LUISS

Department of Business and Management

Chair of Advanced Corporate Finance

Corporate Mergers:
Dynamics of Share Swap Ratio Determination

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Academic Year 2024/2025

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Introduction

There are two primary ways in which control and ownership of a public company may change: either the acquirer firm or group of individuals can acquire the target firm, or the target can merge with another enterprise. Mergers and acquisitions (M&As) are operations that companies undertake intending to grow in size using an external route. These processes are delicate because they involve many internal and external actors in the participating companies, with different interests and objectives.

This thesis begins with the premise that M&As transactions aim to add value to the pre-operation situation. A central question explored here is how this additional value, which arises from synergies, economies of scale, strategic positioning, and fiscal advantages, is evaluated and ultimately distributed. This work is divided into two phases, the first one is theoretical and descriptive, including the following three main themes:

1) The valuation methodologies used during the takeover process, including DCF, APV, and market multiples.
2) The creation and distribution of value resulting from M&As, emphasizing both tangible and intangible synergies.
3) The comparison between the theoretical exchange ratio (TER) derived from valuation models and the actual exchange ratio (AER) observed after negotiations.

The second part is a quantitative analysis based on a final sample of forty-three recent mergers to evaluate the relationship between the *theoretical exchange ratio* and the *actual exchange ratio*.

In the literature, many studies focus on how mergers generate value through operational, financial and fiscal synergies, distinguishing between value-creating and value-destroying. Less attention has been paid to how this value is generated, especially through the exchange ratio mechanism. This analysis delves into the transition from a theoretical evaluation to a real distribution of this value, a topic less explored quantitatively. In addition, this work can contribute to highlighting recurring discrepancies and explaining

whether they arise from trading dynamics, control premiums, or other market forces. Finally, this research addresses a little-explored area of study, focusing on how the theoretical value calculated through valuation models translates into the actual exchange established after negotiations. The focus on the distribution of value between the parties provides an original empirical analysis compared to the literature, which tends to focus more on post-transaction performance or market efficiency.

Chapter 1: Valuation and Takeover Process

1.1 Introduction to Business Combinations and Mergers

1.1.1 Extraordinary Operations

Several matters related to mergers and acquisitions are considered in this chapter. It includes different profiles, from legal issues to accounting, organizational, tax, corporate valuation, and strategic and financial factors. To begin with, it is opportune to describe the context in which M&As belong.

M&As are part of a broader category of transactions, extraordinary operations. These kinds of procedures are called *extraordinary* because they are not part of the ordinary management of a company, to which all operations relating to the typical entrepreneurial activity of production and marketing of goods and services are related (operations). Alongside M&As, this category includes alliances, business combinations, spin-offs, concentrations and demergers.

These operations are instruments to create value that can be driven by several factors, like changing management, investing decisions to accomplish strategic goals and objectives, or fiscal matters, for example, in operations where the companies involved are based in different tax regimes[1].

Moreover, they can be used in both corporate and business strategies. The difference between the two is the level at which they operate. Indeed, corporate strategies operate at the first level and are a tool for identifying growth strategic options. The goal is to define in which sectors the company wants to operate and based on this, choose the opportune strategy to implement among vertical integration (backward or forward), horizontal integration, differentiation and market penetration[2]. Business strategies are at the second level and focus on how the organization should operate in that predefined industry. Among them, there are cost leadership, differentiation and focus on cost leadership or focus on differentiation. Differentiating between corporate and business strategies is particularly important in *multi-business enterprises* because, in companies with only one business, there is no distinction between the two levels[3].

[1] Fiori, G., & Tiscini, R. (2020). *Economia aziendale* (Vol. 1, No. 175, pp. 102,103). Egea.
[2] The relation between M&As and these strategies will be analyzed in the 1.3.2. section.
[3] Potito, L. (2016). *Le operazioni straordinarie nell'economia delle imprese*. G. Giappichelli Editore, pp. XI-XII.

1.1.2 Business Combinations

A fundamental operation to consider in the context of M&As is the business combination. This importance comes from several factors. First, in group reorganizations and pre-merger restructurings, it is common to transfer business units to new companies. In this specific case, this transaction allows the isolation of specific assets or entire businesses before the actual acquisition or merger takes place. Furthermore, it is beneficial to ensure continuity, allowing the existing contracts and employees to remain active.

In a business combination, a firm transfers the entire business or a specific branch to another company and in exchange, it receives shares or equity interests in the receiving company. This equity-based compensation is the defining feature of a business combination, distinguishing it from a business sale.

When the combination is made to an operating company, the transferee, in exchange, issues new shares with the exclusion of the option right through a capital increase. It is necessary to identify which criteria should be used to determine the shareholding issue price.

In the Italian legal system, public limited companies (PLC) and limited liability companies (LLC) are subject to different provisions regarding combinations. Specifically, articles 2342, 2343, 2343/*bis*, 2343/*ter*, 2343/*quarter,* and 2441, commas 4 and 6 of the Italian Civil Code refer to PLCs, while articles 2464, 2465, and 2481 concern LLCs.

The process begins, in both PLCs and LLCs, with a preliminary phase in which it is necessary to proceed through an assembly resolution from the transferee approving the transaction, which must include the description of the operation and the reasons behind it. During the first step, it is important to follow the trade union procedure under Article 47 of Law No. 428/1990[4], for both the transferor and the transferee if they have more than fifteen employees. The two must communicate the decision to union representatives at least twenty-five days before the deed of merger.

Describing the process in PLCs, after the preliminary phase comes the appraisal by the expert. This step is ordered by Article 2343 c.c. and says that, for PLCs, the company that makes the combination must submit the report from an expert appointed by the court

[4] This Italian Law implements the EU Directive 77/187/EEC, to protect employees' rights in the matter of business contributions.

where the company is headquartered. The document must include the description of the goods in question, the criteria used for the estimation and certify that the value is at least equal to the assigned amount and any potential premium.

