0.3684)
Constant	0.6652***	0.6742***	-0.5079	0.2232	-0.3947	0.2591	0.1082
	(0.1111)	(0.1101)	(0.6722)	(0.6772)	(0.6129)	(0.6998)	(0.6970)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	8239	8239	7131	7059	6954	6690	6563
R^2	0.0040	0.0250	0.0268	0.0396	0.1530	0.1557	0.1543

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.1.: model for Net Debt/EBITDA

Model for NetDebtEBITDA - firm's fixed effects

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	1.8442***	0.4128	0.6421	0.3137	0.0687	-0.0358	0.0560
	(0.4954)	(0.6910)	(0.7535)	(0.7804)	(0.7391)	(0.7252)	(0.7173)
log_Revenue (t - 1)			-0.0287	0.1568	0.0686	-0.1238	-0.1252
			(0.1823)	(0.1845)	(0.1793)	(0.1980)	(0.2020)
log_CashAndEquivalents				-0.4632***	-0.2583***	-0.2716***	-0.2313***
				(0.0870)	(0.0841)	(0.0848)	(0.0847)
DebtEquity					1.3072***	1.2656***	1.4818***
					(0.0998)	(0.0983)	(0.1123)
NPeople						0.0014***	0.0022***
						(0.0005)	(0.0006)
ROE							1.4613***
							(0.4520)
Constant	0.7585***	0.8143***	10.795	25.635	15.105	33.037	25.381
	(0.1092)	(0.0944)	-19.179	-19.458	-18.879	-20.955	-21.303
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8239	8210	7094	7023	6918	6661	6532
R^2	0.0017	0.3994	0.4086	0.4135	0.4275	0.4371	0.4359

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.2.: model for Net Debt/EBITDA absorbing firm's fixed effects

Finally, we will now apply the same models also for the third dependent variable of interest.
The ratio Net Debt/EBITDA is not necessarily related to value creation, however it is still interesting to assess whether there is evidence of an increase or decrease of this ratio for companies undergoing an M&A transactions.

Table 4.5.3.1. reports the results of the regression of NetDebtEBITDA on TREAT and MA_POST.
The coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on NetDebtEBITDA for Treated companies.

The model in Table 4.5.3.2. is simply an evolution of the previous one in which the fixed effects have been changed as specified in section 4.5.1..
Once more, the coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on NetDebtEBITDA for Treated companies.

As anticipated, **the ratio Net Debt/EBITDA is not necessarily related to value creation** and the incapacity of the model to detect a nonzero effect on this ratios for the companies undergoing an M&A deal is actually quite plausible.
Indeed, the use of leverage in M&A transactions can vary a lot depending on how the deal is structured and on the nature of the companies involved, especially that of the buyer. A financial buyer, for instance, may decide to finance the deal taking on a lot of debt and in that case, if EBITDA remains the same, the ratio Net Debt/EBITDA would increase. In the same way, the buyer might instead decide to buy a distressed company and provide financial resources to restructure and reduce its debt burden. In this second case, if EBITDA remains the same, the ratio Net Debt/EBITDA would decrease.

In the end **these results support the fact that the ratio Net Debt/EBITDA, and in particular Net Debt, are idiosyncratic variables specific to the single deal** and do not refute the result about value creation found in section 4.5.1..

Model for NetDebtEBITDA - match Treated and Peers

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	1.8442***	0.1453	0.1572	0.2104	-0.0702	0.0120	0.0557
	(0.4954)	(0.7093)	(0.6999)	(0.7266)	(0.6845)	(0.6751)	(0.6680)
log_Revenue			-0.2495	0.0550	0.0756	-0.1117	-0.0304
			(0.1828)	(0.1876)	(0.1818)	(0.2059)	(0.2061)
log_CashAndEquivalents				-0.4518***	-0.2150***	-0.2140***	-0.2152***
				(0.0848)	(0.0815)	(0.0819)	(0.0820)
DebtEquity					1.1745***	1.1791***	1.2273***
					(0.0946)	(0.0935)	(0.1060)
NPeople						0.0015***	0.0016***
						(0.0005)	(0.0006)
ROE							0.9609**
							(0.4318)
Constant	0.7585***	0.8293***	3.4685*	3.5420*	11.820	27.682	17.538
	(0.1092)	(0.0941)	-19.280	-19.421	-18.775	-21.438	-21.384
Years	no	yes	yes	yes	yes	yes	yes
Years*GROUP	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8239	8196	7955	7867	7743	7420	7270
R^2	0.0017	0.4774	0.4654	0.4705	0.4849	0.5001	0.4966

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.3.: model for Net Debt/EBITDA – match Treated and Peers

The model in Table 4.5.3.3. is a further evolution of the one in Table 4.5.3.2., where the interaction term of the fixed effects has been changed.
The coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on NetDebtEBITDA for Treated companies.

This result is in line with the findings in Table 4.5.3.1. and 4.5.3.2. and supports our thesis that the ratio Net Debt/EBITDA, and in particular the level of Net Debt, are not clearly impacted by undertaking an M&A transaction, but is rather a variable that fluctuates depending on the specific deal.

Model for NetDebtEBITDA - Bidder companies

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	1.4710*	11.455	0.7781	16.059	1.5665*	1.7399*	1.6764*
	(0.8257)	(0.8347)	(0.9661)	(1.0282)	(0.9179)	(0.9064)	(0.8875)
MA_POST	10.565	1.7638*	2.2029*	2.3115*	12.092	11.360	12.313
	(1.0312)	(1.0431)	(1.1368)	(1.2035)	(1.0751)	(1.0600)	(1.0385)
log_Revenue (t - 1)			0.0666	0.3650***	0.1409**	0.1036	0.1016
			(0.0649)	(0.0712)	(0.0644)	(0.0713)	(0.0707)
log_CashAndEquivalents				-0.5424***	-0.2289***	-0.2393***	-0.2308***
				(0.0528)	(0.0481)	(0.0484)	(0.0480)
DebtEquity					2.0612***	2.0196***	2.0766***
					(0.0658)	(0.0648)	(0.0680)
NPeople						-0.0001	-0.0001
						(0.0001)	(0.0001)
ROE							1.0352***
							(0.3769)
Constant	0.6652***	0.6596***	-0.0358	0.8173	0.1242	0.7064	0.5307
	(0.1102)	(0.1092)	(0.6852)	(0.6913)	(0.6217)	(0.7057)	(0.7025)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	7918	7918	6856	6788	6685	6423	6303
R^2	0.0023	0.0251	0.0279	0.0429	0.1637	0.1674	0.1649

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.4.: model for Net Debt/EBITDA – Bidder companies

Model for NetDebtEBITDA - Target companies

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	3.4406***	2.8532***	1.5563*	1.6475*	0.5562	0.4921	0.5244
	(0.7841)	(0.7881)	(0.9033)	(0.9027)	(0.8122)	(0.7915)	(0.7784)
MA_POST	-2.3262**	-1.8578*	-0.6039	-12.256	0.0978	-0.0312	0.2155
	(1.0761)	(1.0846)	(1.1519)	(1.1504)	(1.0372)	(1.0139)	(1.0030)
log_Revenue (t - 1)			0.1722**	0.4790***	0.2671***	0.2183***	0.2177***
			(0.0670)	(0.0726)	(0.0662)	(0.0731)	(0.0725)
log_CashAndEquivalents				-0.5702***	-0.2588***	-0.2715***	-0.2654***
				(0.0528)	(0.0485)	(0.0489)	(0.0485)
DebtEquity					1.9993***	1.9584***	2.0253***
					(0.0654)	(0.0644)	(0.0677)
NPeople						-0.0000	-0.0000
						(0.0001)	(0.0001)
ROE							1.1323***
Constant	0.6652***	0.6792***	-11.236	-0.1577	-0.9411	-0.2446	-0.4368
	(0.1109)	(0.1098)	(0.7080)	(0.7085)	(0.6420)	(0.7230)	(0.7198)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	7869	7869	6802	6765	6661	6404	6278
R^2	0.0027	0.0249	0.0264	0.0428	0.1591	0.1631	0.1618

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.5.: model for Net Debt/EBITDA – Target companies

We now want to go further into the analysis and separate Bidder and Target companies to see if there is any effect of M&A transactions on the ratio Net Debt/EBITDA for these two categories of companies.

Table 4.5.3.4. reports the results of the regression of NetDebtEBITDA on TREAT and MA_POST for **Bidder** companies.
The coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on NetDebtEBITDA for the Bidder company.

Table 4.5.3.5., instead, reports the results of the regression of NetDebtEBITDA on TREAT and MA_POST for **Target** companies.
Also in this case, the coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on NetDebtEBITDA for the Target company.

Model for NetDebtEBITDA - Acquisitions

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	2.1403***	1.3754*	0.5494	0.7868	0.3728	0.3620	0.3794
	(0.7415)	(0.7508)	(0.8608)	(0.8961)	(0.8068)	(0.7871)	(0.7743)
MA_POST	-0.7390	0.0142	0.8140	0.4918	0.7934	0.6576	0.8268
	(0.9347)	(0.9485)	(1.0232)	(1.0630)	(0.9581)	(0.9368)	(0.9242)
log_Revenue (t - 1)			0.1463**	0.4622***	0.2451***	0.1998***	0.1962***
			(0.0652)	(0.0717)	(0.0654)	(0.0727)	(0.0721)
log_CashAndEquivalents				-0.5525***	-0.2492***	-0.2605***	-0.2560***
				(0.0523)	(0.0481)	(0.0484)	(0.0481)
DebtEquity					2.0173***	1.9752***	2.0461***
					(0.0658)	(0.0649)	(0.0683)
NPeople						-0.0000	-0.0001
						(0.0001)	(0.0001)
ROE							1.1646***
							(0.3705)
Constant	0.6652***	0.6821***	-0.8443	-0.1011	-0.7799	-0.1261	-0.2781
	(0.1107)	(0.1096)	(0.6886)	(0.6897)	(0.6257)	(0.7134)	(0.7105)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	7995	7995	6928	6862	6758	6499	6372
R^2	0.0017	0.0251	0.0274	0.0427	0.1580	0.1610	0.1599

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.6.: model for Net Debt/EBITDA – Acquisitions

Model for NetDebtEBITDA - Mergers

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
TREAT	3.0524***	2.9904***	1.9341*	2.5775**	1.6555*	1.6495*	1.6126*
	(0.8865)	(0.8912)	(1.0311)	(1.0400)	(0.9273)	(0.9150)	(0.8954)
MA_POST	0.0647	0.6631	16.300	18.665	13.895	14.535	15.622
	(1.2290)	(1.2326)	(1.3253)	(1.3368)	(1.1934)	(1.1774)	(1.1525)
log_Revenue (t - 1)			0.1104*	0.4126***	0.1835***	0.1373*	0.1369*
			(0.0660)	(0.0722)	(0.0653)	(0.0720)	(0.0713)
log_CashAndEquivalents				-0.5521***	-0.2317***	-0.2425***	-0.2340***
				(0.0531)	(0.0484)	(0.0487)	(0.0482)
DebtEquity					2.0414***	2.0005***	2.0537***
					(0.0653)	(0.0643)	(0.0674)
NPeople						-0.0000	-0.0001
						(0.0001)	(0.0001)
ROE							1.0346***
							(0.3756)
Constant	0.6652***	0.6576***	-0.5008	0.3837	-0.2981	0.3667	0.1734
	(0.1104)	(0.1094)	(0.6978)	(0.7039)	(0.6323)	(0.7136)	(0.7103)
ATECO_group	no	yes	yes	yes	yes	yes	yes
Years	no	yes	yes	yes	yes	yes	yes
Observations	7792	7792	6730	6691	6588	6328	6209
R^2	0.0031	0.0249	0.0267	0.0424	0.1644	0.1683	0.1656

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.7.: model for Net Debt/EBITDA – Mergers

Finally, we want to separate Acquisitions and Mergers and see, at an aggregate level (i.e. without differentiating among Bidders and Targets) if there is any effect of M&A transactions on the ratio Net Debt/EBITDA for these two categories of deals.

Table 4.5.3.6. reports the results of the regression of NetDebtEBITDA on TREAT and MA_POST for **Acquisitions**.
The coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on NetDebtEBITDA for Acquisitions.

Table 4.5.3.7. reports the results of the regression of NetDebtEBITDA on TREAT and MA_POST for **Mergers**.
Also in this case, the coefficient of MA_POST is not statistically significant. Therefore, we fail to reject the null hypothesis that MA_POST has a nonzero effect on NetDebtEBITDA for Mergers.

Event study

Model for NetDebtEBITDA - Event study

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-5.2771	-5.3380	-2.7596	-2.4313	-2.2705	-2.6740
	(3.3610)	(3.3003)	(3.1949)	(3.0335)	(3.0734)	(3.1086)
lead4	-3.1972	-3.0405	-1.4870	-1.1243	-1.0464	-1.4269
	(2.6915)	(2.6053)	(2.5065)	(2.3714)	(2.3944)	(2.4370)
lead3	-1.0229	-1.1334	-1.3738	-1.1137	-0.8866	-1.1468
	(1.9683)	(1.8986)	(1.8790)	(1.7787)	(1.8121)	(1.8367)
lead2	-0.9601	-0.3680	-0.3966	-0.2526	-0.2541	-0.4095
	(1.7357)	(1.6737)	(1.6382)	(1.5496)	(1.5684)	(1.5879)
lag0	1.3987	1.8045	1.4081	1.2651	1.2784	1.3496
	(1.7828)	(1.7104)	(1.6747)	(1.5827)	(1.5921)	(1.6087)
lag1	2.6671	2.9772	1.9898	1.8075	1.8394	1.9397
	(2.0063)	(1.9241)	(1.8948)	(1.7924)	(1.8036)	(1.8227)
lag2	1.5191	1.9649	1.3335	1.2451	1.1834	1.4277
	(2.3439)	(2.2523)	(2.2042)	(2.0846)	(2.1003)	(2.1275)
lag3	5.0659*	5.6190**	3.3248	2.3302	1.9805	2.1701
	(2.6741)	(2.5779)	(2.5288)	(2.3978)	(2.4373)	(2.4640)
lag4	5.1036	5.5018*	3.5051	3.6827	3.5303	3.9217
	(3.1639)	(3.0422)	(2.9599)	(2.8079)	(2.8582)	(2.9085)
lag5	6.9544*	7.4000**	4.9940	6.0764*	5.7131*	5.9358*
	(3.5426)	(3.4084)	(3.3167)	(3.1649)	(3.2025)	(3.2471)
lag6	6.3749	7.0599*	4.2418	5.3740	4.9753	5.0227
	(4.0351)	(3.9004)	(3.7860)	(3.5982)	(3.6472)	(3.6858)
lag7	6.0857	7.0270	4.2341	4.9497	4.6984	5.3643
	(5.5026)	(5.3138)	(5.1030)	(4.8428)	(4.9003)	(5.1313)
log_Revenue		-0.3569*	-0.7446***	-0.7962***	-0.6858***	-0.7123***
		(0.1930)	(0.2358)	(0.2237)	(0.2580)	(0.2612)
log_CashAndEquivalents			0.6487***	0.7023***	0.7409***	0.7282***
			(0.1931)	(0.1837)	(0.1944)	(0.2018)
DebtEquity				0.5454*	0.5189*	0.6966**
				(0.3098)	(0.3128)	(0.3438)
NPeople					-0.0003	-0.0003
					(0.0004)	(0.0004)
ROE						0.9988
						(1.3231)
Constant	1.3249	4.8044*	4.2442*	3.9861*	2.7294	2.9728
	(1.4086)	(2.4979)	(2.4713)	(2.3625)	(2.8803)	(2.9255)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	691	684	635	632	620	612
R^2	0.0994	0.1128	0.1312	0.1487	0.1493	0.1519

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.8.: models for Net Debt/EBITDA – event study (if TREAT == 1)

To support the regression models reported above, it was also decided to apply the event study methodology. The model in Table 4.5.3.8. considers only the treatment companies (i.e. we applied the command "if TREAT == 1"), which means that the control is realised by those companies that have not received the treatment yet.
The variables *lead* and *lag* are dummies that indicate the "time distance" from the treatment, that is from the moment in which the M&A takes place.

Table 4.5.3.8. shows that the coefficients of all the *lead* dummy variables are not statistically significant. This, together with the joint test of significance carried out in section 4.4. confirms that the Parallel Trend assumption seems not to be violated.
If we consider the model that includes all the predictors (Model 6), the coefficients of the lag dummies, except for the one of lag5, are statistically not significant. However, from Figure 4.5.3.1., a slight positive correlation between NetDebtEBITDA and the M&A treatment seems to be present as the estimates of these coefficients are all positive and increasing with time.
The estimate of these coefficients probably suffers from the quality of the data, which presents relatively few observations for Treated companies with the presence of outliers and inaccuracies.
If the number of observations was greater, the coefficients of the lag dummies might be positive and significant and in that case the event study approach would detect a significant relationship between the Net Debt/EBITDA ratio and the M&A treatment, which was not detect by the regression models provided above.

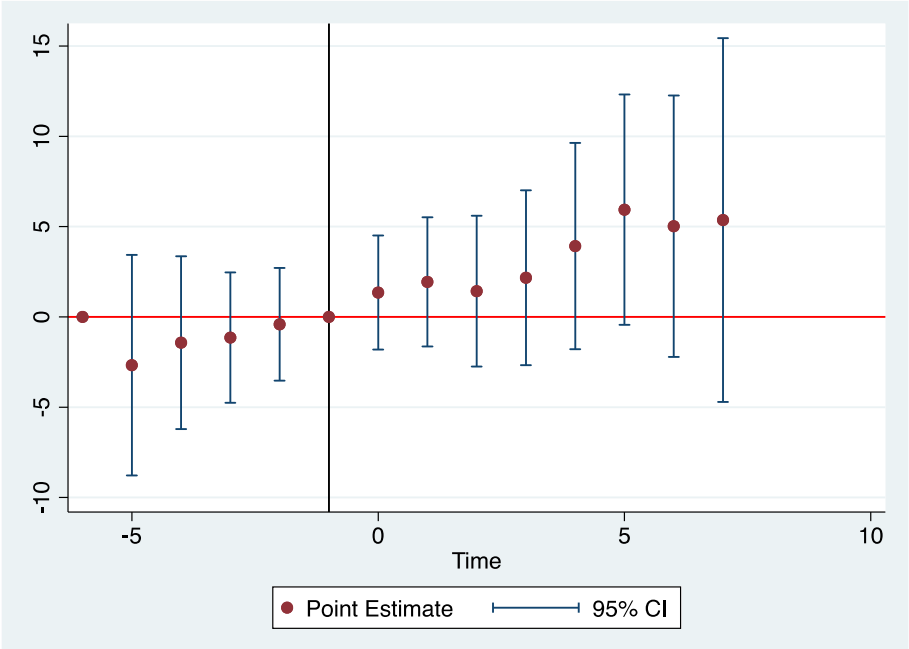

Figure 4.5.3.1.: model for Net Debt/EBITDA – event study (if TREAT == 1)

Model for NetDebtEBITDA - Event study

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	1.7944*	12.502	2.0486*	1.6907*	1.6176*	1.6879*
	(1.0367)	(1.0173)	(1.0506)	(0.9417)	(0.9173)	(0.9060)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-1.7524	-2.0938	-2.9731	-4.3165*	-4.0624*	-4.0127*
	(2.5073)	(2.4923)	(2.4875)	(2.2301)	(2.1711)	(2.1331)
lead4	-0.0919	0.3637	-0.2720	-0.5010	-0.3569	-0.4570
	(2.1539)	(2.0940)	(2.0949)	(1.8776)	(1.8276)	(1.7964)
lead3	0.9120	0.3403	-0.9973	-1.4129	-1.2773	-1.3286
	(1.5379)	(1.5032)	(1.5683)	(1.4057)	(1.3935)	(1.3709)
lead2	0.4494	0.8273	0.1897	-0.1546	-0.0351	-0.0518
	(1.4592)	(1.4257)	(1.4725)	(1.3197)	(1.2885)	(1.2682)
lag0	0.2743	0.6548	0.4532	0.4070	0.4647	0.4827
	(1.4915)	(1.4526)	(1.5030)	(1.3470)	(1.3107)	(1.2898)
lag1	1.2314	1.6200	0.8088	0.9877	1.0212	1.0427
	(1.5098)	(1.4751)	(1.5232)	(1.3651)	(1.3284)	(1.3120)
lag2	-1.6792	-1.2537	-0.8988	-0.9686	-0.8760	-0.8612
	(1.5329)	(1.4928)	(1.5412)	(1.3869)	(1.3553)	(1.3392)
lag3	1.4312	1.8957	1.0678	-0.3542	-0.6801	-0.7276
	(1.5478)	(1.5073)	(1.5573)	(1.4017)	(1.3884)	(1.3660)
lag4	-0.3729	0.2095	-0.5276	-0.5989	-0.6758	-0.2265
	(1.7854)	(1.7497)	(1.7587)	(1.5763)	(1.5579)	(1.5570)
lag5	1.3320	1.8916	1.1666	1.2961	1.2500	1.4505
	(2.0958)	(2.0362)	(2.0392)	(1.8525)	(1.8028)	(1.7964)
lag6	0.6872	1.1806	0.5534	1.0482	0.8648	0.6355
	(2.3035)	(2.2369)	(2.2362)	(2.0043)	(1.9506)	(1.9509)
lag7	-1.0809	-0.6619	-1.5398	-0.9267	-1.0300	-0.5703
	(3.7807)	(3.6660)	(3.6450)	(3.2668)	(3.1792)	(3.3478)
log_Revenue		0.0903	0.3922***	0.1786***	0.1764***	0.1794***
		(0.0603)	(0.0670)	(0.0608)	(0.0682)	(0.0676)
log_CashAndEquivalents			-0.4982***	-0.1821***	-0.2048***	-0.2018***
			(0.0492)	(0.0451)	(0.0453)	(0.0451)
DebtEquity				1.9002***	1.8581***	1.8838***
				(0.0605)	(0.0596)	(0.0631)
NPeople					-0.0001	-0.0001
					(0.0001)	(0.0001)
ROE						0.7284**
						(0.3387)
Constant	0.6740***	-0.2497	0.1875	-0.5471	-0.2829	-0.4355
	(0.1102)	(0.6389)	(0.6421)	(0.5800)	(0.6688)	(0.6659)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	8239	8009	7923	7800	7481	7335
R^2	0.0258	0.0270	0.0388	0.1459	0.1507	0.1443

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4.5.3.9.: models for Net Debt/EBITDA – event study

The praxis in event studies is to consider only the treated group (as done in the previous model in Table 4.5.3.8.) and see the effect of the treatment (i.e. undertaking an M&A transaction) in each year after the treatment, compared to the years before the treatment.
Including also the peers in the event study might not be necessary, because for peers the dummy variables defined by this methodology are always zero (as the peer never undertakes an M&A transaction), thus the event study might lose its meaning.
However, as robustness check it was decided to report also this second case.