In the final phase, the transferee must organize an extraordinary assembly to approve and sign the deed of combination, which formalizes the transfer from the transferor. With the notary drafting the minutes present to resolve the increase of the share capital, the resolution of the meeting will indicate the net value of the combination, divided between the nominal value and the premium[5].

After the signing of the deed of contribution, the directors of the company must carry out a subsequent verification within thirty days. They must verify whether any new relevant facts have occurred and check on the existence of the requirements of professionalism and independence of the expert. If either of the verifications fails, the process under art. 2343 c.c. must be repeated. Otherwise, if everything is in order, the filing for registration in the company register is carried out[6].

There are several different processes of the procedure regarding LLCs from the PLCs, just described. The first one is that article 2465 in the matter of LLCs asserts that the technical expert who makes the relation must be subscribed to the specific register is nominated by the partners instead of the court. Moreover, the administrative body of the transferee is not required to file the illustrative report and no subsequent checks from the directors are foreseen. Furthermore, only for LLCs, the expert can insert in the report all the tangible fixed assets subject to economic valuation.

1.1.3 Mergers

Business combinations and mergers are two operations strictly correlated. The definition of merger is present in the Italian Civil Code (art. 2501 ss. c.c.) and says that *it is the phenomenon that occurs when two or more companies concentrate into one*[7]. Strategically, acquisitions typically entail control takeover, access to new markets, or technology acquisition for various degrees of operational autonomy for the target.

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[5] De Rosa, L. & Russo, A. (2016). Operazioni straordinarie Il conferimento d'azienda profili civilistici, contabili e fiscali. Norme&tributi. (pag.35-36).

[6] Potito, L. (2016). *Le operazioni straordinarie nell'economia delle imprese*. G. Giappichelli Editore. (pag.190-191).

[7] Torrente, A., & Schlesinger, P. (2019). Manuale di diritto privato, ventiquattresima edizione, a cura di Franco Anelli e Carlo Granelli. *Giuffrè Francis Lefebvre, Milano*, pp. 1119,1120.

There are two main types of mergers:

1) Absorption mergers
2) Consolidation mergers

The difference between the two is that in the first form, the target company (absorbed corporation) ceases to exist as a standalone company because the acquiring (surviving corporation) takes control over its assets, liabilities and legal obligations. The surviving company usually retains its form, name, and legal identity[8]. This type of merger is usually shareholder-approved, and it is, in most instances, friendly. So, absorption mergers focus on integration, operational efficiency, and full incorporation under one corporate umbrella, with the acquired company completely losing its distinctive corporate identity. Conversely, in a merger by union[9], two or more companies come together and create a new legal entity. The previous enterprises continue their life within the newly created company (newco), transferring their assets and liabilities into this third firm.

The Merger Act (art. 2503, comma 1 c.c.) has to be formalized publicly and it must be filed for registration at the company register office of the places where the headquarters of the companies participating in the merger are based, as well as at the company register office of the place where the company resulting from the merger or the incorporating company is located[10].

While both can aim to achieve corporate integration, the one by absorption is usually preferred because it is characterized by a higher simplicity with less bureaucracy. Although acquisitions and mergers are treated as distinct operations, in reality, any merger is a form of acquisition. Specifically, when two entities merge, there is always one of the two parties that ends up prevailing. This predominance can be, for example, a majority of the shareholders on the board of directors, the appointment of the CEO, or a greater strategic and decision-making influence in the new company. For these reasons, there cannot be a perfectly equal merger.

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[8] Even if this usually happens, the acquiring company is not obliged to keep the name it had before the operation. It could decide to change it or even assume the name of the incorporated company.

[9] It is another way to call the *consolidation merger*.

[10] Torrente, A., & Schlesinger, P. (2019). Manuale di diritto privato, ventiquattresima edizione, a cura di Franco Anelli e Carlo Granelli. *Giuffrè Francis Lefebvre, Milano*, pp. 1119,1120. "L'atto di fusione (art. 2503, comma 1, c.c.) – che deve rivestire la for di atto pubblico (art. 2504, comma 1, c.c.) - deve essere depositato, per l'iscrizione, presso l'ufficio del registro delle imprese dei luoghi ove è posta la sede delle società partecipanti alla fusione, nonchè presso l'ufficio del registro delle imprese del luogo ove ha sede la società che risulta dalla fusione o la società incorporante."

It is also opportune to underline the difference between an acquisition and an incorporation merger (absorption merger). The discrepancy between the two is that in acquisitions, the payment is, in most cases, by cash with the possibility of a combination of cash and stocks[11] and there is a direct purchase of the target. Contrarily, mergers have no disbursements because they are *all-share deals*, without an explicit purchase transaction.

When analyzing the legal effects of a merger, two main theoretical models emerge in the legal and academic debate, setting out two different comprehensions of how the identity and relations of the merging companies evolve following the operation:

i) *Extinction theory*: the effect of the universal succession of the incorporating company is also produced in all legal relationships already forming part of the merged or incorporated companies.

ii) *Modification theory*: a merger is seen as a modification of the articles of association rather than as the extinction of the merged or incorporated companies. Following the Italian corporate reform, this theory is supported from a regulatory perspective and also accepted by the Court of Cassation[12].

1.2 M&As as a Tool for Expansion and Value Creation

1.2.1 Merger Waves

Throughout history, M&As have not occurred uniformly, with periods of heavy activity followed by quieter phases. This phenomenon is known as *merger waves*. So, during the flourishing periods, usually due to simultaneous political and economic changes, these kinds of operations were intensified, and each wave was characterized by a type of merger and dominant strategies. It is relevant to underline that most of these waves originated in the United States and then spread to the rest of Europe. The reasons behind this phenomenon can be seen in the high development of the U.S. capital markets and their economic and financial innovative leadership.

The literature recognizes five merger waves during the 20th century and two more that occurred in the 21st century. This paragraph covers the third (1960s), the fourth (1980s)

[11] Shares that do not originate from a capital increase of the acquirer

[12] Perotta, R., & Bertoli, L. (2015). *Le operazioni straordinarie: conferimento d'azienda e di partecipazioni, fusione e scissione*. Giuffrè.

and the fifth (1990s), excluding the first two (1897-1904 and 1916-1929), with some references to the events of the current millennium.

The wave of the 1960s, also known as the *conglomerate wave,* was characterized by acquisitions in unrelated businesses. It was driven by various motives, including the desire of firms to diversify risk, benefit from internal capital markets, and exploit inefficiencies in the external capital markets. As firms sought to minimize the impact of economic cycles and increase the scope of their activities, mergers appeared as the principal means to achieve them. At the time, it was assumed that bidding companies were more capable of managing capital and making better resource allocations in their internal markets, addressing the information gaps in less developed external markets.

The consequences of this merger wave were not just the positive abnormal firm returns from business acquisitions at the time of the merger announcement. Also, a shift in managerial priorities arose, leading to greater diversification, which happened even more decisively in the 1980s. The long-term consequences, however, were worse since follow-on evidence showed that many of these expected synergies did not materialize, leading to lower valuations of diversified firms over the subsequent few decades. This wave laid the groundwork for the reconceptualization of diversification strategy in the 1980s and beyond, influencing corporate behaviors and market sentiments regarding conglomerates[13].

The 1980s wave, famous for *bust-up takeovers*, was characterized by operations in which the acquirer purchased a low-performing conglomerate firm and sold off its individual business units for more than the purchase price. Several factors contributed to this trend, including a combination of financial innovation, including the widespread use of junk bonds to finance leveraged buyouts, a growing emphasis on shareholder value maximization in corporate governance, and significant deregulation in key sectors such as telecommunications and banking. In addition, between the mid and late 1970s, high inflation rates increased the nominal value of corporate assets. This increase was often not reflected in a corporation's stock prices. Accordingly, many companies were worth more than their actual cost, and a profit could be made by buying a firm and selling off its assets[14].

[13] Hubbard, R. G., & Palia, D. (1999). A reexamination of the conglomerate merger wave in the 1960s: An internal capital markets view. *The Journal of Finance*, *54*(3), pp. 1131-1152.
[14] Diamond, Stephen C. 1985. Leveraged Buyouts. Homewood, IL: Dow Jones-Irwin.

In the 1990s, M&A activity shifted toward strategic or globally friendly investments, mostly in related businesses. The main characteristic of this wave was that the M&As were cross-border. In particular, this phenomenon was much larger than the previous ones in terms of the number of transactions and scale of operations, involving the participation of many more countries, mainly in three specific communications sectors: transportation and communication, finance and business consulting sectors. The reasons behind this are that the telecommunication and business sectors were subjected to high deregulation and technological advancements[15].

The finance sector, instead, benefited from the openness to foreign banking activity. In the professional services and consultancy sector, the late 1980s and late 1990s witnessed the professional services and consultancy sector, which today includes the Big Four (Deloitte, PwC, EY, and KPMG), undergoing a significant period of change and consolidation. Throughout this period, a wave of mergers among the Big Eight firms reshaped the industry. The most notable mergers were the 1989 merger of Deloitte Haskins & Sells and Touche Ross to create Deloitte & Touche, and the Ernst & Whinney-Arthur Young merger in the same year to create Ernst & Young.

More recently, in 1998, the Price Waterhouse-Coopers & Lybrand merger carried the name PricewaterhouseCoopers (PwC), the world's largest professional services organization at that time. These consolidations were fueled by increasing market globalization, technological advancements, and customers' needs for package cross-border services. Successively, the Big Eight became the Big Five and then the Big Four after Arthur Andersen's collapse in 2002.

The expansion of the global economy in the 2000s had certain characteristics that created a very fertile environment for M&As. A key driver of the M&A growth that happened in the 2000s was the unusually low interest rate in the U.S., combined with global liquidity. Several factors played a role in the low interest rates that occurred in the United States during the period 2001–2007, but the main one was the expansionary monetary policy of the Federal Reserve Bank (FED). Alan Greenspan, the chairman of the Fed, lowered interest rates in response to the 2001 recession and the additional economic blow of the World Trade Center terrorist attacks on September 11th, 2001. The interest rates that

[15] Evenett, S. J. (2004). *The cross-border mergers and acquisitions wave of the late 1990s.* In R. E. Baldwin & L. A. Winters (Eds.), *Challenges to globalization: Analyzing the economics*. University of Chicago Press, pp. 411-464.

Greenspan and the Board of Governors held down for so long were incentives for the debt-financed deals to be much less expensive than they would have been in a more "normal" interest-rate environment. This environment facilitated such leveraged transactions, and this caused an increase in leveraged buyouts that occurred during this period[16]. The 2008 financial crisis and the contraction of credit ended this merger wave, with a recovery that occurred in 2015.

Figure 1, Source: Berk, J. B., & DeMarzo, P. M. (2021). Corporate finance. Pearson Education. Pp. 1001, 1002.

1.2.2 Key Benefits and Value Drivers

M&As are the most popular tool used to reach growth in a short time, and it is also the only method to enter certain markets with high entry barriers.

There is a need to evaluate several aspects when deciding to undertake an acquisition or a merger process. The main condition is the creation of value, so the following inequality must be satisfied:

$$V_{AB} > V_A + V_B$$

Equation 1

The value generated from the union between firm A and firm B must be greater than the value of the two firms as *stand-alone* entities[17].