As per Table 4.5.2.8., also in Table 4.5.2.9. the Parallel Trend Assumption seems not to be violated, however the results are quite different.
If we consider the model that includes all the predictors (Model 6), the coefficients of the lag dummies are all statistically non-significant and no evident correlation between NetDebtEBITDA and the M&A treatment seems to be present, while in the previous model there seemed to be a slight positive correlation.

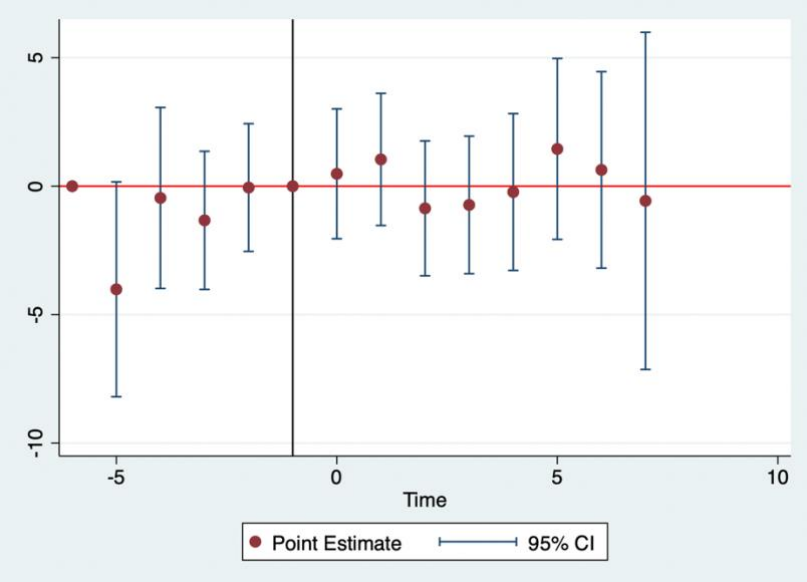

Figure 4.5.3.1.: model for Net Debt/EBITDA – event study

4.5.4. ADDITIONAL MODELS

The models reported above are considered the more important in this research and outline the most significant results.
Several additional models were developed, although most of them involve very few observations and are mostly non significant.

These models, which are reported in Attachment 1, are the following:

MODELS FOR EQUITY:

- Regression models with firm's fixed effects for Bidder and Target companies
- Event study with firm's fixed effects for Bidder and Target companies
- Event study general case for Bidder and Target companies
- Regression models with firm's fixed effects for Acquisitions and Mergers
- Event study with firm's fixed effects for Acquisitions and Mergers
- Event study general case for Acquisitions and Mergers
- Event study match Treated and Peers

MODELS FOR EBITDA margin:

- Regression models with firm's fixed effects for Bidder and Target companies
- Event study with firm's fixed effects for Bidder and Target companies
- Event study general case for Bidder and Target companies
- Regression models with firm's fixed effects for Acquisitions and Mergers
- Event study with firm's fixed effects for Acquisitions and Mergers
- Event study general case for Acquisitions and Mergers
- Event study match Treated and Peers

MODELS FOR Net Debt/EBITDA:

- Regression models with firm's fixed effects for Bidder and Target companies
- Event study with firm's fixed effects for Bidder and Target companies
- Event study general case for Bidder and Target companies
- Regression models with firm's fixed effects for Acquisitions and Mergers
- Event study with firm's fixed effects for Acquisitions and Mergers
- Event study general case for Acquisitions and Mergers
- Event study match Treated and Peers

CHAPTER 5: CONCLUSIONS

The **equity models** (section 4.5.1.) are by far the **most important for** establishing **value creation** through M&A transactions, and represent the cornerstone of this study.
Our research finds **clear evidence of** a significant **increase** in the value **of equity after the deal** for those companies undertaking an M&A transaction, which allows to confirm our thesis that **in Italy**, on average, **M&A creates** indeed **value for shareholders.** This result demonstrates a good level of robustness as it is consistent with all the three different models applied to the general case (Table 4.5.1.1., 4.5.1.2., 4.5.1.3.) and suggests that on average Italian companies have learned how to master the entire process from the selection of the targets to the deal structuring and final integration and somehow justifies the significant increase in the M&A activity over the last decade.
The **same result** holds **for Bidder** companies, while the effect is **not significant for Target** companies. This second result conflicts with some traditional studies (Jensen and Ruback (1983)[47] and Jarrell, Brickley and Netter (1988)[48]) for which Target companies in takeovers tend to capture the majority of the value created. However, it is assumed that this result may be due to a lack of information and to the maturity reached by the Italian M&A market several years after these studies, where Italian Bidders might have improved their ability to select Targets and extract value.
Finally, our model also detects a **better performance**, in terms of **increase** in the value **of equity post-deal, for Mergers compared to Acquisitions**, which suggests that on average, in Italy, M&A transactions in which there is incorporation of the Target into the Bidder tend to create more value for shareholders.
Such conclusion may derive from the fact that Mergers often result in greater synergy potential and may signal a stronger commitment to long-term growth and value creation, as they typically involve deeper integration efforts and strategic planning compared to acquisitions, which may sometimes be more focused on short-term gains.
The vast majority of literature studies on M&A value creation concerns short-term event studies based on cumulative abnormal returns (CARs). These short-term methodologies do not fit well with this long-term research; however, a correlation, at least partial, between the results seems to be present. Indeed, literature on the topic seems to generally agree on the fact that M&A generates positive returns for target shareholders, break-even values for bidders, and on the aggregate, positive returns for

[47] Jensen, Michael C. and Richard S. Ruback. 1983. "The Market for Corporate Control: The Scientific Evidence." *Journal of Financial Economics*. 11, pp. 5-50.
[48] Jarrell, Gregg A., James A. Brickley and Jeffrey M. Netter. 1988. "The Market for Corporate Control: The Empirical Evidence Since 1980." *Journal of Economic Perspectives*. 2, pp. 49-68.

the shareholders of the combined entity (Healy, Palepu and Ruback, (1992)[49]; Andrade et al., (2001)[50]; Bruner, (2002)[51]).

Secondly, **in terms of EBITDA margin** our models find a **slight decrease** in this variable after deal **in** two of **the general cases** (Table 4.5.2.1., 4.5.2.2.) **and for Mergers**, while it does **not** show any **evidence** of an existing relationship between undertaking an M&A transaction and EBITDA margin **in the third general case** (Table 4.5.2.3.), **in the case of Acquisitions and in the split for Bidder and Target companies**, as the coefficient of the regression are non-significant.
These findings diverge from what we anticipated. In fact, given that participating in an M&A transaction is associated with value creation as demonstrated by the equity models, we would expect a rise in the EBITDA margin, to account for increased profitability. However, they find evidence in the literature. Indeed, Martynova, Oosting and Renneboog (2006)[52] carried out an empirical study on 155 intra-European deals that documents non-significant changes in profitability (including EBITDA margin) of the combined firm following the takeover.
Nevertheless, it is important to note that, while the increase in the value of net equity is an unequivocal indicator of value creation for shareholders, the EBITDA margin is a less sophisticated indicator, which does not take into account various factors such as the implementation of financial synergies and the increased efficiency of the capital structure. Therefore, although this second result does not support the major conclusion that M&A creates value, it does not refute it.

Thirdly, **our research does not show any evidence of an existing relationship between** undertaking an **M&A** transaction **and the ratio Net Debt/EBITDA** and these results are consistent in all the cases considered.
The ratio Net Debt/EBITDA is not necessarily related to value creation and the incapacity of the model to detect a nonzero effect on this ratios for the companies undergoing an M&A deal is actually quite plausible.
Indeed, the use of leverage in M&A transactions can vary a lot depending on how the deal is structured and on the nature of the companies involved, especially that of the buyer. Therefore, these results support the fact that the ratio **Net Debt/EBITDA is strongly related to the characteristics of the single deal** and do not refute the result about value creation found by the models for equity.

---

[49] Healy, Paul M., Krishna G. Palepu and Rich- ard S. Ruback. 1992. "Does Corporate Performance Improve after Mergers?" *Journal of Finan- cial Economics*. 31.
[50] Andrade, G., Mitchell, M., & Stafford, E., 2001. "New evidence and perspectives on mergers."*Journal of Economic Perspectives*, 15(2), pp. 103-120.
[51] Bruner, R.F. 2002. "Does M&A pay? A survey of evidence for the decision-maker." *Journal of Applied Finance*, 12(1), pp. 48-68.
[52] Martynova, M., Oosting, S., Renneboog, L., 2006. "The Long-term performance of European mergers and acquisitions". CentER Discussion Paper; Vol. 2006-111. Finance.

5.1. RESEARCH LIMITS

The world of M&A is in itself a complicated world and the Italian context is even more so. The research conducted produced statistically significant results which summarize how on average, taking part in an M&A transaction in Italy creates value for shareholders. However, several difficulties and limitations were encountered in carrying out this study, especially related to the availability of data.

The **first important limit** is determined precisely by the **Italian context**, characterized by a small number of transactions compared for instance to the United States or the UK, and by the presence of many very small deals and some megadeals, which constitute outliers. This does not allow to isolate a large sample of homogeneous companies, at least within the time horizon considered in this study, and therefore reduces the accuracy of the statistical models and the quality of the results.

A **second** important **limitation** lies in the **database** that has been used. **AIDA** tracks exclusively the financial data of registered Italian companies, therefore it **excludes cross-border deals**. However, other more sophisticated databases like Refinitiv and Bloomberg provide accounting data only for listed companies, while most of the companies in our sample are private, so these databases could not be used either. Furthermore, it was not possible to find exhaustive financial information for Private Equity investors, that most of the times structure their transactions with complex sets of NewCos or do not provide financial data, with the result that most of the transactions backed by these investors were excluded.
As already discussed, cross-border deals and private equity represent an important and growing phenomenon in Italy and the impossibility to find financial data for these companies limits the scope of the conclusions that we could draw.

A **third obstacle** is represented by the selection of the companies belonging to the **control group** (peers). In industries such as utilities, where in Italy there are a couple of large players, when one (or more than one) of these makes a deal, it is sometimes difficult to find a set of respective peers that are comparable in terms of size.

5.2. NEXT STEPS FOR FUTURE RESEARCH

Although this thesis finds out clear evidence of value creation in Italian M&A transactions, there is room for improving the robustness of the results and further widening the scope of the research.

A first starting point for future studies is to broaden the deal selection interval (currently between 2015 and 2018) in order to significantly increase the number of companies in the sample and find a way to include cross-border deals, that in Italy represent an important and growing phenomenon. For the latter, it would then be possible to adjust the models already presented in order to establish who creates more value between cross-border and domestic deals.
If we were able to significantly expand the sample and find sufficient observations for financial investors, we could also consider the impact on value creation of Private Equity investors, which are also increasingly important in the Italian context.

Other studies might decide to compare the value creation effects of M&A transactions in Italy with those in other European countries, investigating the factors that contribute to differences in outcomes across different geographical areas. Note that this choice would require an effort in making financial data homogeneous across different financial reporting standards and accounting rules.

REFERENCES

Andrade, G., Mitchell, M., & Stafford, E., 2001. "New evidence and perspectives on mergers", Journal of Economic Perspectives, 15(2), pp. 103-120.

Badi H. Baltagi, 1995. "Econometric Analysis of Panel Data", John Wiley and Sons, New York.

Baker, A. C., D. F. Larcker, and C. C. Wang, 2022. "How much should we trust staggered difference-in-differences estimates?" Journal of Financial Economics 144 (2).

Berk J., DeMarzo J., "Corporate Finance", 4th Edition, Pearson, pp. 994-1020.

Bradley, M., Desai, A., Kim, E.H., 1984. "Determinants of the Wealth Effects of Corporate Acquisitions", working paper, The University of Michigan.

Bradley, M., Desai, A., Kim, E.H., 1988. "Synergistic gains from corporate acquisitions and their division between thestockholders of target and acquiring firms", J. Finan. Econ. 21 (1), 3–40.

Bruner, R.F., 2002. "Does M&A pay? A survey of evidence for the decision-maker", Journal of Applied Finance, 12(1), pp. 48-68.

Caselli, S., Gigante, G., Tortoroglio, A., 2021. "Corporate and Investment Banking: A Hands-On Approach", Egea Editore.

Clarke D., Schythe K.T., 2021. "Implementing the Panel Event Study", SAGE Publications 21 (4).

Eckbo B.E., 1983. "Horizontal mergers, collusion, and stockholder wealth", Journal of Financial Economics, 11(1-4).

Fama, Eugene F., 1970. "Efficient Capital Markets: A Review of Theory and Empirical Work", Journal of Finance. 25, pp. 383-417.

Gujarati, D.N. 1995., "Basic Econometrics", McGraw-Hill Companies, New York, NY.

Healy, Paul M., Krishna G. Palepu, Richard S. Ruback, 1992. "Does Corporate Performance Improve after Mergers?", Journal of Financial Economics. 31.

Hsiao, C., 2014. "Analysis of Panel Data", Cambridge University Press, Cambridge, pp. 1-2.

https://www.statista.com/statistics/267369/volume-of-mergers-and-acquisitions-worldwide/

https://en.wikipedia.org/wiki/Panel_data

Jarrell, Gregg A., James A. Brickley and Jeffrey M. Netter. 1988. "The Market for Corporate Control: The Empirical Evidence Since 1980", Journal of Economic Perspectives 2, pp. 49-68.

Jarrell, Gregg A., and Annette B. Poulsen, 1987a. "Bidder Returns," working paper.

Jensen, Michael C. and Richard S. Ruback. 1983. "The Market for Corporate Control: The Scientific Evidence", Journal of Financial Economics 11, pp. 5-50.

KPMG Advisory Corporate Finance, 2022. "Report Mergers & Acquisitions 2022: the year of uncertainty"

KPMG International, 2010. "20 Years of M&A: mergers and acquisitions in Italy from 1988 to 2010". EGEA 2010.

Loughran, Tim and Anand M. Vijh. 1997. "Do Long-Term Shareholders Benefit from Corporate Acquisitions?" Journal of Finance 52, pp. 1765-1790.

Martynova, M., Oosting, S., Renneboog, L., 2006. "The Long-term performance of European mergers and acquisitions". CentER Discussion Paper; Vol. 2006-111. Finance.

Martynova, M. & Renneboog, L. 2008. A century of corporate takeovers: What have we learned and where do we stand? Journal of Banking and Finance 32:2148– 77.

Ravenscraft, David J. and F. M. Scherer. 1989. "The Profitability of Mergers." *Journal of Indus- trial Economics*. 7, pp. 101-16.

Rosenbaum J., Pearl J., 2009. "Investment Banking – Valuation, Leveraged Buyouts, and Mergers & Acquisitions"; John Wiley & Sons, pp. 251-282

Stigler, G., 1950. "Monopoly and oligopoly power by merger." Am. Econ. Rev. 40, pp. 23–34.

Stock, J., Watson, M. 2005. "Introduction to econometrics". 4th Edition. Pearson.

Zollo M., Meier D., 2008. "What is M&A performance?" Academy of Management Perspectives ARCHIVE 22(3). pp.55–77.