Five main benefits can arise from M&As operations[18]:

[16] Gaughan, P. A. (2010). M&A Outlook. *Journal of Corporate Accounting & Finance*, *21*(2), 3-10.
[17] The inequality will be analyzed deeply in Chapter 2.
[18] Salvi, A., & Dallocchio, M. (2004). Finanza d'azienda. Egea, p. 767.

1) Increase revenues: boosting the revenues from the sale of goods and services can be one of the company's goals and one of the ways to achieve it is by increasing the size of the company. Moreover, acquiring companies in a different geographical area may increase earnings by allowing the buyer to become active in new markets, especially if, without the operation, it would have had to bear high costs and difficulties due to high entry barriers.
2) Lower costs: the main way to achieve this advantage is through economies of scale. These are accomplished by lowering average manufacturing costs or eliminating redundancies in the organization. If the acquired company has been active in the industry for a long time, it could have lower costs due to this experience and its relationships with suppliers and customers. Another possibility is with vertical integration M&As, where a supplier or customer company is the target of the takeover.
3) Lower the fiscal burden: the principal reason behind a merger or an acquisition could also be the change in the registered office of the company. A case in which the registered office was switched after an operation is the merger between Fiat and Chrysler in Fiat Chrysler Automobile (FCA) in 2013. Before the union, both the tax residence and registered office of Fiat were in Turin, Italy, while Chrysler's were in Auburn Hills, Michigan. After the merger, the two companies decided to settle down as tax residents in the UK, with the registered office in Amsterdam, Netherlands[19]. This choice may have, among the causes, the possibility of taking advantage of the fiscal and legal benefits of the two countries. However, the two Italian operating subsidiaries, Fiat and Ferrari, remained under the Italian tax legislation.

   A different tax benefit may arise in the case of acquiring loss-making businesses that pass on their negative profits to buyers with sufficient profits to benefit from the tax shield. These practices have however been greatly limited, for example in Italy where the legislator has introduced the seventh paragraph of art. 172 of the TUIR requires that the loss-making company is still viable[20].

[19] Corriere della Sera. (2014, January 29). *Fiat Chrysler Automobiles, nasce il nuovo gruppo con sede legale in Olanda e quotazioni a NY e Milano.* Corriere della Sera.
[20] Brealey, R. A., Myers, S. C., Allen, F., Alex, E., & Sandri, S. (2024). Principi di finanza aziendale. Con Connect, p. 662.

4) Lower the cost of capital: this objective can be achieved by exploiting economies of scale in raising external capital. It is also possible to take advantage of the unexpressed debt capacity, which can reduce the cost of financing[21]. This concept can be demonstrated through the WACC formula:

$$WACC = \frac{E}{V} \cdot Re + \frac{D}{V} \cdot Rd \cdot (1 - Tc)$$

Equation 2

Debt is cheaper than equity. As a result, it requires a lower return than equity for investments because of the lower risk. Moreover, interest on debt can be deducted from taxes, which will reduce the cost of debt even more, as shown by the multiplication with the tax rate $(1 - Tc)$. Taking advantage by raising the portion of debt used ($\frac{D}{V}$) will lower the portion of equity ($\frac{E}{V}$) and this will be reflected in a lower weighted average cost of capital (WACC).

5) Defensive mechanism: M&As can also serve as a strategic defensive tool to prevent or face external threats. Executives could opt for this solution to lower the risk of a hostile takeover of their companies, which would mean losing their control over it[22]. Additionally, the tald be decided to acquire a rival to increase the market share within an industry or another company that has strong possibilities to become the objective of a competitor.

1.2.3 Risks and Challenges

This section of the discussion examines the threats and challenges that typically can typically arise in the event of mergers and acquisitions. The distinction will be drawn between internal operational and managerial challenges, which are related to the integration and coordination of internal functions, and external challenges, whose roots lie in handling external parties such as regulatory agencies, customers, and suppliers. This distinction enables a formalized analysis of the variables capable of influencing M&A transaction outcomes. Bad faith behavior by one of the parties with malice, such as failure to disclose key information, can lead to various problems. However, there are also risks in case the parties have acted in good faith, like the following.

[21] Salvi, A., & Dallocchio, M. (2004). Finanza d'azienda. Egea, p. 769.
[22] Potito, L. (2016). *Le operazioni straordinarie nell'economia delle imprese*. G. Giappichelli Editore. pp. 54-55.

Regarding the internal operational and managerial issues[23]:

1) Trade union: the issue of labor relations may be underestimated in an acquisition negotiation process. Therefore, information asymmetries can arise among employees if the communication of the deal is faulty or incomplete. This could be a source of anxiety and uncertainty surrounding job security that can negatively affect product quality, operational efficiency, and labor costs. Based on the nature of the company being acquired, these tensions can delay the implementation of the purchaser's strategy or, in a few extreme cases, require new definitions of strategic objectives. Another possible additional consequence is the loss of key employees, whose exit can have an immediate impact on ground-level operations.
2) Management: the existing management team may not have the ability or degree of autonomy to ensure business continuity under the new ownership. This is common in companies where the former owner was highly centralized in the decision-making role, with the management team only with the role of issuing orders rather than strategic choices. Furthermore, veteran managers, being generally faithful to the previous owner, have the option to resign after the sale, either for retirement or for more challenging tasks. Replacing or demoting the existing management team also generates tensions, especially when the employees perceive the new leadership as unstable or controlling. These disruptions affect the morale of the employees and the proper integration of the post-merger integration plan.
3) Selling and distribution: significant client relationships may not be maintained by the new management, dealing with important customers personally and individually, and entrusting the routine business to the sales network. This is a threat of instability in the wake of the acquisition, especially if such client relationships were very personal. Further, if the acquisition is intended to combine or expand the buyer's business, differences between the commission plans and the incentive programs of the two companies may need to be reconciled, which may lead to internal tension among the sales forces.
4) Structural: the cultural factor has great relevance and a mismatch between acquiring and acquired firms can cause inefficiencies. Moreover, culture is one of

[23] Dallocchio, M., Lucchini, G., & Scarpelli, M. (2015). *Mergers & acquisitions*. Egea. pp. 191-193.

the keys and most distinctive characteristics of a company, so integrating two different cultures is a delicate process.