ATTACHMENTS

ATTACHMENT 1: Additional models

MODELS FOR EQUITY

Model for log_Equity_net - firm's fixed effects Bidder

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	3.1572***	-0.3108***	0.0520	0.1066*	0.1719***	0.1231**	0.1475***
	(0.1462)	(0.0754)	(0.0625)	(0.0647)	(0.0612)	(0.0618)	(0.0570)
log_Revenue (t - 1)			0.2661***	0.2423***	0.2433***	0.2581***	0.2703***
			(0.0114)	(0.0113)	(0.0115)	(0.0130)	(0.0121)
log_CashAndEquivalents				0.0795***	0.0641***	0.0616***	0.0504***
				(0.0054)	(0.0052)	(0.0054)	(0.0050)
DebtEquity					-0.0804***	-0.0851***	-0.0904***
					(0.0069)	(0.0069)	(0.0069)
NPeople						0.0003***	0.0002***
						(0.0000)	(0.0000)
ROE							0.2982***
							(0.0281)
Constant	9.2119***	9.3267***	6.7508***	6.3904***	6.6717***	6.4517***	6.4428***
	(0.0261)	(0.0081)	(0.1179)	(0.1180)	(0.1215)	(0.1370)	(0.1279)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8570	8558	7231	7100	6648	6390	6311
R^2	0.0516	0.9253	0.9583	0.9607	0.9603	0.9596	0.9650

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.1. Regression model for log_Equity_net with firm's fixed effects – Bidders

Model for log_Equity_net - firm's fixed effects Target

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	0.7156***	0.1328	0.0803	0.0616	-0.0035	-0.0070	0.0596
	(0.1772)	(0.0884)	(0.0733)	(0.0715)	(0.0656)	(0.0650)	(0.0589)
log_Revenue (t - 1)			0.2984***	0.2720***	0.2661***	0.2848***	0.2991***
			(0.0120)	(0.0118)	(0.0118)	(0.0134)	(0.0123)
log_CashAndEquivalents				0.0816***	0.0664***	0.0634***	0.0515***
				(0.0055)	(0.0053)	(0.0054)	(0.0050)
DebtEquity					-0.0821***	-0.0866***	-0.0949***
					(0.0070)	(0.0070)	(0.0068)
NPeople						0.0003***	0.0002***
						(0.0000)	(0.0000)
ROE							0.3015***
							(0.0272)
Constant	9.1639***	9.1834***	6.3087***	5.9769***	6.3374***	6.0824***	6.0580***
	(0.0259)	(0.0079)	(0.1233)	(0.1221)	(0.1239)	(0.1402)	(0.1285)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8477	8461	7149	7043	6622	6370	6286
R^2	0.0019	0.9223	0.9507	0.9545	0.9558	0.9548	0.9624

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.2. Regression model for log_Equity_net with firm's fixed effects – Targets

Model for log_Equity_net - firm's fixed effects event study Bidder

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.5511	0.5972	0.5930	0.0000	0.0000	0.0000
	(0.6106)	(0.5339)	(0.5678)	(.)	(.)	(.)
lead5	-0.5130*	-0.4854**	-0.4812*	-0.8879***	-1.0432***	-0.9611***
	(0.2626)	(0.2403)	(0.2597)	(0.2812)	(0.2784)	(0.2775)
lead4	-0.3395	-0.3178*	-0.3080	-0.3269	-0.4481**	-0.3133
	(0.2068)	(0.1873)	(0.2022)	(0.2182)	(0.2149)	(0.2204)
lead3	-0.2345	-0.2225	-0.2317	-0.2263	-0.2717*	-0.2060
	(0.1558)	(0.1384)	(0.1557)	(0.1556)	(0.1549)	(0.1558)
lead2	-0.0824	-0.0905	-0.1228	-0.1300	-0.1593	-0.1073
	(0.1228)	(0.1081)	(0.1215)	(0.1203)	(0.1179)	(0.1188)
lag0	0.2507**	0.1599*	0.1519	0.1488	0.1366	0.1289
	(0.1079)	(0.0949)	(0.1051)	(0.1052)	(0.1021)	(0.1009)
lag1	0.2477**	0.1597	0.1347	0.1374	0.1247	0.0759
	(0.1240)	(0.1120)	(0.1221)	(0.1223)	(0.1191)	(0.1196)
lag2	0.2242	0.1247	0.1098	0.1114	0.1103	0.0661
	(0.1443)	(0.1329)	(0.1422)	(0.1445)	(0.1412)	(0.1409)
lag3	0.0898	-0.0208	-0.0291	-0.0316	-0.0549	-0.1025
	(0.1635)	(0.1524)	(0.1615)	(0.1659)	(0.1614)	(0.1609)
lag4	0.0332	-0.0850	-0.0707	-0.0660	-0.0836	-0.1016
	(0.1772)	(0.1695)	(0.1773)	(0.1838)	(0.1803)	(0.1784)
lag5	-0.1894	-0.3515*	-0.3499	-0.5047**	-0.4748**	-0.5654**
	(0.2179)	(0.2062)	(0.2153)	(0.2354)	(0.2282)	(0.2290)
lag6	-0.1276	-0.2415	-0.2442	-0.3067	-0.2866	-0.3347
	(0.2339)	(0.2164)	(0.2257)	(0.2309)	(0.2243)	(0.2226)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.0462	0.0426	0.0119	0.0063	-0.0020
		(0.0316)	(0.0333)	(0.0378)	(0.0392)	(0.0389)
log_CashAndEquivalents			-0.0043	-0.0107	-0.0129	-0.0089
			(0.0236)	(0.0263)	(0.0260)	(0.0258)
DebtEquity				0.0278	-0.0012	-0.0238
				(0.0668)	(0.0671)	(0.0671)
NPeople					0.0002***	0.0002***
					(0.0001)	(0.0001)
ROE						-0.4298**
						(0.1886)
Constant	12.0941***	11.6127***	11.6340***	11.8668***	11.7923***	11.8981***
	(0.0828)	(0.3788)	(0.4376)	(0.4705)	(0.4772)	(0.4738)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	381	363	320	287	278	278
R^2	0.9556	0.9681	0.9675	0.9684	0.9706	0.9714

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.3. Event study for log_Equity_net with firm's fixed effects – Bidders

Model for log_Equity_net - event study Bidder

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.4829	0.9223	20.012	0.0000	0.0000	0.0000
	-13.101	-13.587	-13.255	(.)	(.)	(.)
lead5	-0.8493	-0.6203	-0.0265	-0.5991	-1.0345*	-1.0293*
	(0.6357)	(0.5429)	(0.5439)	(0.6366)	(0.5978)	(0.5953)
lead4	-0.4570	-0.1687	0.0224	-0.1800	-0.4452	-0.2518
	(0.5224)	(0.4419)	(0.4381)	(0.5182)	(0.4828)	(0.4896)
lead3	-0.3930	-0.3133	-0.2103	-0.2063	-0.3140	-0.2031
	(0.4013)	(0.3290)	(0.3394)	(0.3481)	(0.3316)	(0.3345)
lead2	-0.1001	-0.1735	-0.1512	-0.1542	-0.1753	-0.1223
	(0.3539)	(0.2910)	(0.2954)	(0.2987)	(0.2802)	(0.2801)
lag0	0.3756	0.2659	0.1926	0.2244	0.2447	0.2375
	(0.3516)	(0.2872)	(0.2904)	(0.2935)	(0.2718)	(0.2707)
lag1	0.4851	0.2562	0.2633	0.2411	0.3031	0.2250
	(0.3954)	(0.3237)	(0.3265)	(0.3306)	(0.3064)	(0.3073)
lag2	0.5544	0.2549	0.2303	0.2554	0.3975	0.3344
	(0.4566)	(0.3733)	(0.3749)	(0.3800)	(0.3535)	(0.3547)
lag3	0.4932	0.0955	0.1014	0.0726	0.1738	0.0647
	(0.5172)	(0.4242)	(0.4250)	(0.4331)	(0.4057)	(0.4073)
lag4	0.5947	0.2111	0.1850	-0.0317	0.2123	0.1344
	(0.5863)	(0.4925)	(0.4867)	(0.5200)	(0.4845)	(0.4840)
lag5	0.7091	0.0476	-0.0350	-0.2919	0.0005	-0.2141
	(0.6431)	(0.5414)	(0.5350)	(0.5732)	(0.5351)	(0.5430)
lag6	0.8045	-0.1027	-0.1364	-0.3398	0.0267	-0.1123
	(0.7180)	(0.6108)	(0.6007)	(0.6472)	(0.6060)	(0.6072)
lag7	11.884	0.0946	0.1719	0.0395	0.3920	0.3248
	(0.9163)	(0.7922)	(0.7736)	(0.8412)	(0.7862)	(0.7835)
log_Revenue		0.3966***	0.2595***	0.2554***	0.1468***	0.1503***
		(0.0276)	(0.0337)	(0.0355)	(0.0375)	(0.0374)
log_CashAndEquivalents			0.2740***	0.2551***	0.1820***	0.1880***
			(0.0346)	(0.0365)	(0.0354)	(0.0354)
DebtEquity				-0.2636***	-0.1810**	-0.2472***
				(0.0867)	(0.0815)	(0.0870)
NPeople					0.0004***	0.0004***
					(0.0001)	(0.0001)
ROE						-0.6844**
						(0.3313)
Constant	11.8542***	7.3205***	6.3021***	6.6183***	8.0496***	8.0674***
	(0.3005)	(0.4041)	(0.4226)	(0.4559)	(0.4844)	(0.4822)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	431	409	366	327	318	317
R^2	0.2795	0.5404	0.6217	0.5943	0.6500	0.6552

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.4. Event study for log_Equity_net - general case for Bidders

Model for log_Equity_net - firm's fixed effects event study Target

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	12.693	0.9916	-0.4193	-0.8045*	-1.0275**	-0.0484
	(0.7756)	(0.7145)	(0.6253)	(0.4546)	(0.4731)	(0.3953)
lead4	1.2803**	1.0564*	-0.1037	-0.5754*	-0.7306**	-0.0852
	(0.5988)	(0.5494)	(0.4789)	(0.3451)	(0.3559)	(0.2986)
lead3	0.9767**	0.7263*	-0.1242	-0.4148	-0.4885*	-0.0285
	(0.4441)	(0.4107)	(0.3550)	(0.2568)	(0.2614)	(0.2150)
lead2	0.4569	0.3822	-0.0505	-0.1846	-0.2232	-0.0046
	(0.3301)	(0.3053)	(0.2543)	(0.1849)	(0.1856)	(0.1446)
lag0	0.0953	0.3510	0.3333	0.3133*	0.3431**	0.0940
	(0.3095)	(0.2847)	(0.2410)	(0.1728)	(0.1733)	(0.1384)
lag1	0.2367	0.5160	0.5901*	0.6104***	0.6848***	0.1568
	(0.3836)	(0.3523)	(0.3089)	(0.2232)	(0.2272)	(0.1940)
lag2	0.3314	0.5943	0.8369**	1.0241***	1.0745***	0.2788
	(0.4593)	(0.4258)	(0.3851)	(0.2772)	(0.2779)	(0.2552)
lag3	0.5846	0.7756	1.1936**	1.2909***	1.3000***	0.3027
	(0.5349)	(0.4934)	(0.4594)	(0.3300)	(0.3309)	(0.3180)
lag4	0.5431	0.5565	1.5766***	1.2802***	1.3105***	0.2325
	(0.5868)	(0.5412)	(0.5153)	(0.3679)	(0.3681)	(0.3643)
lag5	0.2942	0.3028	1.5588**	1.7441***	1.7946***	0.2768
	(0.6928)	(0.6332)	(0.6186)	(0.4468)	(0.4481)	(0.4608)
lag6	0.8872	0.7952	1.9180***	1.7524***	1.7939***	0.1693
	(0.7220)	(0.6528)	(0.6437)	(0.4619)	(0.4624)	(0.5492)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.6867***	0.5918***	0.3284***	0.2737***	0.2522***
		(0.0970)	(0.0959)	(0.0749)	(0.0892)	(0.0681)
log_CashAndEquivalents			0.0994**	0.1202***	0.1197***	0.0947***
			(0.0444)	(0.0324)	(0.0324)	(0.0241)
DebtEquity				-0.1186***	-0.1095**	-0.2156***
				(0.0426)	(0.0437)	(0.0407)
NPeople					0.0010	0.0024***
					(0.0009)	(0.0007)
ROE						0.1160
						(0.0991)
Constant	9.0351***	1.8744*	2.1427**	4.9216***	5.3194***	5.8763***
	(0.2162)	-10.235	(0.9490)	(0.7519)	(0.8285)	(0.6367)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	283	271	259	254	252	246
R^2	0.7828	0.8237	0.8805	0.9315	0.9330	0.9605

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.5. Event study for log_Equity_net with firm's fixed effects – Targets

Model for log_Equity_net - event study Target

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-0.4268	0.8050	1.1210**	0.8320	0.5820	0.7784*
	(0.6953)	(0.5976)	(0.5580)	(0.5140)	(0.4952)	(0.4355)
lead4	-0.0159	0.7240	0.9582**	0.5231	0.2960	0.3530
	(0.5606)	(0.4734)	(0.4411)	(0.4096)	(0.3952)	(0.3462)
lead3	0.1068	0.3094	0.4687	0.1794	0.0789	0.1526
	(0.4479)	(0.3769)	(0.3528)	(0.3237)	(0.3116)	(0.2727)
lead2	0.0454	0.3560	0.3958	0.2892	0.2240	0.2446
	(0.3950)	(0.3311)	(0.3092)	(0.2834)	(0.2714)	(0.2370)
lag0	0.2513	0.2602	0.1040	0.0034	-0.0076	-0.1623
	(0.4153)	(0.3448)	(0.3291)	(0.2976)	(0.2846)	(0.2513)
lag1	0.4525	0.3658	-0.0752	-0.1572	-0.0863	-0.2015
	(0.4848)	(0.4019)	(0.3863)	(0.3492)	(0.3342)	(0.2928)
lag2	0.7654	0.4715	-0.0045	-0.0693	-0.0470	-0.2643
	(0.5815)	(0.4828)	(0.4628)	(0.4183)	(0.4010)	(0.3538)
lag3	1.2269*	0.6628	0.0963	0.0631	-0.0023	-0.2034
	(0.6814)	(0.5679)	(0.5473)	(0.4953)	(0.4791)	(0.4226)
lag4	1.6088**	0.6162	0.0922	0.0229	-0.1683	-0.1182
	(0.7745)	(0.6615)	(0.6252)	(0.5660)	(0.5554)	(0.4948)
lag5	13.928	0.3366	-0.1990	-0.1238	-0.2607	-0.2352
	(0.8805)	(0.7551)	(0.7115)	(0.6497)	(0.6286)	(0.5548)
lag6	2.0189**	0.6096	-0.3400	-0.6953	-0.8425	-0.3608
	(0.9873)	(0.8584)	(0.8267)	(0.7503)	(0.7267)	(0.6413)
lag7	15.216	0.2640	-18.974	-2.1984**	-2.0161*	0.7705
	-13.579	-11.436	-11.991	-10.849	-10.512	-11.382
log_Revenue		0.6786***	0.5213***	0.4871***	0.3104***	0.3238***
		(0.0672)	(0.0714)	(0.0655)	(0.0734)	(0.0654)
log_CashAndEquivalents			0.2025***	0.1709***	0.1307***	0.0756**
			(0.0442)	(0.0409)	(0.0403)	(0.0371)
DebtEquity				-0.2374***	-0.2778***	-0.4225***
				(0.0556)	(0.0539)	(0.0544)
NPeople					0.0015***	0.0017***
					(0.0003)	(0.0003)
ROE						-0.3373*
						(0.1723)
Constant	9.0383***	2.1536***	2.4950***	3.3974***	5.3448***	5.7254***
	(0.3307)	(0.7357)	(0.7171)	(0.6678)	(0.7613)	(0.6836)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	337	326	314	309	306	300
R^2	0.1529	0.3890	0.4335	0.4912	0.5278	0.6124

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.6. Event study for log_Equity_net - general case for Targets

Model for log_Equity_net - firm's fixed effects Acquisition

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	2.1153***	-0.2584***	0.0263	0.0302	0.0113	-0.0100	0.0419
	(0.1347)	(0.0701)	(0.0577)	(0.0584)	(0.0543)	(0.0539)	(0.0488)
log_Revenue (t - 1)			0.2994***	0.2738***	0.2677***	0.2865***	0.3009***
			(0.0119)	(0.0118)	(0.0119)	(0.0134)	(0.0123)
log_CashAndEquivalents				0.0803***	0.0654***	0.0628***	0.0507***
				(0.0054)	(0.0052)	(0.0054)	(0.0049)
DebtEquity					-0.0823***	-0.0866***	-0.0949***
					(0.0069)	(0.0069)	(0.0068)
NPeople						0.0003***	0.0002***
						(0.0000)	(0.0000)
ROE							0.2981***
							(0.0270)
Constant	9.2000***	9.2941***	6.3735***	6.0309***	6.3792***	6.1192***	6.0936***
	(0.0261)	(0.0082)	(0.1235)	(0.1223)	(0.1246)	(0.1409)	(0.1292)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8651	8638	7306	7172	6719	6465	6380
R^2	0.0277	0.9214	0.9541	0.9574	0.9582	0.9575	0.9647

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.7. Regression model for log_Equity_net with firm's fixed effects -Acquisitions

Model for log_Equity_net - firm's fixed effects Merger

	Y = log_Equity_net						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	2.3536***	0.1561	0.1591*	0.2134**	0.2591***	0.2124***	0.2408***
	(0.2097)	(0.1033)	(0.0871)	(0.0864)	(0.0801)	(0.0812)	(0.0747)
log_Revenue (t - 1)			0.2647***	0.2403***	0.2412***	0.2551***	0.2670***
			(0.0114)	(0.0113)	(0.0115)	(0.0129)	(0.0121)
log_CashAndEquivalents				0.0808***	0.0654***	0.0624***	0.0514***
				(0.0054)	(0.0053)	(0.0054)	(0.0051)
DebtEquity					-0.0799***	-0.0851***	-0.0903***
					(0.0069)	(0.0069)	(0.0069)
NPeople						0.0003***	0.0002***
						(0.0000)	(0.0000)
ROE							0.3031***
							(0.0284)
Constant	9.1758***	9.2159***	6.6859***	6.3362***	6.6305***	6.4245***	6.4183***
	(0.0261)	(0.0077)	(0.1177)	(0.1177)	(0.1208)	(0.1362)	(0.1271)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8396	8381	7073	6970	6551	6295	6217
R^2	0.0148	0.9263	0.9554	0.9581	0.9581	0.9572	0.9629

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.8. Regression model for log_Equity_net with firm's fixed effects - Mergers

Model for log_Equity_net - firm's fixed effects event study Acquisition

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	2.0317*	1.7843*	15.000	0.0000	0.0000	0.0000
	-11.360	-10.478	(0.9287)	(.)	(.)	(.)
lead5	0.8991*	0.6794	0.2931	0.0457	-0.0934	0.4625*
	(0.4853)	(0.4555)	(0.4168)	(0.3675)	(0.3691)	(0.2593)
lead4	0.8908**	0.7565**	0.4062	0.2152	0.0813	0.4149**
	(0.3811)	(0.3562)	(0.3265)	(0.2819)	(0.2833)	(0.1986)
lead3	0.5422**	0.5397**	0.2568	0.0741	0.0341	0.2909**
	(0.2752)	(0.2547)	(0.2388)	(0.1996)	(0.2004)	(0.1404)
lead2	0.2669	0.2663	0.1305	0.0299	-0.0039	0.0876
	(0.2136)	(0.1976)	(0.1815)	(0.1459)	(0.1451)	(0.1005)
lag0	0.0463	0.0960	0.0754	0.1496	0.1383	0.0506
	(0.1889)	(0.1745)	(0.1597)	(0.1280)	(0.1272)	(0.0887)
lag1	0.0354	0.0832	0.0814	0.2061	0.2075	0.0102
	(0.2253)	(0.2094)	(0.1932)	(0.1631)	(0.1625)	(0.1148)
lag2	0.0800	0.0968	0.1239	0.3750*	0.3768*	0.0608
	(0.2742)	(0.2558)	(0.2358)	(0.2077)	(0.2063)	(0.1473)
lag3	0.2106	0.1614	0.2759	0.5259**	0.4808*	0.0795
	(0.3193)	(0.2980)	(0.2751)	(0.2490)	(0.2478)	(0.1780)
lag4	0.2375	0.1428	0.4404	0.5423*	0.5253*	0.0918
	(0.3589)	(0.3362)	(0.3090)	(0.2834)	(0.2810)	(0.2030)
lag5	0.0475	0.0051	0.3356	0.6959**	0.6808**	0.0470
	(0.4205)	(0.3917)	(0.3608)	(0.3419)	(0.3390)	(0.2484)
lag6	0.2641	0.1818	0.4680	0.5333	0.5136	-0.0303
	(0.4419)	(0.4071)	(0.3754)	(0.3412)	(0.3382)	(0.2582)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.5508***	0.5011***	0.2828***	0.2506***	0.2894***
		(0.0645)	(0.0655)	(0.0587)	(0.0597)	(0.0421)
log_CashAndEquivalents			0.0636**	0.0633**	0.0696***	0.0465**
			(0.0291)	(0.0249)	(0.0249)	(0.0181)
DebtEquity				-0.1901***	-0.1977***	-0.3206***
				(0.0391)	(0.0389)	(0.0346)
NPeople					0.0002**	0.0002***
					(0.0001)	(0.0001)
ROE						0.0816
						(0.0797)
Constant	10.9169***	4.5767***	4.5518***	6.9698***	7.1620***	7.1637***
	(0.1541)	(0.7557)	(0.7430)	(0.6519)	(0.6520)	(0.4601)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	486	469	423	385	380	374
R^2	0.9033	0.9212	0.9449	0.9628	0.9641	0.9822

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.9. Event study for log_Equity_net with firm's fixed effects – Acquisitions

Model for log_Equity_net - event study Acquisition

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	15.051	0.4023	14.741	0.0000	0.0000	0.0000
	-22.062	-14.645	-14.636	(.)	(.)	(.)
lead5	-0.5430	-0.0142	0.3143	-0.0056	0.1166	0.1859
	(0.8165)	(0.5561)	(0.5693)	(0.5885)	(0.5600)	(0.5078)
lead4	-0.3840	0.1534	0.3653	-0.0193	0.0931	0.1081
	(0.6507)	(0.4404)	(0.4513)	(0.4584)	(0.4356)	(0.3943)
lead3	-0.2754	-0.0241	0.0973	-0.1693	-0.0276	-0.0100
	(0.5005)	(0.3335)	(0.3546)	(0.3416)	(0.3272)	(0.2965)
lead2	-0.1466	-0.0279	0.0115	-0.0902	-0.0326	-0.0456
	(0.4319)	(0.2884)	(0.2971)	(0.2837)	(0.2694)	(0.2437)
lag0	0.3927	0.4348	0.3544	0.2978	0.1541	0.1218
	(0.4278)	(0.2840)	(0.2935)	(0.2767)	(0.2635)	(0.2383)
lag1	0.6638	0.6100*	0.4400	0.3525	0.1348	0.1259
	(0.4902)	(0.3261)	(0.3417)	(0.3223)	(0.3078)	(0.2785)
lag2	0.9678*	0.7743**	0.5825	0.4957	0.1710	0.0846
	(0.5766)	(0.3848)	(0.4029)	(0.3801)	(0.3640)	(0.3301)
lag3	1.3130**	0.9683**	0.7476	0.6558	0.1217	-0.0028
	(0.6565)	(0.4397)	(0.4611)	(0.4366)	(0.4251)	(0.3852)
lag4	1.6204**	1.1986**	0.9777*	0.6200	-0.0212	-0.0035
	(0.7406)	(0.5045)	(0.5228)	(0.5136)	(0.4997)	(0.4582)
lag5	1.6949**	1.2615**	1.0274*	0.7271	0.0419	0.0064
	(0.8230)	(0.5633)	(0.5824)	(0.5828)	(0.5638)	(0.5137)
lag6	2.2798**	1.5218**	1.1548*	0.4551	-0.3282	-0.0421
	(0.9221)	(0.6368)	(0.6610)	(0.6705)	(0.6485)	(0.5904)
lag7	3.0545**	1.4324*	0.7224	-0.0707	-11.435	0.3107
	-12.205	(0.8484)	(0.8946)	(0.9154)	(0.8845)	(0.8547)
log_Revenue		0.8657***	0.6977***	0.6939***	0.4856***	0.5149***
		(0.0349)	(0.0565)	(0.0565)	(0.0645)	(0.0595)
log_CashAndEquivalents			0.1960***	0.1626***	0.1251***	0.0847**
			(0.0396)	(0.0389)	(0.0377)	(0.0352)
DebtEquity				-0.2186***	-0.2571***	-0.4151***
				(0.0614)	(0.0587)	(0.0630)
NPeople					0.0004***	0.0005***
					(0.0001)	(0.0001)
ROE						-0.3292*
						(0.1888)
Constant	10.4287***	0.5379	0.8728*	1.4745***	4.0443***	4.1903***
	(0.3768)	(0.4666)	(0.5087)	(0.5175)	(0.6513)	(0.5980)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	512	488	441	403	397	390
R^2	0.1863	0.6538	0.6892	0.6815	0.7152	0.7549

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.10. Event study for log_Equity_net - general case for Acquisitions

Model for log_Equity_net - firm's fixed effects event study Merger

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-1.4414***	-1.3489***	-1.3127***	-1.1856***	-1.3832***	-1.5380***
	(0.4420)	(0.3687)	(0.3860)	(0.3865)	(0.3972)	(0.4004)
lead4	-0.8143**	-0.7980***	-0.7859***	-0.8365***	-0.9928***	-1.1868***
	(0.3391)	(0.2795)	(0.2902)	(0.2970)	(0.3102)	(0.3230)
lead3	-0.3951	-0.3947*	-0.3977*	-0.3205	-0.3863	-0.5134**
	(0.2611)	(0.2167)	(0.2270)	(0.2282)	(0.2399)	(0.2461)
lead2	-0.2159	-0.2199	-0.2098	-0.1563	-0.2530	-0.3523*
	(0.2075)	(0.1735)	(0.1833)	(0.1830)	(0.1890)	(0.1938)
lag0	0.0788	0.0888	0.1055	0.1031	0.1046	0.1615
	(0.1950)	(0.1614)	(0.1712)	(0.1705)	(0.1699)	(0.1703)
lag1	0.1296	0.1549	0.1953	0.1659	0.1668	0.2366
	(0.2222)	(0.1836)	(0.1942)	(0.1942)	(0.1951)	(0.1961)
lag2	0.1041	0.1321	0.1366	0.0756	0.1289	0.1880
	(0.2554)	(0.2107)	(0.2196)	(0.2221)	(0.2289)	(0.2280)
lag3	-0.2200	-0.1843	-0.1786	-0.2407	-0.2370	-0.1479
	(0.2935)	(0.2423)	(0.2512)	(0.2556)	(0.2649)	(0.2656)
lag4	-0.3118	-0.2925	-0.2788	-0.3525	-0.3475	-0.2963
	(0.3049)	(0.2511)	(0.2598)	(0.2657)	(0.2700)	(0.2678)
lag5	-0.7892**	-0.8096**	-0.7986**	-1.0260***	-0.9360**	-0.8089**
	(0.3807)	(0.3135)	(0.3246)	(0.3524)	(0.3589)	(0.3605)
lag6	-0.5580	-0.5500	-0.5465	-0.6150*	-0.5561	-0.4903
	(0.4210)	(0.3463)	(0.3570)	(0.3619)	(0.3638)	(0.3607)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.0567	0.0574	0.0657	0.0519	0.0362
		(0.0383)	(0.0406)	(0.0425)	(0.0477)	(0.0478)
log_CashAndEquivalents			0.0172	-0.0027	-0.0117	-0.0272
			(0.0393)	(0.0405)	(0.0411)	(0.0413)
DebtEquity				-0.0197	-0.0392	-0.0464
				(0.0682)	(0.0711)	(0.0703)
NPeople					0.0005	0.0006
					(0.0005)	(0.0005)
ROE						0.4601*
						(0.2439)
Constant	11.0725***	10.4448***	10.2466***	10.2860***	10.2173***	10.4317***
	(0.1278)	(0.4305)	(0.5229)	(0.5185)	(0.5382)	(0.5431)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	222	213	205	202	195	195
R^2	0.9634	0.9757	0.9752	0.9750	0.9754	0.9763

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.11. Event study for log_Equity_net with firm's fixed effects – Mergers

Model for log_Equity_net - event study Merger

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	-4.8597*	0.0000	0.0000	0.0000	0.0000	0.0000
	(2.6357)	(.)	(.)	(.)	(.)	(.)
lead5	-2.4837***	-12.798	0.3470	0.4026	-0.0142	0.1807
	(0.8775)	(0.8575)	(0.6215)	(0.6337)	(0.6616)	(0.6577)
lead4	-10.476	-0.3556	0.1423	0.0147	-0.2691	-0.0496
	(0.7077)	(0.6729)	(0.4792)	(0.5196)	(0.5360)	(0.5364)
lead3	-0.5277	-0.3635	-0.0893	-0.0872	-0.3146	-0.1355
	(0.5685)	(0.5355)	(0.3848)	(0.3900)	(0.4023)	(0.4036)
lead2	-0.3799	-0.2515	-0.2641	-0.2346	-0.3053	-0.2429
	(0.5104)	(0.4727)	(0.3395)	(0.3426)	(0.3481)	(0.3444)
lag0	0.6433	0.3665	-0.1196	-0.0961	-0.0301	-0.1375
	(0.5441)	(0.5022)	(0.3629)	(0.3667)	(0.3664)	(0.3642)
lag1	1.1319*	0.5283	0.0290	0.0480	0.2068	0.0600
	(0.6232)	(0.5769)	(0.4170)	(0.4225)	(0.4285)	(0.4271)
lag2	1.4548**	0.5878	-0.0167	0.0530	0.3736	0.1880
	(0.7196)	(0.6712)	(0.4819)	(0.4885)	(0.5068)	(0.5057)
lag3	1.8799**	0.7560	-0.2132	-0.1533	0.2343	0.0503
	(0.8379)	(0.7844)	(0.5705)	(0.5855)	(0.6089)	(0.6056)
lag4	2.2717**	0.9478	-0.2021	-0.2016	0.2920	0.1874
	(0.9722)	(0.9156)	(0.6570)	(0.6726)	(0.7124)	(0.7044)
lag5	2.8290***	0.8738	-0.6562	-0.5899	0.0832	-0.1793
	(1.0715)	(1.0230)	(0.7400)	(0.7626)	(0.8113)	(0.8077)
lag6	3.0927**	10.179	-0.9452	-0.8857	-0.1200	-0.2872
	(1.2121)	(1.1491)	(0.8298)	(0.8617)	(0.9139)	(0.9045)
lag7	3.0764*	12.087	-0.9663	-0.9589	-0.1643	-0.1962
	(1.5770)	(1.4659)	(1.0509)	(1.0854)	(1.1247)	(1.1100)
log_Revenue		0.3670***	0.0230	0.0238	-0.0507	-0.0383
		(0.0610)	(0.0597)	(0.0614)	(0.0697)	(0.0690)
log_CashAndEquivalents			0.6806***	0.6582***	0.5976***	0.5911***
			(0.0471)	(0.0500)	(0.0557)	(0.0550)
DebtEquity				-0.1098*	-0.1161*	-0.1491**
				(0.0657)	(0.0655)	(0.0660)
NPeople					0.0002**	0.0002**
					(0.0001)	(0.0001)
ROE						-0.8207**
						(0.3323)
Constant	10.2382***	6.6619***	4.8217***	5.0495***	6.1189***	6.1274***
	(0.3973)	(0.7115)	(0.6023)	(0.6332)	(0.7939)	(0.7835)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	257	248	240	233	227	227
R^2	0.2797	0.3770	0.6916	0.6721	0.6667	0.6771

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.12. Event study for log_Equity_net - general case for Mergers

Model for log_Equity_net - Event study match Treated and Peers

	Y = log_Equity_net					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	0.3176*	-0.2668*	-0.2674*	-0.3054**	-0.3280**	-0.2934**
	(0.1739)	(0.1510)	(0.1465)	(0.1395)	(0.1364)	(0.1252)
lead4	0.3992***	-0.0069	-0.0439	-0.1290	-0.1809	-0.1913*
	(0.1482)	(0.1247)	(0.1212)	(0.1193)	(0.1167)	(0.1072)
lead3	0.0489	-0.0222	-0.0679	-0.0906	-0.0960	-0.0851
	(0.1128)	(0.0918)	(0.0934)	(0.0868)	(0.0866)	(0.0795)
lead2	-0.0168	-0.0560	-0.0915	-0.0753	-0.0641	-0.0725
	(0.1067)	(0.0868)	(0.0872)	(0.0815)	(0.0798)	(0.0733)
lag0	0.2090*	0.2096**	0.1363	0.1003	0.0979	0.1202
	(0.1088)	(0.0875)	(0.0885)	(0.0824)	(0.0806)	(0.0739)
lag1	0.2016*	0.1551*	0.0897	0.0517	0.0350	0.0727
	(0.1109)	(0.0896)	(0.0904)	(0.0842)	(0.0822)	(0.0758)
lag2	0.1089	0.0852	0.0293	0.0471	0.0297	0.0516
	(0.1122)	(0.0903)	(0.0913)	(0.0853)	(0.0837)	(0.0771)
lag3	0.0340	0.0324	-0.0182	-0.0123	-0.0549	-0.0444
	(0.1127)	(0.0907)	(0.0922)	(0.0860)	(0.0856)	(0.0785)
lag4	-0.0914	-0.0236	0.0409	-0.0871	-0.1313	-0.0654
	(0.1188)	(0.1005)	(0.0983)	(0.0988)	(0.0973)	(0.0910)
lag5	-0.3002**	-0.2800**	-0.2746**	-0.2527**	-0.2567**	-0.2441**
	(0.1341)	(0.1138)	(0.1110)	(0.1146)	(0.1120)	(0.1043)
lag6	-0.2312	-0.1819	-0.2461**	-0.2954**	-0.3188***	-0.2221*
	(0.1481)	(0.1267)	(0.1252)	(0.1259)	(0.1229)	(0.1150)
lag7	-0.5120**	-0.3883*	-0.5947***	-0.7376***	-0.7740***	0.0774
	(0.2491)	(0.2088)	(0.2133)	(0.2102)	(0.2041)	(0.2004)
log_Revenue		0.3388***	0.3081***	0.3055***	0.2894***	0.2934***
		(0.0115)	(0.0116)	(0.0118)	(0.0135)	(0.0126)
log_CashAndEquivalents			0.0693***	0.0591***	0.0562***	0.0457***
			(0.0054)	(0.0052)	(0.0053)	(0.0049)
DebtEquity				-0.0644***	-0.0777***	-0.0870***
				(0.0067)	(0.0066)	(0.0066)
NPeople					0.0002***	0.0001***
					(0.0000)	(0.0000)
ROE						0.2449***
						(0.0272)
Constant	9.3413***	5.9310***	5.7287***	6.0051***	6.1353***	6.2128***
	(0.0093)	(0.1195)	(0.1185)	(0.1224)	(0.1408)	(0.1306)
Years	yes	yes	yes	yes	yes	yes
Years*GROUP	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	8854	8411	8249	7733	7409	7309
R^2	0.9397	0.9572	0.9604	0.9603	0.9608	0.9661

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.13. Event study for log_Equity_net - match Treated and Peers

Model for EBITDA_margin - firm's fixed effects Bidder

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	0.0652***	0.0034	0.0076	0.0130	0.0101	0.0010	0.0049
	(0.0120)	(0.0123)	(0.0132)	(0.0141)	(0.0138)	(0.0132)	(0.0124)
log_Revenue (t - 1)			0.0093***	0.0085***	0.0124***	0.0170***	0.0171***
			(0.0024)	(0.0025)	(0.0026)	(0.0027)	(0.0026)
log_CashAndEquivalents				0.0029**	0.0023**	0.0032***	0.0022**
				(0.0011)	(0.0011)	(0.0011)	(0.0010)
DebtEquity					-0.0003	0.0005	0.0024*
					(0.0013)	(0.0013)	(0.0014)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1146***
							(0.0057)
Constant	0.1049***	0.1070***	0.0103	-0.0025	-0.0425	-0.1142***	-0.1177***
	(0.0021)	(0.0012)	(0.0248)	(0.0257)	(0.0271)	(0.0282)	(0.0270)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8119	8102	7183	7058	6625	6391	6272
R^2	0.0036	0.7047	0.7422	0.7401	0.7499	0.7372	0.7644

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.14. Regression model for EBITDA_margin with firm's fixed effects – Bidders

Model for EBITDA_margin - firm's fixed effects Target

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	0.0334**	-0.0169	-0.0416***	-0.0461***	-0.0514***	-0.0534***	-0.0328**
	(0.0143)	(0.0141)	(0.0146)	(0.0148)	(0.0142)	(0.0134)	(0.0127)
log_Revenue (t - 1)			0.0098***	0.0077***	0.0101***	0.0151***	0.0146***
			(0.0025)	(0.0025)	(0.0027)	(0.0028)	(0.0027)
log_CashAndEquivalents				0.0036***	0.0032***	0.0041***	0.0030***
				(0.0011)	(0.0011)	(0.0011)	(0.0010)
DebtEquity					-0.0002	0.0007	0.0027*
					(0.0013)	(0.0013)	(0.0014)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1230***
							(0.0056)
Constant	0.1044***	0.1057***	0.0048	0.0012	-0.0235	-0.0995***	-0.0985***
	(0.0021)	(0.0013)	(0.0256)	(0.0263)	(0.0279)	(0.0293)	(0.0281)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8059	8044	7126	7024	6615	6385	6260
R^2	0.0007	0.6926	0.7296	0.7292	0.7423	0.7280	0.7577

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.15. Regression model for EBITDA_margin with firm's fixed effects – Targets

Model for EBITDA_margin - firm's fixed effects event study Bidder

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0175	0.0260	-0.0009	0.0000	0.0000	0.0000
	(0.1584)	(0.1607)	(0.1707)	(.)	(.)	(.)
lead5	-0.0218	-0.0197	-0.0353	-0.0079	0.0101	-0.0120
	(0.0666)	(0.0670)	(0.0732)	(0.0790)	(0.0719)	(0.0714)
lead4	0.0145	0.0157	0.0142	0.0334	0.0451	0.0033
	(0.0523)	(0.0525)	(0.0568)	(0.0621)	(0.0562)	(0.0581)
lead3	0.0055	0.0062	0.0022	0.0011	0.0072	-0.0092
	(0.0378)	(0.0379)	(0.0431)	(0.0429)	(0.0396)	(0.0397)
lead2	0.0177	0.0182	0.0126	0.0111	0.0125	-0.0024
	(0.0296)	(0.0297)	(0.0338)	(0.0334)	(0.0302)	(0.0304)
lag0	-0.0185	-0.0185	-0.0213	-0.0426	-0.0340	-0.0310
	(0.0258)	(0.0259)	(0.0288)	(0.0287)	(0.0258)	(0.0254)
lag1	-0.0401	-0.0399	-0.0445	-0.0640*	-0.0609**	-0.0476
	(0.0301)	(0.0302)	(0.0331)	(0.0329)	(0.0295)	(0.0296)
lag2	-0.0599*	-0.0600*	-0.0674*	-0.0973**	-0.0931***	-0.0810**
	(0.0354)	(0.0355)	(0.0382)	(0.0386)	(0.0348)	(0.0347)
lag3	-0.0406	-0.0403	-0.0476	-0.0793*	-0.0848**	-0.0714*
	(0.0405)	(0.0406)	(0.0432)	(0.0441)	(0.0395)	(0.0393)
lag4	-0.0334	-0.0332	-0.0289	-0.0430	-0.0467	-0.0421
	(0.0449)	(0.0450)	(0.0472)	(0.0491)	(0.0440)	(0.0434)
lag5	-0.0095	-0.0091	-0.0096	-0.0569	-0.0620	-0.0359
	(0.0547)	(0.0548)	(0.0573)	(0.0631)	(0.0564)	(0.0567)
lag6	-0.0187	-0.0178	-0.0190	-0.0347	-0.0379	-0.0271
	(0.0572)	(0.0573)	(0.0599)	(0.0606)	(0.0542)	(0.0536)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		-0.0065	-0.0056	-0.0147	0.0449*	0.0535**
		(0.0188)	(0.0200)	(0.0241)	(0.0237)	(0.0236)
log_CashAndEquivalents			-0.0093	-0.0122	-0.0144*	-0.0154**
			(0.0076)	(0.0083)	(0.0076)	(0.0075)
DebtEquity				0.0711***	0.0515***	0.0560***
				(0.0188)	(0.0173)	(0.0171)
NPeople					-0.0000*	-0.0000*
					(0.0000)	(0.0000)
ROE						0.1106**
						(0.0466)
Constant	0.1743***	0.2538	0.3266	0.4357	-0.2313	-0.3367
	(0.0199)	(0.2325)	(0.2535)	(0.2836)	(0.2727)	(0.2723)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	334	334	291	263	256	256
R^2	0.8592	0.8592	0.8519	0.8590	0.8912	0.8951

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.16. Event study for EBITDA_margin with firm's fixed effects – Bidders