Employee dissatisfaction and integration problems, such as IT system incompatibility and functional duplication, can render synergies delayed. In addition, internal tensions can arise due to leadership style and decision-making differences. Regulatory issues and unforeseen financial differences also cause transition issues.

5) Accounting-related: usually, the accounting is revised by audit companies specialized in these activities. At the same time, where there are doubt positions, they are decided in a second moment to integrate the valuation.

   For example, referring to these problems, Dallocchio discusses the reality of the recoverability of receivables and the settlement of timely payables as soon as the financial condition of the customer or supplier deteriorates. Tax liabilities can be a potential source of concern, where unclear or disputed positions with tax authorities can emerge after the deal. Although contractual protections such as indemnities and guarantees are typically included to protect the buyer, enforcement depends on the financial health of the seller, therefore making thorough due diligence essential

6) Operations doubled and overvalued: The "synergy trap" is a pervasive threat to acquisitions, both when planning and upon deal integration. Purchasers overestimate the initial consideration of the synergies between the target and their existing business and, as a consequence, pay an overpriced amount based on unsound growth prospects. After the acquisition has occurred, there is generally pressure to achieve synergies no matter what, resulting in over-integration, unnecessary duplication of functions, and even business disruption, ultimately destroying value rather than creating it.

Regarding the external challenges from interactions with stakeholders[24]:

1) Relationship with suppliers: contracts may need to be renegotiated. Suppliers may not necessarily maintain the same prices under the new ownership, especially if

[24] The idea of external challenges arising from interactions with stakeholders is taken from Dallocchio, M., Lucchini, G., & Scarpelli, M. (2014). *Mergers & acquisitions*. Egea. pp. 193-194. The case study provided has been reworked by the writer and therefore differs from the cited authors.

they are very important to the production process of the goods or services produced by the company.

2) Financial: increased debt levels from acquisition financing, deterioration, credit ratings, or imbalanced capital structures. These challenges may limit financial flexibility, raise borrowing costs, and hinder future investments, especially if expected synergies fail to materialize or cash flows weaken post-transaction.
3) Marketing related: the new company may need to launch a new marketing campaign or modify the previous one due to the new lines of products or the differences arising from the merger or acquisition.

1.3 Types of Takeovers and their Financial Implications

1.3.1 Takeover Modes and Different Paths: Friendly vs Hostile

A takeover is a term used to refer to any attempt undertaken to gain control of another company. The first distinction that needs to be pointed out is the one between *friendly* and *hostile* takeovers. Overall, a friendly one is a negotiated acquisition in which the parties conduct a due diligence process and negotiate the price and the other terms of the transaction. Even though a friendly takeover usually starts with the interest of both parties, it may happen to begin with an unsolicited bid by the potential suitor, which is taken into consideration by the board of the target.

In contrast, a hostile takeover is unsolicited, the bidder does not negotiate with the target board but instead makes a tender offer to the shareholders at a premium price set by the bidder in the absence of negotiation with the board. A hostile offer can also start with a bear-hug letter where the bidder names a price and is willing to negotiate but makes it evident that it is willing to go directly to the target's shareholders.

A recent example of a hostile takeover attempt is the one that took place between Monte dei Paschi di Siena (MPS) and Mediobanca. On January 24, 2025, Monte dei Paschi di Siena launched a voluntary and full exchange offer on Mediobanca shares, valued at 13.3 billion euros in stocks. Specifically, *for each Mediobanca share tendered to the Offer, MPS offered a fixed unit consideration equal to 2.300 newly issued ordinary shares of the Offeror (the "Consideration"). Therefore, for every 10 Mediobanca shares tendered*

to the Offer, 23 newly issued ordinary shares of the Offeror will be granted[25]. Four days later, on January 28, 2025, the Board of Directors of Mediobanca issued a press release via the company's website stating that *the Offer was not agreed upon and is to be considered hostile and contrary to the interests of Mediobanca*. Furthermore, in the statement, the BoD retained that the operation did not have an industrial rationale, it could potentially lead to a weakening of Mediobanca's business model and a loss of customers, revenues and talents with no cost synergies. From a financial perspective, however, they believe that it would lead to a reduction in earnings and a dilution of valuation multiples, also demonstrated by the drop in the MPS stock on the stock exchange following the announcement.

In some cases, friendly acquisitions are interrupted by hostile takeover attempts and hostile takeover attempts often result in a negotiated merger agreement that, in a way, becomes a friendly acquisition at that point[26].

When a company decides to undertake a takeover, two main ways can be chosen to gain control of the target. Both of these methods involve the share purchase, but what distinguishes the two cases is the form of consideration. In one case, the payment is made through shares of the buyer with a capital increase, while in the other, the exchange is in cash.

1.3.2 Strategic Reasons Behind M&As

There can be different strategic reasons behind M&As. A distinction that needs to be pointed out is the one between:

a) Horizontal
b) Vertical
c) Conglomerate

[25]Monte dei Paschi di Siena S.p.A.. (2025, January 24). *Offerta pubblica di scambio totalitaria volontaria sulle azioni ordinarie di Mediobanca – Banca di Credito Finanziario S.p.A.*. https://www.gruppomps.it/static/upload/str/stradebianche---comunicazione-102.pdf

[26] Mediobanca S.p.A. (2025, March 10). *Mediobanca rigetta l'OPS di MPS non concordata e fortemente distruttiva di valore* [Mediobanca rejects MPS's non-agreed and highly value-destructive public exchange offer]. https://www.mediobanca.com/it/stampa-comunicazione/comunicati-stampa/mediobanca-rigetta-l-ops-di-mps-non-concordata-e-fortemente-distruttiva-di-valore.html

Horizontal M&As are the most classic type indeed, in this case, the acquiring company decides to acquire another business that operates in the same industry and stage of the value chain. The reasons behind this mode are usually related to the consolidation of the market share in the industry, gain of economies of scale[27] and elimination of competition. Contrarily, in vertical M&As, the buyer takes control of an enterprise to streamline relationships with operators in different stages of the value chain. Specifically, vertical integration can be made upwards or downwards. In the upward type, the buyer takes control of a business active in a higher position of the supply chain, so a supplier, while in the downward type, there is an acquisition of a business on the customer side of the supply chain. The emphasis here is on integrating closely related firms that share interdependent resources, allowing organizations to control vital aspects of their operations and reduce competition directly[28].

In a conglomerate acquisition, the acquired company is active in a completely different industry than the buyer. Moreover, M&As, in this case, are used as a tool to diversify and this approach involves expanding into different activities or sectors to minimize reliance on specific interdependencies. Even though this kind of operation, today, is not as common as the ones mentioned above, firms may seek to diversify away from core areas where they feel vulnerable or diversify risk. The choice depends heavily on the firm's strategic goals, industry dynamics, and competitive landscape.

1.3.3 Leveraged Buyouts

One way to cash-finance an acquisition is to have the target company take on debt, which is then repaid out of its earnings. The leveraged buyout (LBO) operation was introduced into the Italian legal system with the corporate law reform of 2003[29]. This type of merger is structured through the establishment of a special purpose vehicle (newco or shell company), which purchases a target company through the predominant use of debt, as well as the subsequent merger between the two companies.

[27] Reducing the average cost per unit, thanks to the increase of the volume of the quantity of goods produced.

[28] Pfeffer, J. (1972). Merger as a response to organizational interdependence. *Administrative science quarterly*, p. 382-394.

[29] Riforma del Diritto Societario - Decreto Legislativo 6/200.

The legislator clarified the legitimacy of this operation, requiring additional information intended to protect not only the shareholders of the companies participating in the merger but, above all, the creditors. The typical characteristic of LBO operations is to channel the assets of the target company, with the debt contracted to acquire control of it, into the same company. In this way, the cash flows deriving from the performance of the target's corporate activity become functional to the extinction of the debt itself and the remuneration of the latter[30].

The principal differences with traditional acquisitions are two: on the one hand, a large stake of the purchasing price is financed by debts granted by the assets or cash flows of the target, and these debts are *junk,* so they are sold under the investment grade. The second discrepancy is that the company shares are delisted from the stock market[31].

LBOs started gaining popularity in the 1980s and are still mainly used as tools by Private Equity (PE) firms, a form of investment in which capital is raised from qualified institutional or private investors to acquire stakes in the capital of companies, usually small and medium enterprises (SMEs), that are generally not listed on the stock exchange[32]. The reason behind the use of these operations by PE is that they are characterized by flexibility, high leverage and minimal regulatory pressure, with a higher inclination to risk. Moreover, the investments of PE have a low time horizon, between three and seven years, to exit from the investments by reselling the company at a higher price. Conversely, public companies are more willing to use other financing methods, like cash and stocks, with low levels of debt. These companies are less willing to risk, are subject to heavier regulations, and with too high use of debt, may risk bankruptcy. Moreover, they can usually count on high liquidity reserves to reach capital markets.

The particular LBO case where the management of the company guides the acquisition is called a *Management Buyout* (MBO).

[30] Perotta, R., & Bertoli, L. (2015). *Le operazioni straordinarie: conferimento d'azienda e di partecipazioni, fusione e scissione*. Giuffrè, p. 348.

[31] Brealey, R. A., Myers, S. C., Allen, F., Alex, E., & Sandri, S. (2024). Principi di finanza aziendale. Con Connect, p. 704.

[32] Il Sole 24 Ore Business School. (2023, 23 maggio). *Cos'è e cosa fa un fondo di Private Equity*. Il Sole 24 Ore Business School.

1.4 M&As Processes and the Takeover Bids Directive

1.4.1 The Merger Process

The merger process has three necessary steps[33]:

i) The preparation of the draft terms of the mergers

ii) The shareholders' meeting

iii) The deed of merger.

The administrative or management bodies have to prepare the draft terms of the companies involved and publish them in the national register *at least one month before the date fixed for the general meeting, which is to decide thereon*[34] to encourage transparency and to inform the stakeholders. These terms must include important information like the exchange share ratio, specification of any cash consideration, conditions for allotment of shares of the acquiring company, and rights conferred upon the special shareholders. Then, they should be examined by one or more experts for each company involved and appointed or approved by the administrative authority if the law of the member state does not provide judicial or administrative preventive support. This report needs to be submitted to the shareholders' meeting with the management report[35]. Shareholders will be entitled to access supporting documents, including the most recent statements of accounts, experts' reports to evaluate the proportionality of the exchange ratio and directors' reports explaining the economic and legal reasons behind the merger. The next phase is the approval procedure, which requires a two-thirds majority vote of the general meeting of both the merging companies to accept the redaction of the deed of merger. After the approval, the deed of merger shall be drawn up and certified in due legal form[36]. The merger, upon approval, results in all the assets and liabilities of the acquired firm being shifted to the acquiring firm and the shareholders of the acquired firm being issued shares of the surviving firm.

The final stage of the process, the deed of merger, confirms the legal effects of the merger, including the dissolution of the acquired company without liquidation.

Significantly, mergers can only be held void in exceptional circumstances, such as failure to comply with legal formalities or procedural defects.

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[33] De Luca, N. (2021). *European company law*. Cambridge University Press. (Pg.501).
[34] Article 140 Directive 2017/1132/EU (Similarly, Article 138 Directive 2017/1132/EU).
[35] Article 95 and 141 Directive 2017/1132/EU
[36] De Luca, N. (2021). *European company law*. Cambridge University Press, p. 505.