Model for EBITDA_margin - event study Bidder

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.6214***	0.4745***	0.3847**	0.0000	0.0000	0.0000
	(0.2098)	(0.1712)	(0.1766)	(.)	(.)	(.)
lead5	0.0991	0.0961	0.0389	-0.0092	0.0291	0.0348
	(0.0886)	(0.0722)	(0.0762)	(0.0886)	(0.0859)	(0.0837)
lead4	0.1011	0.0947	0.0535	0.0543	0.0692	0.0119
	(0.0731)	(0.0595)	(0.0621)	(0.0747)	(0.0719)	(0.0715)
lead3	0.0500	0.0654	0.0472	0.0381	0.0375	0.0071
	(0.0520)	(0.0423)	(0.0460)	(0.0471)	(0.0467)	(0.0461)
lead2	0.0475	0.0379	0.0220	0.0206	0.0326	0.0170
	(0.0460)	(0.0375)	(0.0402)	(0.0404)	(0.0393)	(0.0385)
lag0	-0.0352	-0.0336	-0.0218	-0.0258	-0.0247	-0.0225
	(0.0453)	(0.0369)	(0.0393)	(0.0395)	(0.0379)	(0.0369)
lag1	-0.0674	-0.0698*	-0.0483	-0.0494	-0.0473	-0.0256
	(0.0507)	(0.0413)	(0.0438)	(0.0441)	(0.0423)	(0.0416)
lag2	-0.1312**	-0.1284***	-0.0978*	-0.1028**	-0.0999**	-0.0806*
	(0.0583)	(0.0475)	(0.0502)	(0.0507)	(0.0488)	(0.0479)
lag3	-0.1583**	-0.1553***	-0.1163**	-0.1160**	-0.1308**	-0.0998*
	(0.0662)	(0.0539)	(0.0569)	(0.0576)	(0.0558)	(0.0549)
lag4	-0.1567**	-0.1586**	-0.1309**	-0.1201*	-0.1230*	-0.1004
	(0.0772)	(0.0629)	(0.0654)	(0.0695)	(0.0668)	(0.0653)
lag5	-0.2021**	-0.1936***	-0.1592**	-0.1439*	-0.1488**	-0.0890
	(0.0844)	(0.0688)	(0.0716)	(0.0760)	(0.0731)	(0.0728)
lag6	-0.2068**	-0.2221***	-0.1835**	-0.1408*	-0.1536*	-0.1150
	(0.0951)	(0.0775)	(0.0802)	(0.0853)	(0.0820)	(0.0805)
lag7	-0.2040*	-0.2362**	-0.1817*	-0.1221	-0.1393	-0.1209
	(0.1222)	(0.0995)	(0.1022)	(0.1104)	(0.1060)	(0.1034)
log_Revenue		0.0629***	0.0790***	0.0785***	0.0860***	0.0878***
		(0.0047)	(0.0064)	(0.0066)	(0.0074)	(0.0072)
log_CashAndEquivalents			-0.0076	-0.0074	-0.0063	-0.0084
			(0.0051)	(0.0053)	(0.0052)	(0.0051)
DebtEquity				0.0150	0.0106	0.0271**
				(0.0113)	(0.0110)	(0.0115)
NPeople					-0.0000	-0.0000
					(0.0000)	(0.0000)
ROE						0.1753***
						(0.0442)
Constant	0.2338***	-0.5506***	-0.6752***	-0.6885***	-0.7881***	-0.8189***
	(0.0385)	(0.0668)	(0.0717)	(0.0757)	(0.0871)	(0.0852)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	381	381	338	305	298	297
R^2	0.3716	0.5845	0.6182	0.5815	0.6233	0.6448

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.17. Event study for EBITDA_margin - general case for Bidders

Model for EBITDA_margin - firm's fixed effects event study Target

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	0.3303***	0.3316***	0.1691	0.0738	0.1687	0.1219
	(0.1135)	(0.1111)	(0.1113)	(0.1079)	(0.1095)	(0.1071)
lead4	0.2248**	0.2172**	0.0778	0.0192	0.0766	0.0199
	(0.0875)	(0.0856)	(0.0855)	(0.0821)	(0.0823)	(0.0811)
lead3	0.1741***	0.1661***	0.0707	0.0215	0.0611	0.0274
	(0.0647)	(0.0634)	(0.0628)	(0.0606)	(0.0601)	(0.0581)
lead2	0.0767	0.0748	0.0275	0.0038	0.0203	0.0083
	(0.0472)	(0.0462)	(0.0441)	(0.0427)	(0.0418)	(0.0393)
lag0	-0.1247***	-0.1140**	-0.0677	-0.0540	-0.0632	-0.0178
	(0.0460)	(0.0452)	(0.0439)	(0.0420)	(0.0408)	(0.0381)
lag1	-0.1675***	-0.1541***	-0.0862	-0.0539	-0.0750	-0.0458
	(0.0575)	(0.0564)	(0.0569)	(0.0547)	(0.0538)	(0.0538)
lag2	-0.2157***	-0.2028***	-0.1229*	-0.0853	-0.0986	-0.0298
	(0.0694)	(0.0680)	(0.0705)	(0.0675)	(0.0657)	(0.0706)
lag3	-0.1517*	-0.1455*	-0.0616	-0.0187	-0.0525	0.0092
	(0.0796)	(0.0779)	(0.0832)	(0.0796)	(0.0776)	(0.0871)
lag4	-0.1088	-0.1052	0.0324	0.0335	0.0045	0.0728
	(0.0864)	(0.0846)	(0.0924)	(0.0879)	(0.0854)	(0.0993)
lag5	-0.2305**	-0.2178**	-0.0355	0.0160	-0.0271	0.0425
	(0.1008)	(0.0988)	(0.1103)	(0.1063)	(0.1037)	(0.1255)
lag6	-0.1089	-0.1142	0.0095	0.0492	0.0080	0.0692
	(0.1037)	(0.1016)	(0.1149)	(0.1098)	(0.1069)	(0.1494)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.0620***	0.0899***	0.0616*	0.1240***	0.0305
		(0.0214)	(0.0305)	(0.0347)	(0.0380)	(0.0366)
log_CashAndEquivalents			0.0167**	0.0224***	0.0240***	0.0245***
			(0.0082)	(0.0080)	(0.0078)	(0.0068)
DebtEquity				0.0229**	0.0171	0.0075
				(0.0109)	(0.0107)	(0.0113)
NPeople					-0.0008***	-0.0004*
					(0.0002)	(0.0002)
ROE						0.2269***
						(0.0310)
Constant	0.1460***	-0.5009**	-0.9288***	-0.6899*	-1.2176***	-0.3238
	(0.0315)	(0.2257)	(0.3154)	(0.3673)	(0.3851)	(0.3715)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	263	263	251	247	245	238
R^2	0.7601	0.7715	0.7991	0.8138	0.8277	0.8687

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.18. Event study for EBITDA_margin with firm's fixed effects – Targets

Model for EBITDA_margin - event study Target

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	0.1265	0.1416	0.1722**	0.1452*	0.1284	0.0703
	(0.0872)	(0.0881)	(0.0812)	(0.0826)	(0.0818)	(0.0697)
lead4	0.0634	0.0734	0.0922	0.0666	0.0548	0.0033
	(0.0695)	(0.0700)	(0.0644)	(0.0660)	(0.0653)	(0.0559)
lead3	0.0549	0.0601	0.0696	0.0512	0.0468	0.0215
	(0.0551)	(0.0553)	(0.0511)	(0.0517)	(0.0512)	(0.0436)
lead2	0.0238	0.0279	0.0323	0.0246	0.0199	0.0165
	(0.0483)	(0.0484)	(0.0447)	(0.0452)	(0.0444)	(0.0379)
lag0	-0.0509	-0.0514	-0.0301	-0.0323	-0.0353	-0.0018
	(0.0513)	(0.0513)	(0.0484)	(0.0483)	(0.0474)	(0.0404)
lag1	-0.0270	-0.0302	-0.0258	-0.0249	-0.0204	-0.0013
	(0.0604)	(0.0604)	(0.0575)	(0.0574)	(0.0563)	(0.0477)
lag2	0.0109	0.0039	-0.0180	-0.0159	-0.0236	0.0262
	(0.0726)	(0.0728)	(0.0691)	(0.0688)	(0.0676)	(0.0580)
lag3	0.0898	0.0786	0.0272	0.0318	0.0066	0.0506
	(0.0854)	(0.0859)	(0.0819)	(0.0816)	(0.0810)	(0.0693)
lag4	0.1614	0.1462	0.1232	0.1224	0.0638	0.1148
	(0.0988)	(0.0997)	(0.0932)	(0.0929)	(0.0933)	(0.0805)
lag5	0.0694	0.0550	0.0330	0.0552	0.0066	0.0542
	(0.1129)	(0.1135)	(0.1059)	(0.1065)	(0.1056)	(0.0901)
lag6	0.2301*	0.2089	0.1062	0.0943	0.0394	0.0936
	(0.1273)	(0.1286)	(0.1224)	(0.1225)	(0.1216)	(0.1037)
lag7	0.3731**	0.3547**	0.1451	0.1297	0.0865	0.2981
	(0.1696)	(0.1703)	(0.1765)	(0.1761)	(0.1748)	(0.1824)
log_Revenue		0.0132	-0.0315**	-0.0359***	-0.0535***	-0.0697***
		(0.0116)	(0.0128)	(0.0129)	(0.0161)	(0.0136)
log_CashAndEquivalents			0.0447***	0.0452***	0.0437***	0.0316***
			(0.0068)	(0.0070)	(0.0070)	(0.0062)
DebtEquity				-0.0022	-0.0055	-0.0129
				(0.0090)	(0.0090)	(0.0088)
NPeople					0.0001	0.0002***
					(0.0001)	(0.0001)
ROE						0.2747***
						(0.0301)
Constant	0.0932**	-0.0419	0.1082	0.1584	0.3498**	0.5794***
	(0.0407)	(0.1253)	(0.1238)	(0.1260)	(0.1624)	(0.1390)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	320	320	308	304	301	294
R^2	0.3529	0.3558	0.4288	0.4301	0.4416	0.5879

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.19. Event study for EBITDA_margin - general case for Targets

Model for EBITDA_margin - firm's fixed effects Acquisition

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	0.0829***	-0.0066	-0.0201*	-0.0216*	-0.0283**	-0.0354***	-0.0240**
	(0.0110)	(0.0110)	(0.0116)	(0.0121)	(0.0117)	(0.0112)	(0.0105)
log_Revenue (t - 1)			0.0094***	0.0072***	0.0100***	0.0148***	0.0147***
			(0.0025)	(0.0026)	(0.0027)	(0.0028)	(0.0027)
log_CashAndEquivalents				0.0035***	0.0032***	0.0042***	0.0030***
				(0.0011)	(0.0011)	(0.0011)	(0.0010)
DebtEquity					0.0000	0.0008	0.0029**
					(0.0013)	(0.0013)	(0.0014)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1243***
							(0.0056)
Constant	0.1051***	0.1085***	0.0111	0.0077	-0.0211	-0.0951***	-0.0969***
	(0.0021)	(0.0013)	(0.0258)	(0.0266)	(0.0282)	(0.0296)	(0.0284)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	8216	8200	7272	7144	6712	6480	6354
R^2	0.0068	0.7023	0.7383	0.7373	0.7476	0.7356	0.7650

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.20. Regression model for EBITDA_margin with firm's fixed effects -Acquisitions

Model for EBITDA_margin - firm's fixed effects Merger

	Y = EBITDA_margin						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	-0.0256	-0.0039	-0.0018	-0.0005	-0.0008	-0.0065	0.0075
	(0.0170)	(0.0177)	(0.0190)	(0.0196)	(0.0188)	(0.0181)	(0.0170)
log_Revenue (t - 1)			0.0096***	0.0087***	0.0123***	0.0167***	0.0164***
			(0.0024)	(0.0024)	(0.0025)	(0.0026)	(0.0025)
log_CashAndEquivalents				0.0029***	0.0024**	0.0032***	0.0022**
				(0.0011)	(0.0011)	(0.0011)	(0.0011)
DebtEquity					-0.0004	0.0005	0.0023*
					(0.0013)	(0.0013)	(0.0014)
NPeople						0.0000***	0.0000***
						(0.0000)	(0.0000)
ROE							0.1136***
							(0.0057)
Constant	0.1042***	0.1041***	0.0048	-0.0076	-0.0431	-0.1137***	-0.1140***
	(0.0021)	(0.0012)	(0.0246)	(0.0255)	(0.0268)	(0.0279)	(0.0267)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	7962	7945	7036	6937	6528	6296	6178
R^2	0.0003	0.6946	0.7330	0.7315	0.7440	0.7289	0.7566

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.21. Regression model for EBITDA_margin with firm's fixed effects - Mergers

Model for EBITDA_margin - firm's fixed effects event study Acquisition

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.1816	0.1571	0.1530	0.0000	0.0000	0.0000
	(0.2064)	(0.2066)	(0.2005)	(.)	(.)	(.)
lead5	0.1737**	0.1729**	0.1355*	0.0424	0.0361	0.0519
	(0.0813)	(0.0812)	(0.0815)	(0.0875)	(0.0883)	(0.0746)
lead4	0.1347**	0.1340**	0.1027	0.0281	0.0201	0.0004
	(0.0634)	(0.0632)	(0.0637)	(0.0670)	(0.0676)	(0.0570)
lead3	0.0921**	0.0944**	0.0756	0.0190	0.0177	0.0249
	(0.0448)	(0.0447)	(0.0462)	(0.0475)	(0.0480)	(0.0404)
lead2	0.0606*	0.0620*	0.0560	0.0298	0.0275	0.0245
	(0.0345)	(0.0344)	(0.0348)	(0.0346)	(0.0345)	(0.0289)
lag0	-0.0575*	-0.0564*	-0.0364	-0.0261	-0.0228	-0.0090
	(0.0308)	(0.0307)	(0.0311)	(0.0307)	(0.0307)	(0.0256)
lag1	-0.0824**	-0.0823**	-0.0491	-0.0182	-0.0113	0.0144
	(0.0372)	(0.0371)	(0.0380)	(0.0395)	(0.0396)	(0.0335)
lag2	-0.1054**	-0.1060**	-0.0752	-0.0324	-0.0255	0.0099
	(0.0454)	(0.0453)	(0.0463)	(0.0501)	(0.0500)	(0.0428)
lag3	-0.0638	-0.0664	-0.0214	0.0405	0.0313	0.0566
	(0.0527)	(0.0526)	(0.0537)	(0.0598)	(0.0598)	(0.0515)
lag4	-0.0445	-0.0476	0.0227	0.0551	0.0513	0.0824
	(0.0591)	(0.0590)	(0.0598)	(0.0675)	(0.0672)	(0.0582)
lag5	-0.1047	-0.1037	-0.0156	0.0359	0.0314	0.0607
	(0.0688)	(0.0687)	(0.0695)	(0.0811)	(0.0807)	(0.0710)
lag6	-0.0463	-0.0493	0.0236	0.0741	0.0704	0.0707
	(0.0712)	(0.0711)	(0.0721)	(0.0809)	(0.0805)	(0.0737)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.0217	0.0047	-0.0133	-0.0106	-0.0537***
		(0.0141)	(0.0170)	(0.0186)	(0.0192)	(0.0167)
log_CashAndEquivalents			0.0127**	0.0138**	0.0146**	0.0113**
			(0.0058)	(0.0061)	(0.0061)	(0.0053)
DebtEquity				0.0158*	0.0140	0.0152
				(0.0094)	(0.0094)	(0.0099)
NPeople					-0.0000	0.0000
					(0.0000)	(0.0000)
ROE						0.2676***
						(0.0249)
Constant	0.2024***	-0.0494	0.0166	0.1873	0.1536	0.6362***
	(0.0245)	(0.1650)	(0.1995)	(0.2149)	(0.2178)	(0.1909)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	459	459	413	382	377	370
R^2	0.8086	0.8100	0.8341	0.8403	0.8444	0.8916

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.22. Event study for EBITDA_margin with firm's fixed effects – Acquisitions

Model for EBITDA_margin - event study Acquisition

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	15.051	0.4023	14.741	0.0000	0.0000	0.0000
	(2.2062)	(1.4645)	(1.4636)	(.)	(.)	(.)
lead5	-0.5430	-0.0142	0.3143	-0.0056	0.1166	0.1859
	(0.8165)	(0.5561)	(0.5693)	(0.5885)	(0.5600)	(0.5078)
lead4	-0.3840	0.1534	0.3653	-0.0193	0.0931	0.1081
	(0.6507)	(0.4404)	(0.4513)	(0.4584)	(0.4356)	(0.3943)
lead3	-0.2754	-0.0241	0.0973	-0.1693	-0.0276	-0.0100
	(0.5005)	(0.3335)	(0.3546)	(0.3416)	(0.3272)	(0.2965)
lead2	-0.1466	-0.0279	0.0115	-0.0902	-0.0326	-0.0456
	(0.4319)	(0.2884)	(0.2971)	(0.2837)	(0.2694)	(0.2437)
lag0	0.3927	0.4348	0.3544	0.2978	0.1541	0.1218
	(0.4278)	(0.2840)	(0.2935)	(0.2767)	(0.2635)	(0.2383)
lag1	0.6638	0.6100*	0.4400	0.3525	0.1348	0.1259
	(0.4902)	(0.3261)	(0.3417)	(0.3223)	(0.3078)	(0.2785)
lag2	0.9678*	0.7743**	0.5825	0.4957	0.1710	0.0846
	(0.5766)	(0.3848)	(0.4029)	(0.3801)	(0.3640)	(0.3301)
lag3	1.3130**	0.9683**	0.7476	0.6558	0.1217	-0.0028
	(0.6565)	(0.4397)	(0.4611)	(0.4366)	(0.4251)	(0.3852)
lag4	1.6204**	1.1986**	0.9777*	0.6200	-0.0212	-0.0035
	(0.7406)	(0.5045)	(0.5228)	(0.5136)	(0.4997)	(0.4582)
lag5	1.6949**	1.2615**	1.0274*	0.7271	0.0419	0.0064
	(0.8230)	(0.5633)	(0.5824)	(0.5828)	(0.5638)	(0.5137)
lag6	2.2798**	1.5218**	1.1548*	0.4551	-0.3282	-0.0421
	(0.9221)	(0.6368)	(0.6610)	(0.6705)	(0.6485)	(0.5904)
lag7	3.0545**	1.4324*	0.7224	-0.0707	-11.435	0.3107
	(1.2205)	(0.8484)	(0.8946)	(0.9154)	(0.8845)	(0.8547)
log_Revenue		0.8657***	0.6977***	0.6939***	0.4856***	0.5149***
		(0.0349)	(0.0565)	(0.0565)	(0.0645)	(0.0595)
log_CashAndEquivalents			0.1960***	0.1626***	0.1251***	0.0847**
			(0.0396)	(0.0389)	(0.0377)	(0.0352)
DebtEquity				-0.2186***	-0.2571***	-0.4151***
				(0.0614)	(0.0587)	(0.0630)
NPeople					0.0004***	0.0005***
					(0.0001)	(0.0001)
ROE						-0.3292*
						(0.1888)
Constant	10.4287***	0.5379	0.8728*	1.4745***	4.0443***	4.1903***
	(0.3768)	(0.4666)	(0.5087)	(0.5175)	(0.6513)	(0.5980)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	512	488	441	403	397	390
R^2	0.1863	0.6538	0.6892	0.6815	0.7152	0.7549

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.23. Event study for EBITDA_margin - general case for Acquisitions

Model for EBITDA_margin - firm's fixed effects event study Merger

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	0.0835	0.0924	0.0780	0.0837	0.0983	0.0867
	(0.0956)	(0.0968)	(0.0949)	(0.0956)	(0.0651)	(0.0668)
lead4	0.0586	0.0610	0.0603	0.0829	0.0945*	0.0756
	(0.0742)	(0.0746)	(0.0722)	(0.0757)	(0.0522)	(0.0573)
lead3	0.0712	0.0730	0.0876	0.1005*	0.0652	0.0555
	(0.0564)	(0.0567)	(0.0553)	(0.0563)	(0.0397)	(0.0415)
lead2	0.0014	0.0009	-0.0161	-0.0137	0.0236	0.0147
	(0.0453)	(0.0455)	(0.0457)	(0.0459)	(0.0314)	(0.0333)
lag0	-0.0316	-0.0305	-0.0370	-0.0332	-0.0123	-0.0092
	(0.0425)	(0.0427)	(0.0432)	(0.0436)	(0.0289)	(0.0292)
lag1	-0.0371	-0.0366	-0.0401	-0.0461	-0.0386	-0.0329
	(0.0474)	(0.0476)	(0.0467)	(0.0470)	(0.0315)	(0.0324)
lag2	-0.0277	-0.0250	-0.0279	-0.0410	-0.0668*	-0.0625
	(0.0540)	(0.0544)	(0.0524)	(0.0535)	(0.0371)	(0.0376)
lag3	-0.0470	-0.0441	-0.0506	-0.0662	-0.0594	-0.0533
	(0.0617)	(0.0620)	(0.0598)	(0.0616)	(0.0414)	(0.0421)
lag4	-0.0485	-0.0459	-0.0505	-0.0628	-0.0587	-0.0557
	(0.0614)	(0.0617)	(0.0592)	(0.0611)	(0.0409)	(0.0412)
lag5	-0.0120	-0.0094	-0.0146	-0.0471	-0.0486	-0.0397
	(0.0771)	(0.0774)	(0.0741)	(0.0829)	(0.0549)	(0.0561)
lag6	-0.0132	-0.0107	-0.0133	-0.0238	-0.0204	-0.0156
	(0.0824)	(0.0828)	(0.0791)	(0.0813)	(0.0540)	(0.0544)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.0196	0.0282	0.0091	0.0406	0.0401
		(0.0300)	(0.0337)	(0.0378)	(0.0266)	(0.0267)
log_CashAndEquivalents			-0.0105	-0.0065	-0.0012	-0.0023
			(0.0120)	(0.0128)	(0.0086)	(0.0087)
DebtEquity				0.0316*	0.0248**	0.0234**
				(0.0168)	(0.0113)	(0.0114)
NPeople					-0.0000	-0.0000
					(0.0001)	(0.0001)
ROE						0.0335
						(0.0415)
Constant	0.0927***	-0.1333	-0.1303	0.0344	-0.3556	-0.3461
	(0.0277)	(0.3467)	(0.3680)	(0.3959)	(0.2679)	(0.2688)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	187	187	175	172	167	167
R^2	0.8482	0.8489	0.8666	0.8727	0.9479	0.9484