1.4.2 The Acquisition Process

The term *acquisition* has a broader significance. It refers to any mode used to gain total or partial control of another company, including mergers and divestitures. The acquisition process is the series of steps by which a company buys another, either completely or partially. This process begins when a target company either initiates itself for sale or receives an unsolicited expression of interest from a potential acquirer, while in the case of a hostile takeover, the buyer initiates and gradually purchases shares from the shareholders of the target, exceeding a certain threshold. Before that, the target company is internally reshaped to get its corporate and legal house in order, tidying up customer contracts, confidentiality agreements, and restrictive covenants. The key move is to hire an investment bank to provide an initial valuation (vendor's due diligence), assess market demand, identify likely buyers, and organize a competitive bidding process.

After the potential buyers are filtered through, they are requested to sign non-disclosure agreements (NDAs) to protect confidential information. This is followed by a legal and financial due diligence process in which the buyer examines the business, financial status, and juridical situation of the target to establish the strategic and financial quality of the acquisition. Follow-up meetings would end with a Letter of Intent (LOI), which outlines the most significant terms of the transaction, typically backed by binding exclusivity agreements to prevent the possibility of talking to other possible acquirers.

The final stages involve preparing the final acquisition agreement, seeking necessary regulatory approvals, and closing the transaction by completing it, wherein all legal obligations and representations are fulfilled. Overall, in the process, the main challenges include confidentiality, compliance with regulation, and risk aversion for likely inappropriate business transformations of the target.

1.4.3 The Takeover Bids Directive

The Takeover Bids Directive (Directive 2004/25/EC) was implemented by the European Union to create a harmonized framework for takeover bids, ensuring transparency, shareholder protection, and market integrity within Member States. Its core purpose is to guarantee equal treatment for all shareholders in a target firm. Specifically, it demands that if a subject acquires control of a company, historically defined as acquiring control of at least 30% of its voting rights, a mandatory offer should be extended to the remaining

shareholders at a fair price. The rule is intended to ensure that all shareholders, particularly minorities, benefit from any control premium associated with the takeover. The Directive also separates voluntary and mandatory bids. The first allow the offeror to decide the terms and target at least 60% of the company's shares, while mandatory bids involve level-playing field rules to protect minority shareholders.

Other stipulations are the squeeze-out right, whereby the sellers holding more than 90% of the shares can compel the other shareholders to sell at a fair price, and the sell-out right, whereby minority shareholders can request the majority seller to purchase their shares on similar terms.

The Directive also imposes obligations on company boards, demanding the passivity requirement, which prevents boards from imposing defensive measures without shareholder approval when a bid has been made. Additionally, the breakthrough requirement eliminates current obstacles in articles of association at takeover time to ensure competitive and fair market behavior. The provisions collectively seek to achieve a balance between corporate control shifts and the interests of all stakeholders[37].

1.5 Valuation Methods in the Takeover Process

The economic advantages coming from mergers between companies are called *synergies.* These benefits arise when the companies are merged, but they should be evaluated as standalone, on a time horizon of *t*. Several approaches can be used, and the first distinction to be made is the one between unlevered and levered financial methods.

Unlevered financial methods follow an asset-side approach in which the enterprise value needs to be calculated and taken into consideration as a value for both shareholders and creditors. Levered financial methods, instead, have an equity-side approach, in which the enterprise value is calculated only as value for the shareholders.

This paragraph concentrates on:

1) Discounted Free Cash Flow method
2) Valuation Based on Comparable Firms (multiple methods)
3) Adjusted Present Value Method

[37] Di Amato, A. (2023). *Company law, M&As* (Lecture notes). Libera Università Internazionale degli Studi Sociali Guido Carli (LUISS).

1.5.1 Discounted Cash Flow Method (DCF)

The first suggested approach is the use of the Discounted Free Cash Flow (DCF) method. The are two main types of cash flow that can be used: the Operating Cash Flow (OCF) and the Free Cash Flow (FCF). FCF is usually preferred in the DCF model because it is more accurate than the OCF and because it can measure the ability of the firm to generate value for the shareholders.

The cash flow is shown in *Table 1*.

CASH FLOW		
ITEM	SIGN	FORMULA
Sales	+	
Costs	–	
Gross Profit (EBITDA)		Sales - Costs
Depreciation & Amortization	–	
EBIT		Gross profit – D&A
Income Tax	–	EBIT x τc
NOPAT		EBIT – INCOME TAX
Depreciation & Amortization	+	
Operating Cash Flow (OCF)		NOPAT + D&A
Change in Net Working Capital	–	NWCt – NWCt-1
Capital Expenditure and Disposal of Fixed Assets	–	
Free Cash Flow		OPC – ΔNWC – CAPEX

Table 1: Items of the Cash Flow

Once the FCF is calculated, it is necessary to discount it using a proper discount rate r to determine the present value of future cash flow.

$$V_{AB} = \sum_{t=1}^{n} \frac{\Delta FCF_t}{(1+r)^t}$$

Equation 3

The interest rate (r) can be estimated with the Capital Asset Pricing Model (CAPM), which describes the relationship between expected return and systematic risk. The model assumes that in a competitive market, an asset's expected excess return ($r - r_f$) is proportional to its sensitivity (β) to overall market movements.

$$r - r_f = \beta\,(r_m - r_f)$$

$$r = r_f + \beta\,(r_m - r_f)$$

Equation 4

In *equation 4*, r_f represents the risk-free rate, while r_m is the expected return from the market portfolio. The difference between rm and rf ($r_m - r_f$) is the market risk premium, which represents the additional return that investors demand because they bear the risk of the market. Lastly, the coefficient beta (β) serves to estimate how much the return of an asset fluctuates with the market. If $\beta = 1$, the asset moves with the market, while with $\beta > 1$, it is more volatile and in the case of $\beta < 1$, it is less volatile than the market.