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.24. Event study for EBITDA_margin with firm's fixed effects – Mergers

Model for EBITDA_margin - event study Merger

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	0.0789	0.1609*	0.0634	0.0639	0.0910	0.0616
	(0.0934)	(0.0899)	(0.0902)	(0.0934)	(0.0974)	(0.0963)
lead4	0.0740	0.1188	0.0918	0.0997	0.0992	0.0583
	(0.0761)	(0.0725)	(0.0702)	(0.0794)	(0.0808)	(0.0809)
lead3	0.0671	0.0910	0.0795	0.0792	0.0686	0.0395
	(0.0593)	(0.0563)	(0.0550)	(0.0567)	(0.0584)	(0.0584)
lead2	0.0334	0.0421	0.0271	0.0275	0.0377	0.0280
	(0.0529)	(0.0500)	(0.0491)	(0.0501)	(0.0506)	(0.0499)
lag0	-0.0527	-0.0661	-0.0472	-0.0493	-0.0433	-0.0237
	(0.0564)	(0.0534)	(0.0527)	(0.0540)	(0.0535)	(0.0531)
lag1	-0.0473	-0.0818	-0.0529	-0.0557	-0.0453	-0.0204
	(0.0634)	(0.0604)	(0.0597)	(0.0613)	(0.0620)	(0.0616)
lag2	-0.0973	-0.1398**	-0.1052	-0.1074	-0.1022	-0.0707
	(0.0738)	(0.0704)	(0.0694)	(0.0713)	(0.0742)	(0.0739)
lag3	-0.0696	-0.1282	-0.0819	-0.0869	-0.0729	-0.0402
	(0.0860)	(0.0822)	(0.0820)	(0.0855)	(0.0887)	(0.0880)
lag4	-0.0268	-0.1017	-0.0563	-0.0590	-0.0464	-0.0300
	(0.1002)	(0.0960)	(0.0944)	(0.0978)	(0.1032)	(0.1016)
lag5	-0.0279	-0.1167	-0.0348	-0.0422	-0.0239	0.0179
	(0.1102)	(0.1058)	(0.1059)	(0.1107)	(0.1175)	(0.1165)
lag6	-0.0224	-0.1254	-0.0341	-0.0333	-0.0248	0.0002
	(0.1222)	(0.1175)	(0.1162)	(0.1223)	(0.1296)	(0.1277)
lag7	-0.0157	-0.0948	0.0125	0.0158	0.0262	0.0325
	(0.1565)	(0.1489)	(0.1457)	(0.1522)	(0.1564)	(0.1536)
log_Revenue		0.0386***	0.0871***	0.0880***	0.0946***	0.0973***
		(0.0079)	(0.0132)	(0.0136)	(0.0152)	(0.0150)
log_CashAndEquivalents			-0.0457***	-0.0460***	-0.0491***	-0.0496***
			(0.0095)	(0.0101)	(0.0106)	(0.0104)
DebtEquity				-0.0022	-0.0017	0.0031
				(0.0091)	(0.0090)	(0.0090)
NPeople					0.0000	-0.0000
					(0.0000)	(0.0000)
ROE						0.1232***
						(0.0463)
Constant	0.1155***	-0.3053***	-0.4670***	-0.4758***	-0.5308***	-0.5720***
	(0.0417)	(0.0952)	(0.1089)	(0.1152)	(0.1473)	(0.1456)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	224	224	216	209	205	205
R^2	0.2899	0.3683	0.4454	0.4196	0.4499	0.4721

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.25. Event study for EBITDA_margin - general case for Mergers

Model for EBITDA_margin - Event study match Treated and Peers

	Y = EBITDA_margin					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-0.0045	-0.0030	-0.0019	0.0071	0.0018	0.0164
	(0.0318)	(0.0316)	(0.0319)	(0.0305)	(0.0280)	(0.0263)
lead4	-0.0047	-0.0072	-0.0066	-0.0101	-0.0092	-0.0163
	(0.0270)	(0.0269)	(0.0272)	(0.0266)	(0.0245)	(0.0230)
lead3	0.0006	0.0020	0.0060	0.0005	-0.0066	-0.0059
	(0.0191)	(0.0190)	(0.0201)	(0.0188)	(0.0177)	(0.0166)
lead2	-0.0105	-0.0110	-0.0101	-0.0082	-0.0089	-0.0031
	(0.0180)	(0.0180)	(0.0188)	(0.0177)	(0.0163)	(0.0154)
lag0	-0.0163	-0.0149	-0.0127	-0.0113	-0.0065	0.0005
	(0.0183)	(0.0182)	(0.0192)	(0.0179)	(0.0165)	(0.0156)
lag1	-0.0018	-0.0023	-0.0010	-0.0034	-0.0052	0.0050
	(0.0187)	(0.0186)	(0.0196)	(0.0183)	(0.0168)	(0.0159)
lag2	-0.0146	-0.0148	-0.0203	-0.0236	-0.0229	-0.0147
	(0.0188)	(0.0188)	(0.0198)	(0.0185)	(0.0171)	(0.0162)
lag3	-0.0056	-0.0054	-0.0091	-0.0143	-0.0236	-0.0172
	(0.0189)	(0.0188)	(0.0200)	(0.0187)	(0.0175)	(0.0165)
lag4	0.0060	0.0061	0.0098	-0.0206	-0.0231	-0.0115
	(0.0211)	(0.0210)	(0.0214)	(0.0215)	(0.0198)	(0.0190)
lag5	-0.0422*	-0.0397*	-0.0411*	-0.0603**	-0.0545**	-0.0298
	(0.0239)	(0.0237)	(0.0241)	(0.0248)	(0.0228)	(0.0219)
lag6	-0.0062	-0.0053	-0.0213	-0.0335	-0.0333	-0.0200
	(0.0263)	(0.0262)	(0.0269)	(0.0269)	(0.0248)	(0.0238)
lag7	0.0030	0.0110	-0.0171	-0.0323	-0.0298	-0.0344
	(0.0426)	(0.0424)	(0.0450)	(0.0446)	(0.0409)	(0.0413)
log_Revenue		0.0217***	0.0182***	0.0208***	0.0352***	0.0312***
		(0.0027)	(0.0028)	(0.0030)	(0.0031)	(0.0030)
log_CashAndEquivalents			0.0015	0.0005	0.0021**	0.0013
			(0.0012)	(0.0011)	(0.0011)	(0.0010)
DebtEquity				-0.0002	0.0005	0.0020
				(0.0013)	(0.0012)	(0.0013)
NPeople					0.0000**	0.0000***
					(0.0000)	(0.0000)
ROE						0.1105***
						(0.0054)
Constant	0.1085***	-0.1180***	-0.0935***	-0.1162***	-0.2969***	-0.2572***
	(0.0015)	(0.0281)	(0.0290)	(0.0306)	(0.0323)	(0.0310)
Years	yes	yes	yes	yes	yes	yes
Years*GROUP	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	8388	8388	8229	7717	7407	7260
R^2	0.7406	0.7432	0.7436	0.7683	0.7717	0.7948

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.26. Event study for EBITDA_margin - match Treated and Peers

Model for NetDebtEBITDA - firm's fixed effects Bidder

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	2.5013***	11.233	13.821	13.864	0.6119	0.5273	0.5049
	(0.6370)	(0.9132)	(1.0032)	(1.0725)	(1.0126)	(1.0034)	(0.9839)
log_Revenue (t - 1)			-0.0396	0.1102	0.0122	-0.2015	-0.1896
			(0.1878)	(0.1908)	(0.1853)	(0.2062)	(0.2101)
log_CashAndEquivalents				-0.4401***	-0.2302***	-0.2411***	-0.1966**
				(0.0892)	(0.0860)	(0.0868)	(0.0864)
DebtEquity					1.3564***	1.3157***	1.5428***
					(0.1015)	(0.0998)	(0.1136)
NPeople						0.0013***	0.0021***
						(0.0005)	(0.0006)
ROE							1.4371***
							(0.4683)
Constant	0.6914***	0.7177***	11.345	28.208	18.321	3.8627*	29.187
	(0.1093)	(0.0938)	-19.760	-20.148	-19.535	-21.870	-22.181
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	7918	7891	6822	6755	6652	6396	6274
R^2	0.0019	0.3897	0.4091	0.4127	0.4274	0.4371	0.4355

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.27. Regression model for NetDebtEBITDA with firm's fixed effects – Bidders

Model for NetDebtEBITDA - firm's fixed effects Target

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	10.455	-0.4986	-0.1916	-0.8229	-0.5015	-0.5587	-0.3523
	(0.7543)	(1.0138)	(1.0949)	(1.1009)	(1.0486)	(1.0159)	(1.0115)
log_Revenue (t - 1)			0.0223	0.2341	0.1782	-0.0189	-0.0145
			(0.1890)	(0.1915)	(0.1872)	(0.2081)	(0.2131)
log_CashAndEquivalents				-0.5064***	-0.3079***	-0.3257***	-0.2856***
				(0.0878)	(0.0852)	(0.0858)	(0.0857)
DebtEquity					1.3076***	1.2663***	1.4870***
					(0.1004)	(0.0986)	(0.1129)
NPeople						0.0015***	0.0024***
						(0.0006)	(0.0006)
ROE							1.4602***
							(0.4538)
Constant	0.7340***	0.7522***	0.4737	19.700	0.6327	25.398	16.713
	(0.1099)	(0.0920)	-19.759	-19.987	-19.515	-21.833	-22.265
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	7869	7842	6768	6732	6628	6378	6250
R^2	0.0002	0.4059	0.4130	0.4175	0.4297	0.4407	0.4396

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.28. Regression model for NetDebtEBITDA with firm's fixed effects – Targets

Model for NetDebtEBITDA - firm's fixed effects event study Bidder

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	0.5978	0.4607	3.3167	4.2144	5.0364	4.3792
	(6.8981)	(6.8959)	(6.9568)	(6.8789)	(7.1584)	(7.2396)
lead4	0.9370	0.7114	2.0717	2.5209	2.6546	1.6632
	(5.0650)	(5.0673)	(5.0979)	(5.0367)	(5.2375)	(5.4582)
lead3	2.2405	2.1661	2.8219	3.1054	3.5983	3.1101
	(3.4294)	(3.4288)	(3.6313)	(3.5872)	(3.7680)	(3.8466)
lead2	1.6503	1.8007	2.9474	2.9625	2.8497	2.4686
	(2.6314)	(2.6458)	(2.8048)	(2.7692)	(2.8623)	(2.9250)
lag0	3.2917	3.1781	4.1186*	3.2664	3.1945	3.2637
	(2.3355)	(2.3365)	(2.4470)	(2.4423)	(2.4985)	(2.5049)
lag1	2.2093	2.0190	3.4946	2.9754	2.6698	3.0370
	(2.7679)	(2.7669)	(2.8412)	(2.8137)	(2.8928)	(2.9509)
lag2	1.2935	1.1375	2.5476	1.8146	1.4517	1.7955
	(3.3331)	(3.3301)	(3.3573)	(3.3290)	(3.4356)	(3.4808)
lag3	3.0484	2.9014	2.8775	1.8371	1.3930	1.7666
	(3.8506)	(3.8470)	(3.8464)	(3.8227)	(3.9288)	(3.9761)
lag4	-0.5570	-0.7508	-0.2731	-0.4435	-1.1697	-10.103
	(4.3359)	(4.3335)	(4.2812)	(4.2274)	(4.3842)	(4.3983)
lag5	-1.1521	-1.6395	-1.0502	-1.8463	-1.9769	-1.2263
	(5.6366)	(5.6408)	(5.5634)	(5.5029)	(5.6386)	(5.7620)
lag6	-0.3275	-0.8025	-0.8663	-1.3568	-0.7152	-0.4095
	(5.4637)	(5.4663)	(5.3773)	(5.3131)	(5.4559)	(5.4847)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		1.1947	1.0710	0.0722	0.3335	0.4063
		(0.8174)	(0.8113)	(0.9044)	(0.9668)	(0.9748)
log_CashAndEquivalents			1.4329**	1.6330***	1.5632**	1.5334**
			(0.6121)	(0.6101)	(0.6368)	(0.6395)
DebtEquity				3.7774**	3.6594**	3.8073**
				(1.5881)	(1.6793)	(1.6971)
NPeople					0.0003	0.0003
					(0.0016)	(0.0016)
ROE						3.0844
						(4.6851)
Constant	1.3054	-12.6336	-24.8390**	-16.1208	-18.7011	-19.6111
	(1.7995)	(9.6929)	(10.6973)	(11.1795)	(11.8212)	(11.9215)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	327	326	283	283	273	273
R^2	0.3833	0.3905	0.4367	0.4540	0.4507	0.4521

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.29. Event study for NetDebtEBITDA with firm's fixed effects – Bidders

Model for NetDebtEBITDA - event study Bidder

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-1.2351	-2.3346	1.2251	1.7151	2.8692	2.8793
	(5.4931)	(5.5182)	(5.6445)	(5.1077)	(5.2146)	(5.2340)
lead4	-0.4169	-1.3839	0.3694	0.8952	1.3259	1.4514
	(4.2461)	(4.2741)	(4.3170)	(3.9043)	(3.9538)	(4.0448)
lead3	1.9774	1.9452	2.0935	2.9492	3.7574	3.8248
	(2.7108)	(2.7093)	(2.8965)	(2.6216)	(2.7126)	(2.7567)
lead2	0.9590	0.9976	1.7837	2.3746	2.4115	2.4461
	(2.3516)	(2.3631)	(2.4869)	(2.2497)	(2.2930)	(2.3118)
lag0	3.1531	3.1745	3.7286	3.5192	3.5155	3.5085
	(2.3431)	(2.3400)	(2.4542)	(2.2194)	(2.2323)	(2.2412)
lag1	2.9753	2.9291	4.2109	3.9783	3.9125	3.8625
	(2.6262)	(2.6310)	(2.7509)	(2.4877)	(2.5040)	(2.5322)
lag2	1.6610	1.9305	3.1304	2.4856	2.1807	2.1476
	(3.0424)	(3.0393)	(3.1643)	(2.8618)	(2.8910)	(2.9242)
lag3	7.2478**	7.7173**	7.4697**	5.8667*	5.1567	5.0856
	(3.4623)	(3.4626)	(3.5970)	(3.2621)	(3.3194)	(3.3604)
lag4	4.5992	4.7618	5.0089	5.4465	4.7711	4.7240
	(4.2460)	(4.2377)	(4.3282)	(3.9241)	(3.9696)	(3.9964)
lag5	4.3233	4.8051	4.4517	5.7066	4.7266	4.5879
	(4.7462)	(4.7418)	(4.8394)	(4.3809)	(4.4406)	(4.5472)
lag6	4.8536	5.7051	5.3908	7.2738	6.1974	6.1121
	(5.3006)	(5.3054)	(5.3986)	(4.8887)	(4.9741)	(5.0222)
lag7	5.1160	6.3174	6.0743	7.5335	6.5689	6.5314
	(6.9916)	(7.0003)	(7.0625)	(6.4002)	(6.5052)	(6.5329)
log_Revenue		-0.4637*	-0.8285***	-0.8522***	-0.6163**	-0.6137**
		(0.2423)	(0.2963)	(0.2682)	(0.3078)	(0.3093)
log_CashAndEquivalents			0.6792**	0.7234***	0.8622***	0.8661***
			(0.3051)	(0.2759)	(0.2909)	(0.2932)
DebtEquity				1.3916**	1.1117*	1.0682
				(0.6553)	(0.6691)	(0.7217)
NPeople					-0.0007	-0.0007
					(0.0004)	(0.0004)
ROE						-0.4247
						(2.7392)
Constant	0.0220	5.4279	2.7631	1.8104	-1.1840	-1.1776
	(1.9359)	(3.4304)	(3.8109)	(3.4491)	(3.9916)	(4.0038)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	370	368	324	323	314	313
R^2	0.1037	0.1160	0.1151	0.1411	0.1442	0.1442

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.30. Event study for NetDebtEBITDA - general case for Bidders

Model for NetDebtEBITDA - firm's fixed effects event study Target

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	2.8467	1.2842	-1.7460	-1.9168	-2.1931	-4.0518
	(6.7324)	(6.6164)	(5.6945)	(5.6984)	(6.0342)	(6.9046)
lead4	5.5212	5.1130	2.8364	2.7286	2.5248	0.5541
	(5.2004)	(5.0960)	(4.3692)	(4.3160)	(4.5286)	(5.2166)
lead3	4.3175	3.0891	-0.2145	-0.2219	-0.3019	-1.6032
	(3.7990)	(3.7548)	(3.2369)	(3.2125)	(3.3235)	(3.7549)
lead2	1.4035	0.9786	-1.6680	-1.6917	-1.7457	-3.1259
	(2.6687)	(2.6577)	(2.2873)	(2.2574)	(2.3042)	(2.5261)
lag0	-1.9271	-3.2844	-3.0978	-3.0916	-3.0543	-2.8521
	(2.5898)	(2.5609)	(2.2037)	(2.1845)	(2.2179)	(2.4185)
lag1	1.4949	0.5842	-0.6418	-0.6176	-0.5169	-0.2484
	(3.3753)	(3.3154)	(2.8271)	(2.8248)	(2.9133)	(3.3881)
lag2	-1.5171	-2.4066	-2.6765	-2.2333	-2.1611	-1.1197
	(4.2363)	(4.1525)	(3.5274)	(3.5086)	(3.5633)	(4.4582)
lag3	-0.9264	-1.5719	-1.8171	-2.3033	-2.3525	-0.8382
	(5.0527)	(4.9424)	(4.2026)	(4.1755)	(4.2428)	(5.5543)
lag4	-1.1429	-1.3593	-1.9284	-2.1003	-2.0971	-0.8574
	(5.6452)	(5.5389)	(4.7138)	(4.6542)	(4.7191)	(6.3631)
lag5	-1.1665	-1.1665	-1.5966	-2.7152	-2.6992	-0.4783
	(6.8056)	(6.6457)	(5.6477)	(5.6505)	(5.7434)	(8.0490)
lag6	-2.0740	-1.7832	-1.9067	-1.8443	-1.8376	0.8096
	(7.0601)	(6.9017)	(5.8764)	(5.8407)	(5.9271)	(9.5943)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		-1.1045	0.9606	0.4220	0.3904	0.3798
		(0.8616)	(0.8895)	(0.9477)	(1.1427)	(1.1900)
log_CashAndEquivalents			-0.6520	-0.6048	-0.6040	-0.6159
			(0.4069)	(0.4104)	(0.4149)	(0.4206)
DebtEquity				-0.0723	-0.0715	-0.5665
				(0.5392)	(0.5596)	(0.7115)
NPeople					0.0006	-0.0026
					(0.0114)	(0.0124)
ROE						1.2370
						(1.7317)
Constant	1.4642	12.8438	-3.1150	2.2965	2.5405	3.6828
	(1.7943)	(9.1217)	(8.7892)	(9.5106)	(10.6191)	(11.1230)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	268	262	257	255	253	246
R^2	0.6176	0.4331	0.4051	0.4130	0.4132	0.4322

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.31. Event study for NetDebtEBITDA with firm's fixed effects – Targets

Model for NetDebtEBITDA - event study Target

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-7.1627	-5.7692	-4.0347	-4.0615	-5.4602	-6.2636*
	(4.3724)	(4.1733)	(3.7041)	(3.7226)	(3.7066)	(3.7807)
lead4	-4.5249	-3.2562	-2.0223	-2.1416	-3.5338	-4.1954
	(3.5594)	(3.3245)	(2.9444)	(2.9393)	(2.9335)	(3.0062)
lead3	-1.8614	-2.1684	-2.9061	-2.9344	-3.7153	-4.1157*
	(2.8095)	(2.6266)	(2.3349)	(2.3329)	(2.3213)	(2.3680)
lead2	-1.7582	-0.6409	-1.5193	-1.5489	-1.9760	-2.1773
	(2.4676)	(2.2934)	(2.0374)	(2.0347)	(2.0132)	(2.0579)
lag0	-1.6400	-0.9717	-1.9547	-1.9452	-2.0198	-1.7583
	(2.6450)	(2.4349)	(2.1751)	(2.1716)	(2.1439)	(2.1973)
lag1	-0.0394	0.2936	-2.7528	-2.8224	-2.4811	-2.3342
	(3.0901)	(2.8388)	(2.5359)	(2.5345)	(2.5039)	(2.5416)
lag2	-2.2648	-1.9927	-3.9970	-3.6973	-3.3298	-3.2033
	(3.7349)	(3.4331)	(3.0386)	(3.0378)	(3.0057)	(3.0717)
lag3	-3.7187	-3.8362	-6.6585*	-7.1440**	-6.9611*	-7.0503*
	(4.4041)	(4.0563)	(3.5937)	(3.5977)	(3.5922)	(3.6686)
lag4	-0.1347	-0.4997	-3.4389	-4.1775	-3.5145	-3.4600
	(5.0005)	(4.6337)	(4.1047)	(4.1112)	(4.1639)	(4.2960)
lag5	1.8269	1.0104	-2.1355	-2.7089	-2.2379	-2.2398
	(5.6943)	(5.2776)	(4.6711)	(4.7195)	(4.7138)	(4.8176)
lag6	-0.4593	-1.4685	-5.1284	-5.9732	-5.2843	-5.4533
	(6.5901)	(6.1378)	(5.4297)	(5.4528)	(5.4507)	(5.5707)
lag7	-0.3862	-1.6424	-5.0573	-6.0233	-3.3926	-3.6418
	(9.6533)	(8.9044)	(7.8688)	(7.8779)	(7.8763)	(9.8810)
log_Revenue		-0.0969	-0.3346	-0.4984	-1.4241**	-1.5464***
		(0.4736)	(0.4711)	(0.4770)	(0.5517)	(0.5682)
log_CashAndEquivalents			0.4827*	0.4883*	0.2367	0.1231
			(0.2877)	(0.2939)	(0.3002)	(0.3220)
DebtEquity				-0.1195	-0.3360	-0.2610
				(0.4039)	(0.4042)	(0.4724)
NPeople					0.0082***	0.0088***
					(0.0025)	(0.0026)
ROE						2.1356
						(1.4960)
Constant	4.4892**	4.8538	4.9622	6.9216	17.1561***	19.2061***
	(2.0429)	(5.2073)	(4.7118)	(4.8242)	(5.7147)	(5.9485)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	321	316	311	309	306	299
R^2	0.2621	0.2768	0.3406	0.3395	0.3655	0.3713

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.32. Event study for NetDebtEBITDA - general case for Targets

Model for NetDebtEBITDA - firm's fixed effects Acquisition

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	1.3536**	-0.2816	0.2685	-0.1240	-0.0644	-0.1587	-0.0590
	(0.5903)	(0.8213)	(0.8886)	(0.9271)	(0.8829)	(0.8602)	(0.8529)
log_Revenue (t - 1)			0.0080	0.2135	0.1600	-0.0473	-0.0325
			(0.1913)	(0.1939)	(0.1898)	(0.2116)	(0.2170)
log_CashAndEquivalents				-0.4663***	-0.2679***	-0.2787***	-0.2381***
				(0.0877)	(0.0853)	(0.0860)	(0.0859)
DebtEquity					1.3189***	1.2775***	1.5021***
					(0.1011)	(0.0994)	(0.1139)
NPeople						0.0014***	0.0022***
						(0.0005)	(0.0006)
ROE							1.4790***
							(0.4567)
Constant	0.7129***	0.7552***	0.6496	19.265	0.5609	24.941	15.493
	(0.1095)	(0.0938)	(2.0120)	(2.0330)	(1.9883)	(2.2305)	(2.2787)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	7995	7967	6893	6828	6724	6472	6343
R^2	0.0007	0.3936	0.4102	0.4153	0.4273	0.4372	0.4359

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.33. Regression model for NetDebtEBITDA with firm's fixed effects -Acquisitions

Model for NetDebtEBITDA - firm's fixed effects Merger

	Y = NetDebtEBITDA						
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MA_POST	3.0697***	20.046	15.038	12.548	0.3305	0.2281	0.2859
	(0.8658)	-12.263	(1.3549)	(1.3843)	(1.3056)	(1.2967)	(1.2689)
log_Revenue (t - 1)			-0.0246	0.1308	0.0319	-0.1732	-0.1711
			(0.1855)	(0.1886)	(0.1829)	(0.2030)	(0.2067)
log_CashAndEquivalents				-0.4787***	-0.2698***	-0.2879***	-0.2441***
				(0.0893)	(0.0859)	(0.0867)	(0.0862)
DebtEquity					1.3472***	1.3063***	1.5298***
					(0.1008)	(0.0990)	(0.1125)
NPeople						0.0014**	0.0023***
						(0.0006)	(0.0006)
ROE							1.4331***
							(0.4648)
Constant	0.7126***	0.7148***	0.9516	28.565	18.830	3.9038*	30.334
	(0.1097)	(0.0920)	(1.9409)	(1.9817)	(1.9179)	(2.1422)	(2.1690)
Years	no	yes	yes	yes	yes	yes	yes
Years*ATECO_group	no	yes	yes	yes	yes	yes	yes
Firm	no	yes	yes	yes	yes	yes	yes
Observations	7792	7766	6697	6659	6556	6302	6181
R^2	0.0016	0.4024	0.4119	0.4149	0.4298	0.4405	0.4391

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.34. Regression model for NetDebtEBITDA with firm's fixed effects - Mergers

Model for NetDebtEBITDA - firm's fixed effects event study Acquisition

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	2.0628	2.5498	2.7367	2.7730	1.8895	2.3130
	(6.5724)	(6.5843)	(6.1106)	(6.2045)	(6.3393)	(6.5283)
lead4	7.5249	7.9484	7.3922	7.4899	6.7383	6.4210
	(4.9776)	(4.9860)	(4.6386)	(4.6431)	(4.7577)	(4.8932)
lead3	4.6113	4.7476	3.3455	3.3762	3.0295	3.1443
	(3.4184)	(3.4250)	(3.2695)	(3.2838)	(3.3606)	(3.4524)
lead2	2.7050	2.9557	1.8373	1.8173	1.6558	1.2977
	(2.5351)	(2.5456)	(2.4117)	(2.3997)	(2.4325)	(2.4825)
lag0	-1.1169	-1.3590	-0.0225	0.0492	-0.0378	0.2454
	(2.2852)	(2.2900)	(2.1522)	(2.1388)	(2.1652)	(2.2109)
lag1	-1.0544	-1.3915	-0.1735	-0.1151	-0.1296	0.0452
	(2.8903)	(2.9002)	(2.7010)	(2.6916)	(2.7324)	(2.8245)
lag2	-2.8592	-2.9364	-0.8124	-0.4345	-0.4602	-0.0184
	(3.7084)	(3.7136)	(3.4336)	(3.4236)	(3.4646)	(3.6217)
lag3	-1.0689	-0.8620	-1.0058	-1.3182	-1.6311	-1.0684
	(4.4714)	(4.4799)	(4.1179)	(4.1011)	(4.1575)	(4.3733)
lag4	-1.0487	-0.5866	-1.5393	-1.6117	-1.7423	-1.6627
	(5.1169)	(5.1475)	(4.6915)	(4.6642)	(4.7122)	(4.9849)
lag5	0.1540	0.3689	-0.7271	-1.5515	-1.6686	-1.0606
	(6.1800)	(6.1840)	(5.5997)	(5.6272)	(5.6837)	(6.0998)
lag6	-1.6907	-1.4434	-2.0542	-2.1461	-2.2775	-2.1377
	(6.2067)	(6.2115)	(5.6233)	(5.6151)	(5.6711)	(6.3420)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		-1.0489	0.1414	-0.3914	-0.6296	-0.8349
		(0.8658)	(0.9183)	(0.9677)	(1.0031)	(1.0339)
log_CashAndEquivalents			0.1891	0.2044	0.2541	0.2391
			(0.4048)	(0.4120)	(0.4193)	(0.4469)
DebtEquity				-0.1992	-0.2416	-0.8354
				(0.6487)	(0.6586)	(0.8624)
NPeople					0.0013	0.0014
					(0.0014)	(0.0014)
ROE						2.5071
						(1.9612)
Constant	2.0535	13.9982	-1.4737	4.5792	6.0088	8.3409
	(1.9256)	(10.0546)	(10.1598)	(10.7744)	(10.9764)	(11.3419)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	426	423	383	381	376	369
R^2	0.4791	0.4859	0.5100	0.5152	0.5099	0.5196

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.35. Event study for NetDebtEBITDA with firm's fixed effects – Acquisitions

Model for NetDebtEBITDA - event study Acquisition

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-6.0351	-6.8283	-2.9647	-3.0197	-2.5493	-3.0530
	(4.9481)	(4.9827)	(4.7194)	(4.7420)	(4.7575)	(4.8341)
lead4	-0.7083	-1.2274	1.8428	1.8715	2.1137	1.6627
	(3.6639)	(3.6883)	(3.5344)	(3.5292)	(3.5367)	(3.6069)
lead3	-0.8529	-1.0321	-0.7003	-0.6668	-0.3234	-0.5727
	(2.6218)	(2.6316)	(2.6266)	(2.6257)	(2.6538)	(2.7087)
lead2	-1.2472	-1.2967	-1.2200	-1.2001	-1.0887	-1.2926
	(2.2293)	(2.2479)	(2.1808)	(2.1753)	(2.1784)	(2.2271)
lag0	1.6939	1.7600	1.2293	1.2298	0.9724	0.8996
	(2.2455)	(2.2514)	(2.1737)	(2.1673)	(2.1758)	(2.2029)
lag1	3.6466	3.6851	1.9618	1.9025	1.5748	1.4866
	(2.5642)	(2.5703)	(2.5071)	(2.5005)	(2.5172)	(2.5472)
lag2	3.8123	4.1263	2.7991	2.9618	2.4001	2.4684
	(3.0315)	(3.0471)	(2.9620)	(2.9540)	(2.9820)	(3.0242)
lag3	5.9761*	6.4626*	2.5218	2.0903	0.7431	0.6111
	(3.4573)	(3.4850)	(3.3945)	(3.3923)	(3.4816)	(3.5278)
lag4	8.0392*	8.3531**	4.6267	3.8996	2.8315	2.7419
	(4.1007)	(4.1257)	(3.9844)	(3.9878)	(4.0888)	(4.1939)
lag5	11.4398**	11.6936**	7.3787	6.8742	5.5013	5.3144
	(4.6290)	(4.6573)	(4.4926)	(4.5240)	(4.6123)	(4.7015)
lag6	10.4459*	10.9189**	6.0670	5.2541	3.7710	3.2563
	(5.3423)	(5.3929)	(5.1864)	(5.2031)	(5.3031)	(5.4014)
lag7	10.5052	11.4328	5.8183	4.9399	3.0412	3.5476
	(7.4186)	(7.4859)	(7.1005)	(7.1034)	(7.2325)	(7.8182)
log_Revenue		-0.4763	-1.0529**	-1.2094***	-1.4111***	-1.5558***
		(0.2962)	(0.4407)	(0.4458)	(0.5351)	(0.5532)
log_CashAndEquivalents			0.6008**	0.6639**	0.5578*	0.5527*
			(0.3013)	(0.3042)	(0.3109)	(0.3250)
DebtEquity				0.0457	-0.0798	0.1841
				(0.4778)	(0.4813)	(0.5789)
NPeople					0.0006	0.0007
					(0.0006)	(0.0006)
ROE						1.8680
						(1.7273)
Constant	-0.5109	4.8534	7.3958*	8.8656**	12.0079**	13.5841**
	(1.8761)	(3.8614)	(3.9961)	(4.0358)	(5.3533)	(5.5358)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	447	444	402	400	394	386
R^2	0.1297	0.1356	0.1536	0.1547	0.1587	0.1637

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.36. Event study for NetDebtEBITDA - general case for Acquisitions

Model for NetDebtEBITDA - firm's fixed effects event study Merger

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	1.5056	-0.8805	-0.9504	-0.7265	0.4203	1.2790
	(6.0015)	(5.6731)	(5.9146)	(5.5584)	(5.8375)	(5.9802)
lead4	-2.7534	-2.3968	-2.2740	-1.3558	-0.2673	0.8090
	(4.6846)	(4.3780)	(4.5383)	(4.2716)	(4.5598)	(4.8235)
lead3	0.4125	-1.4539	-1.8100	-0.8322	-0.5831	0.1217
	(3.5379)	(3.3273)	(3.4825)	(3.2826)	(3.5259)	(3.6758)
lead2	0.8277	0.2509	0.1247	-0.1341	0.3767	0.9271
	(2.7957)	(2.6482)	(2.7993)	(2.6315)	(2.7787)	(2.8949)
lag0	1.7028	0.8024	0.7699	0.5832	0.2694	-0.0462
	(2.6256)	(2.4631)	(2.6094)	(2.4526)	(2.4971)	(2.5440)
lag1	1.8642	1.5100	1.3690	0.9812	0.5704	0.1833
	(3.0025)	(2.8095)	(2.9709)	(2.7936)	(2.8682)	(2.9286)
lag2	1.5416	1.2942	1.2003	0.7913	0.5499	0.2219
	(3.4921)	(3.2635)	(3.4023)	(3.1991)	(3.3641)	(3.4055)
lag3	0.6111	0.4358	0.4041	-0.8947	-2.4329	-2.9274
	(4.0296)	(3.7693)	(3.9053)	(3.6857)	(3.8929)	(3.9667)
lag4	-1.3729	-1.7369	-1.8308	-2.1067	-1.9676	-2.2513
	(4.2350)	(3.9470)	(4.0924)	(3.8464)	(3.9687)	(3.9999)
lag5	-1.8796	-2.2832	-2.3924	-3.1860	-2.7151	-3.4202
	(5.6768)	(5.2907)	(5.4871)	(5.1606)	(5.2752)	(5.3844)
lag6	0.2103	0.2569	0.2280	-0.4984	-1.0674	-1.4325
	(5.7789)	(5.3866)	(5.5486)	(5.2177)	(5.3471)	(5.3868)
lag7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
log_Revenue		0.9057	0.9354	0.1631	0.3953	0.4820
		(0.6109)	(0.6446)	(0.6388)	(0.7011)	(0.7138)
log_CashAndEquivalents			-0.0757	0.4067	0.2770	0.3631
			(0.6081)	(0.5853)	(0.6036)	(0.6175)
DebtEquity				3.7510***	3.8388***	3.8787***
				(0.9849)	(1.0457)	(1.0501)
NPeople					-0.0021	-0.0028
					(0.0066)	(0.0067)
ROE						-2.5517
						(3.6434)
Constant	3.0323*	-6.9482	-6.3562	-4.0028	-4.3350	-5.5243
	(1.7234)	(6.8300)	(8.0949)	(7.6320)	(7.9101)	(8.1112)
Years	yes	yes	yes	yes	yes	yes
Years*ATECO_group	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	211	207	200	200	195	195
R^2	0.7138	0.5336	0.5363	0.5945	0.6061	0.6081

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.37. Event study for NetDebtEBITDA with firm's fixed effects – Mergers

Model for NetDebtEBITDA - event study Merger

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	-5.4979	-3.8987	-1.8732	-0.6323	2.0960	2.0460
	(5.1294)	(4.6816)	(4.8222)	(4.1037)	(4.3166)	(4.3597)
lead4	-6.8057	-6.2637	-5.2600	-4.2357	-2.2817	-2.3379
	(4.3241)	(3.8772)	(3.9584)	(3.3644)	(3.4971)	(3.5558)
lead3	-1.9896	-2.5596	-2.3574	-1.4706	-0.3994	-0.4452
	(3.2810)	(2.9129)	(2.9717)	(2.5258)	(2.6250)	(2.6755)
lead2	-0.5569	1.1218	1.2673	1.4964	1.9791	1.9631
	(2.9221)	(2.5574)	(2.6090)	(2.2186)	(2.2710)	(2.2831)
lag0	2.0217	3.3711	2.9205	2.4278	1.9926	2.0201
	(3.1206)	(2.7187)	(2.7950)	(2.3745)	(2.3904)	(2.4140)
lag1	2.5459	3.9159	3.4672	2.8286	1.7849	1.8224
	(3.5648)	(3.1284)	(3.2188)	(2.7363)	(2.7958)	(2.8306)
lag2	-1.1578	0.4078	-0.5724	-1.3802	-3.3555	-3.3078
	(4.1153)	(3.6389)	(3.7230)	(3.1637)	(3.3066)	(3.3530)
lag3	7.9981*	9.6474**	8.4254*	5.2989	2.9348	2.9823
	(4.8247)	(4.2970)	(4.4430)	(3.7922)	(3.9738)	(4.0153)
lag4	3.1051	4.8359	3.5113	4.5251	0.9960	1.0210
	(5.6744)	(5.0299)	(5.1446)	(4.3752)	(4.6607)	(4.6803)
lag5	1.4651	3.2236	1.4186	4.2405	-0.1255	-0.0537
	(6.3346)	(5.7285)	(5.9026)	(5.0230)	(5.3786)	(5.4453)
lag6	3.6000	5.1906	2.5086	5.8686	1.2459	1.2860
	(7.0158)	(6.3408)	(6.5803)	(5.6012)	(5.9846)	(6.0152)
lag7	5.3094	6.9531	3.9470	6.1101	1.8110	1.8128
	(9.2884)	(8.1801)	(8.3873)	(7.1285)	(7.4493)	(7.4688)
log_Revenue		-0.2711	-0.7307	-0.8204**	-0.3434	-0.3465
		(0.3422)	(0.4667)	(0.3982)	(0.4552)	(0.4575)
log_CashAndEquivalents			0.8347**	1.0441***	1.4267***	1.4282***
			(0.3745)	(0.3238)	(0.3636)	(0.3649)
DebtEquity				1.0154**	1.0613**	1.0697**
				(0.4253)	(0.4276)	(0.4378)
NPeople					-0.0011**	-0.0011**
					(0.0005)	(0.0005)
ROE						0.2096
						(2.2053)
Constant	3.2204	4.5161	2.7473	0.9237	-6.0566	-6.0583
	(2.2736)	(3.9184)	(4.8203)	(4.1079)	(5.1908)	(5.2044)
ATECO_group	yes	yes	yes	yes	yes	yes
Years	yes	yes	yes	yes	yes	yes
Observations	244	240	233	232	226	226
R^2	0.1179	0.1728	0.1957	0.2493	0.2686	0.2686

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.38. Event study for NetDebtEBITDA - general case for Mergers

Model for NetDebtEBITDA - Event study fixed effect match Treated and Peers

	Y = NetDebtEBITDA					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
TREAT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)	(.)
lead5	0.0676	-1.2410	-1.7444	-2.5418	-2.0886	-1.9111
	(2.3368)	(2.3512)	(2.3537)	(2.2129)	(2.1513)	(2.1120)
lead4	1.6339	1.5282	1.0661	1.1759	1.1806	1.2588
	(1.9916)	(1.9673)	(1.9726)	(1.8536)	(1.8028)	(1.7729)
lead3	0.4301	0.1171	-0.9719	-0.9326	-0.5909	-0.5853
	(1.3780)	(1.3738)	(1.4409)	(1.3546)	(1.3440)	(1.3230)
lead2	0.8800	0.7675	0.0411	0.0474	0.4145	0.5441
	(1.2977)	(1.2953)	(1.3442)	(1.2636)	(1.2298)	(1.2126)
lag0	0.9083	0.8061	0.5171	0.6775	1.1662	1.2791
	(1.3349)	(1.3167)	(1.3693)	(1.2867)	(1.2499)	(1.2325)
lag1	1.7293	1.2158	0.5800	0.7606	1.0807	1.0248
	(1.3514)	(1.3397)	(1.3890)	(1.3054)	(1.2671)	(1.2548)
lag2	-0.9900	-1.0393	-0.7473	-0.9234	-0.9303	-0.6125
	(1.3678)	(1.3495)	(1.4008)	(1.3226)	(1.2904)	(1.2761)
lag3	1.3689	1.3364	0.2506	-0.9838	-0.3702	-0.3749
	(1.3788)	(1.3598)	(1.4132)	(1.3326)	(1.3195)	(1.3000)
lag4	-0.4132	-0.5032	-1.1730	-1.5839	-1.4273	-1.3181
	(1.6304)	(1.6195)	(1.6300)	(1.5316)	(1.5011)	(1.5054)
lag5	1.6441	1.4172	0.7188	-0.0597	-0.1755	-0.0163
	(1.9099)	(1.8789)	(1.8850)	(1.7975)	(1.7448)	(1.7448)
lag6	-0.4644	-0.5734	-1.2397	-1.6843	-1.5739	-1.8103
	(2.1105)	(2.0752)	(2.0778)	(1.9528)	(1.8948)	(1.9023)
lag7	1.5053	1.4033	0.9562	0.0166	0.1288	0.4716
	(3.5500)	(3.4899)	(3.4742)	(3.2620)	(3.1497)	(3.3233)
log_Revenue		-0.2429	0.0613	0.0820	-0.0959	-0.0160
		(0.1829)	(0.1878)	(0.1820)	(0.2062)	(0.2063)
log_CashAndEquivalents			-0.4543***	-0.2182***	-0.2163***	-0.2186***
			(0.0849)	(0.0816)	(0.0819)	(0.0821)
DebtEquity				1.1831***	1.1887***	1.2386***
				(0.0947)	(0.0937)	(0.1061)
NPeople					0.0015***	0.0016***
					(0.0005)	(0.0006)
ROE						0.9591**
						(0.4321)
Constant	0.7868***	3.3710*	3.5125*	1.1554	2.6142	1.6162
	(0.1137)	(1.9308)	(1.9456)	(1.8807)	(2.1480)	(2.1427)
Years	yes	yes	yes	yes	yes	yes
Years*GROUP	yes	yes	yes	yes	yes	yes
Firm	yes	yes	yes	yes	yes	yes
Observations	8196	7955	7867	7743	7420	7270
R^2	0.4780	0.4660	0.4709	0.4856	0.5009	0.4973

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Att. 1.39. Event study for NetDebtEBITDA - match Treated and Peers

ATTACHMENT 2: Deals classified as Acquisitions

	Completion Date	Bidder Company	Target Company	Deal Value (M€)	Deal Removed
1	15/07/16	Cairo Communications SpA	RCS Media SpA (95.28% Stake)	969,57	
2	23/12/15	Terna SpA	Società Elettrica Ferroviaria S.r.l.	757,00	
3	23/12/16	Sirti S.p.A.	Foi & Vitali Elettrodotti Spa	327,50	
4	02/01/18	Italcementi SpA	Cementir Italia SpA	315,00	
5	02/09/15	Autostrade per l'Italia S.p.A	Societa Autostrade Tirrenica SpA (74.95% Stake)	247,00	
6	31/05/16	Recordati SpA	Italchimici SpA	130,00	
7	14/04/16	Arnoldo Mondadori Editore SpA	Rizzoli Libri S.p.A.	130,00	yes
8	15/10/18	Edison S.p.A.	Zephyro S.p.A.	109,15	yes
9	25/07/18	Cartiera dell'Adda S.r.l.	Industria Cartaria Pieretti SpA	105,38	
10	29/01/16	IREN S.p.A.	TRM S.p.a (51% Stake)	945,00	yes
11	14/04/16	Vianini SpA	Domus Italia SpA	90,00	
12	03/12/18	Gruppo Sodalis Srl	Deborah Group S.r.l.	88,16	
13	29/04/16	Inalca S.p.A.	Unipeg Soc.Coop.Agricola	86,00	
14	30/09/15	R.T.I. S.p.A.	Monradio S.r.l. (80% Stake)	777,20	
15	03/05/16	Rimorchiatori Riuniti S.p.A.	Rimorchiatori Augusta S.p.A.	75,00	
16	04/05/18	I.M.A. Industria Macchine Automatiche S.P.A.	Tissue Machinery Company (82.5% Stake)	70,03	yes
17	24/02/16	Recipharm Italia S.p.A	Mitim S.r.l.	68,00	
18	14/10/16	Sabelli S.p.A.	Trevisanalat S.p.a. (79% Stake)	45,06	
19	25/10/18	Cigierre Compagnia Generale Ristorazione Spa	Temakinho Italia SRL	42,74	yes
20	24/03/16	Tinexta S.p.A.	Co.Mark S.p.a. (70% Stake)	359,00	yes
21	30/11/17	Cigierre Compagnia Generale Ristorazione Spa	America Graffiti Franchising S.r.l.	33,31	yes
22	08/09/17	Indel B S.p.A.	Autoclima S.p.A.	33,16	

23	30/11/17	Tinexta S.p.A.	Warrant Hub S.p.a. (70% Stake)	33,14	yes
24	23/11/18	Carel Industries SpA	Recuperator S.p.A.	326,00	
25	27/09/17	Mittel Private Equity SpA	Industria Metallurgica Carmagnolese S.r.l. (75% Stake)	30,29	yes
26	23/12/15	HERAmbiente S.p.A.	Waste Recycling S.p.A.	30,00	
27	03/07/17	Emak S.p.A.	Lavorwash S.p.a. (83.1% Stake)	287,10	
28	17/09/18	Voilap Holding Srl	Imecon Engineering S.r.l. (70% Stake)	26,56	
29	13/12/17	Gennaro Auricchio S.p.A.	Cascine Emiliane SpA (90% Stake)	26,21	
30	06/04/18	Italgas S.p.A.	Medea S.p.A.	241,00	yes
31	03/04/17	Ascopiave SpA	Pasubio Group S.p.A.	232,00	
32	05/05/16	Interpump Group S.p.A.	Tubiflex S.p.A. (80% Stake)	23,05	
33	30/12/16	Gruppo Societa' Gas Rimini Spa	Astea Energia SpA (70% Stake)	21,98	
34	30/05/18	Snam SpA	TEP Energy Solution S.r.l. (82% Stake)	21,00	
35	13/12/16	Coeclerici S.p.A.	IMS Deltamatic S.p.A. (67% Stake)	19,00	
36	21/07/16	Tinexta S.p.A.	Visura SpA (60% Stake)	178,00	yes
37	05/05/17	Pastificio Di Martino Gaetano & F. Lli SpA	Grandi Pastai Italiani S.p.A. (66.67% Stake)	17,71	
38	25/07/17	I.M.A. Industria Macchine Automatiche S.P.A.	Eurosicma S.p.A. (60% Stake)	169,90	yes
39	04/07/18	Itinera S.p.A.	SEA Segnaletica Stradale S.p.A.	166,00	
40	22/06/17	Mittel Private Equity SpA	Ceramica Cielo S.p.A. (80% Stake)	19,23	yes

ATTACHMENT 3: Deals classified as Mergers

	Completion Date	Bidder Company	Target Company	Deal Value (M€)	Deal Removed
1	20/12/16	Open Fiber S.p.A.	Metroweb Italia S.p.A.	814,00	
2	15/10/18	Gamenet S.p.A.	GoldBet S.r.l	265,00	
3	22/02/18	Edison S.p.A.	Gas Natural Vendita Italia S.p.A.	263,00	yes
4	04/08/16	A2A S.p.A.	Linea Group Holding S.p.A. (51% Stake)	156,80	yes
5	19/11/15	SNAITECH S.p.A.	Cogetech S.p.A.	130,32	
6	30/09/16	Centrale del Latte d'Italia S.p.A.	Centrale del Latte di Firenze, Pistoia e Livorno S.p.A.	120,88	
7	03/07/17	Buzzi Unicem S.p.A.	Cementi Zillo S.p.A.	116,12	
8	27/07/18	Alpitour S.p.A.	Eden Travel Group S.r.l.	100,00	
9	29/08/16	Dedalus Holding S.p.A.	Noema Life S.p.A.	878,10	
10	27/12/17	Intek Group S.p.A.	Ergy Capital S.p.A. (50.96% Stake)	56,77	
11	11/04/18	IREN S.p.A.	ACAM S.p.A. (91.3% Stake)	527,20	yes
12	06/12/17	Italgas S.p.A.	Enerco Distribuzione S.p.A.	51,00	yes
13	31/07/18	Marche Multiservizi S.p.A.	Megas. Net S.p.a.	43,95	
14	01/01/18	Baule Volante S.p.A.	IL Fior Di Loto S.r.l.	43,08	
15	04/04/16	Marr S.p.A	DE.AL. S.r.l.	42,70	
16	08/06/16	Arnoldo Mondadori Editore S.p.A.	Banzai Media Holding S.r.l	41,00	yes
17	13/12/18	A2A S.p.A.	TS Energy Italy S.p.A.	40,00	yes
18	10/10/16	Triboo S.p.A	Grother S.r.l.	39,74	
19	01/11/15	Tamini Trasformatori S.r.l.	TES Transformer Electro Service S.r.l.	264,00	
20	28/02/18	Italgas S.p.A.	Ichnusa Gas S.p.A.	26,00	yes
21	19/12/18	Gruppo Zaffiro S.r.l.	Villa Gisella S.r.l.	23,69	
22	07/10/15	JAKALA S.p.A.	Value Lab S.p.A. (60% Stake)	20,00	
23	28/06/16	Cellnex Italia S.r.l.	CommsCon Italia S.r.l.	18,70	
24	01/02/16	ESTRA S.p.A.	COOPGAS S.r.l.	181,70	
25	29/05/18	Nutrilinea S.r.l.	Pharcoterm S.r.l.	16,00	
26	01/07/15	Megadyne S.p.A	Sampla Belting S.r.l.	16,00	

ATTACHMENT 4: ATECO categories for deals classified as Acquisitions

	Completion Date	Bidder Company	ATECO Bidder	Macrocategory Bidder	Target Company	ATECO Target	Macrocategory Target	Deal Removed
1	15/07/16	Cairo Communications SpA	731200	M	RCS Media SpA (95.28% Stake)	580000	J	
2	23/12/15	Terna SpA	351200	D	Società Elettrica Ferroviaria S.r.l.	351200	D	
3	23/12/16	Sirti S.p.A.	332002	C	Foi & Vitali Elettrodotti Spa	432101	F	
4	02/01/18	Italcementi SpA	235100	C	Cementir Italia SpA	235100	C	
5	02/09/15	Autostrade per l'Italia S.p.A	522120	H	Societa Autostrade Tirrenica SpA (74.95% Stake)	421100	F	
6	31/05/16	Recordati SpA	212000	C	Italchimici SpA	212009	C	
7	14/04/16	Arnoldo Mondadori Editore SpA	581400	J	Rizzoli Libri S.p.A.	581400	J	yes
8	15/10/18	Edison S.p.A.	701000	M	Zephyro S.p.A.	432201	F	yes
9	25/07/18	Cartiera dell'Adda S.r.l.	682001	K	Industria Cartaria Pieretti SpA	171200	C	
10	29/01/16	IREN S.p.A.	350000	D	TRM S.p.a (51% Stake)	382109	E	yes
11	14/04/16	Vianini SpA	236100	C	Domus Italia SpA	682001	K	
12	03/12/18	Gruppo Sodalis Srl	701000	M	Deborah Group S.r.l.	204200	C	
13	29/04/16	Inalca S.p.A.	101000	C	Unipeg Soc.Coop.Agricola	101000	C	
14	30/09/15	R.T.I. S.p.A.	601000	J	Monradio S.r.l. (80% Stake)	601000	J	
15	03/05/16	Rimorchiatori Riuniti S.p.A.	500000	H	Rimorchiatori Augusta S.p.A.	502000	H	
16	04/05/18	I.M.A. Industria Macchine Automatiche S.P.A.	282930	C	Tissue Machinery Company (82.5% Stake)	289500	C	yes
17	24/02/16	Recipharm Italia S.p.A	701000	M	Mitim S.r.l.	212009	C	
18	14/10/16	Sabelli S.p.A.	105120	C	Trevisanalat S.p.a. (79% Stake)	105120	C	
19	25/10/18	Cigierre Compagnia Generale Ristorazione Spa	561011	I	Temakinho Italia SRL	561011	I	yes
20	24/03/16	Tinexta S.p.A.	701000	M	Co.Mark S.p.a. (70% Stake)	829999	N	yes
21	30/11/17	Cigierre Compagnia Generale Ristorazione Spa	561011	I	America Graffiti Franchising S.r.l.	561011	I	yes
22	08/09/17	Indel B S.p.A.	275100	C	Autoclima S.p.A.	282500	C	
23	30/11/17	Tinexta S.p.A.	701000	M	Warrant Hub S.p.a. (70% Stake)	702209	M	yes
24	23/11/18	Carel Industries SpA	260000	C	Recuperator S.p.A.	282500	C	
25	27/09/17	Mittel Private Equity SpA	701000	M	Industria Metallurgica Carmagnolese S.r.l. (75% Stake)	293209	C	yes
26	23/12/15	HERAmbiente S.p.A.	382109	E	Waste Recycling S.p.A.	381100	E	
27	03/07/17	Emak S.p.A.	282400	C	Lavorwash S.p.a. (83.1% Stake)	282992	C	
28	17/09/18	Voilap Holding Srl	701000	M	Imecon Engineering S.r.l. (70% Stake)	262000	C	

29	13/12/17	Gennaro Auricchio S.p.A.	105120	C	Cascine Emiliane SpA (90% Stake)	463310	G	
30	06/04/18	Italgas S.p.A.	642000	K	Medea S.p.A.	352100	D	yes
31	03/04/17	Ascopiave SpA	701000	M	Pasubio Group S.p.A.	352200	D	
32	05/05/16	Interpump Group S.p.A.	282999	C	Tubiflex S.p.A. (80% Stake)	242020	C	
33	30/12/16	Gruppo Societa' Gas Rimini Spa	701000	M	Astea Energia SpA (70% Stake)	352300	D	
34	30/05/18	Snam SpA	701000	M	TEP Energy Solution S.r.l. (82% Stake)	749000	M	
35	13/12/16	Coeclerici S.p.A.	642000	K	IMS Deltamatic S.p.A. (67% Stake)	282930	C	
36	21/07/16	Tinexta S.p.A.	701000	M	Visura SpA (60% Stake)	631120	J	yes
37	05/05/17	Pastificio Di Martino Gaetano & F. Lli SpA	107300	C	Grandi Pastai Italiani S.p.A. (66.67% Stake)	107300	C	
38	25/07/17	I.M.A. Industria Macchine Automatiche S.P.A.	282930	C	Eurosicma S.p.A. (60% Stake)	282930	C	yes
39	04/07/18	Itinera S.p.A.	421100	F	SEA Segnaletica Stradale S.p.A.	421100	F	
40	22/06/17	Mittel Private Equity SpA	701000	M	Ceramica Cielo S.p.A. (80% Stake)	234200	C	yes

ATTACHMENT 5: ATECO categories for deals classified as Mergers

	Completion Date	Bidder Company	ATECO Bidder	Macrocategory Bidder	Target Company	ATECO Target	Macrocategory Target	Deal Removed
1	20/12/16	Open Fiber S.p.A.	610000	J	Metroweb Italia S.p.A.	701000	M	
2	15/10/18	Gamenet S.p.A.	920002	R	GoldBet S.r.l	920009	R	
3	22/02/18	Edison S.p.A.	701000	M	Gas Natural Vendita Italia S.p.A.	352300	D	yes
4	04/08/16	A2A S.p.A.	351100	D	Linea Group Holding S.p.A. (51% Stake)	701000	M	yes
5	19/11/15	SNAITECH S.p.A.	920009	R	Cogetech S.p.A.	920002	R	
6	30/09/16	Centrale del Latte d'Italia S.p.A.	105110	C	Centrale del Latte di Firenze, Pistoia e Livorno S.p.A.	105110	C	
7	03/07/17	Buzzi Unicem S.p.A.	235100	C	Cementi Zillo S.p.A.	235100	C	
8	27/07/18	Alpitour S.p.A.	791200	N	Eden Travel Group S.r.l.	791100	N	
9	29/08/16	Dedalus Holding S.p.A.	620100	J	Noema Life S.p.A.	620100	J	
10	27/12/17	Intek Group S.p.A.	701000	M	Ergy Capital S.p.A. (50.96% Stake)	642000	K	
11	11/04/18	IREN S.p.A.	350000	D	ACAM S.p.A. (91.3% Stake)	360000	E	yes
12	06/12/17	Italgas S.p.A.	642000	K	Enerco Distribuzione S.p.A.	352200	D	yes
13	31/07/18	Marche Multiservizi S.p.A.	382109	E	Megas. Net S.p.a.	352000	D	
14	01/01/18	Baule Volante S.p.A.	463920	G	IL Fior Di Loto S.r.l.	463920	G	
15	04/04/16	Marr S.p.A	463920	G	DE.AL. S.r.l.	463210	G	
16	08/06/16	Arnoldo Mondadori Editore S.p.A.	581400	J	Banzai Media Holding S.r.l	702209	M	yes

17	13/12/18	A2A S.p.A.	351100	D	TS Energy Italy S.p.A.	701000	M	yes
18	10/10/16	Triboo S.p.A	701000	M	Grother S.r.l.	642000	K	
19	01/11/15	Tamini Trasformatori S.r.l.	271100	C	TES Transformer Electro Service S.r.l.	432101	F	
20	28/02/18	Italgas S.p.A.	642000	K	Ichnusa Gas S.p.A.	749093	M	yes
21	19/12/18	Gruppo Zaffiro S.r.l.	701000	M	Villa Gisella S.r.l.	870000	Q	
22	07/10/15	JAKALA S.p.A.	464990	G	Value Lab S.p.A. (60% Stake)	702209	M	
23	28/06/16	Cellnex Italia S.r.l.	619099	J	CommsCon Italia S.r.l.	612000	J	
24	01/02/16	ESTRA S.p.A.	701000	M	COOPGAS S.r.l.	352300	D	
25	29/05/18	Nutrilinea S.r.l.	108600	C	Pharcoterm S.r.l.	108600	C	
26	01/07/15	Megadyne S.p.A	221909	C	Sampla Belting S.r.l.	280000	C	

ATTACHMENT 6: ATECO categories

ATECO Numerical Digits	**ATECO Macrocategory Letter**	**Description**
01-04	A	Agriculture, Forestry and Fishing
05-09	B	Extraction of Minerals from Quarries and Mines
10-33	C	Manufacturing Activities
35	D	Supply of Electricity, Gas, Steam and Air Conditioning
36-39	E	Water Supply; Sewerage Networks, Waste Management and Reclamation Activities
41-43	F	Buildings
45-47	G	Wholesale and Retail Trade; Repair of Cars and Motorcycles
49-53	H	Transportation and Warehousing
55-56	I	Accommodation and Catering Services Activities
58-63	J	Information and Communication Services
64-66	K	Financial and Insurance Activities
68	L	Real Estate Activities
69-75	M	Professional, Scientific and Technical Activities
77-82	N	Rental, Travel Agencies, Business Support Services
84	O	Public Administration and Defense; Mandatory Social Insurance
85	P	Instruction
86-88	Q	Health and Social Assistance
90-93	R	Artistic, Sporting, Entertainment and Amusement Activities
94-96	S	Other Service Activities
97-98	T	Activities of Families and Cohabitations as Employers for Domestic Staff; Production of Undifferentiated Goods and Services for Own use by Families and Associations
99	U	Extraterritorial Organizations and Bodies