The FCF method is used to determine the firm's value to all investors, including both equity and debt holders.

If the firm resulting from the mergers is financed with both equity and debt, it is opportune to use the Weighted Average Cost of Capital (WACC), instead of CAPM, because it takes into consideration both forms of financing, leading to the following formula:

$$V_{AB} = \sum_{t=1}^{n} \frac{\Delta FCF_t}{(1 + r_{wacc})^t}$$

Equation 5

WACC is a weighted average of the cost of equity and debt capital and reflects the risk-adjusted return anticipated by all capital providers. The DFCF method performs very effectively to value synergies, cost savings, and revenue benefits expected to flow from the merger. However, its accuracy depends considerably on good cash flow estimates and a well-calibrated discount rate, which are both very vulnerable to estimation risk.

1.5.2 Market Multiple Method

The Market Multiple Method has gained much popularity, especially in the late part of the last century. This technique has represented the main instrument to evaluate companies used by financial analysts and investors, and still today, it remains in use

because of its speed and efficiency. In the valuation with comparables, rather than directly taking into consideration the cash flow of the firm, its value is estimated using the multiple from similar companies that will generate similar cash flows in the future. While it is true that the same firms do not exist, differences in scale and other factors can be adjusted by this approach of calculation.

The valuation method with multiples allows the estimation of a company's value by converting market prices into financial ratios, which are obtained by dividing these prices by typical financial metrics that express results and the dimension of the company's activity. Once the right and homogeneous multiple is selected, the last step is to scale the multiple by the corresponding metric from the company to evaluate[38].

The multiples used are divided in two different categories:

a) Equity-side multiples

b) Asset-side multiples

In the first block, the numerator is the equity value (market capitalization), which can be calculated by multiplying the market price per share by the number of outstanding shares. In contrast, in asset-side multiples, the numerator is the investment in gross assets or the value of the capital, to which the debts are added and the liquidity subtracted, also called Enterprise Value (EV). A key difference is that equity-side multiples take into consideration the impact of interest expenses, which makes it levered, while asset-side multiples exclude this effect, making them unlevered[39].

Equity-Side	Asset-Side
Principal Denominators Used	
Earnings (E)	EBIT
Equity Free Cash Flow (FCFE)	NOPAT
Sales	EBITDA
Book Value (BV)	Unlevered Free Cash Flow (UFCF)
Net Asset (NAV)	Sales
Dividend Yields (Div)	Invested Capital (IC)

Table 2: Asset-side and Equity-side multiples

[38] Potito, L. (2016). *Le operazioni straordinarie nell'economia delle imprese*. G. Giappichelli Editore, p. 33.

[39] Guatri, L., & Bini, M. (2009). *Nuovo trattato sulla valutazione delle aziende*. Egea, p. 642.

An example of an equity-side multiple is the P/E ratio. It expresses the relationship between the market price per share and the earnings per share (EPS).

$$\frac{P}{E} = \frac{Market\ price\ per\ share}{Earning\ per\ share\ (EPS)}$$

Equation 6

The equity value can be calculated by multiplying the weighted average of the P/E ratios of the comparable firms chosen by the number of outstanding shares or by the net income of the company being evaluated.

$$Equity\ value = \frac{P}{E} \times\ Net\ Income$$

Equation 7

A high P/E suggests high growth rates and that the enterprise can generate cash well over its investment needs so that it can maintain high payout rates.

In contrast, one of the most used asset-side multiples is the EV/EBITDA ratio, which expresses the relationship between the enterprise value and the earnings before interest, taxes, and amortization (EBITDA). It is usually preferred to the EV/EBIT one because capital expenditure can vary a lot between the years. After calculating the weighted average of the EV/EBITDA multiple of the comparable firms, to compute the equity value of the company to evaluate, it must be multiplied by the EBITDA of this firm. The final step is to subtract the net debt from the EV.

$$EV = \frac{EV}{EBITDA} \times\ EBITDA$$

Equation 8

$$Equity\ value = Enterprise\ value - Net\ debt$$

Equation 9

This last step is necessary because asset-side multiples to the estimation of the market value of invested capital, including both equity and net debt.

1.5.3 Adjusted Present Value Method (APV)

The adjusted present value (APV) method is a valuation approach used to assess a company, assessing separately its unlevered value and financial effect. This approach begins with the calculation of the *unlevered value* (V_U) and then adds the interest tax to make it *levered* (V_L).

$$V_L = V_U + PV^{40}$$

Equation 10

To estimate the current value of the interest tax shield, it is opportune to use a correct discount rate. Since the interest tax shield varies with the cash flow of the company and corporations generally desire a target debt-to-equity ratio, the tax shield tends to track the company's value. In particular, if the value of the project rises, it maintains a higher debt level, creating a greater tax shield, while if the value of the project falls, the level of debt is minor and therefore the tax shield is lower. As a result, the risk profile of the tax shield is closely related to the risk of the project itself, so the appropriate discount rate for the tax shield tends to be the unlevered cost of capital (r_U).

The process of application of the APV method can be formulated in three steps[41]. The first one is the estimation of the project value under the no-leverage assumption, discounting the unlevered free cash flow using the unlevered cost of capital. Then, the present value of the interest tax shield must be calculated by multiplying the future debt level (D_t) by the cost of debt (r_D) and the corporate tax rate (t_c). This stream of future tax shield is discounted at the unlevered cost of capital, assuming that the firm maintains a constant debt-to-equity ratio. Finally, the unlevered value of the tax shield and the present value of the tax shield can be summed to calculate the levered value of the investment.

$$V_L = V_U + PV - PV_{FDC}^{42}$$

Equation 11

Compared to the WACC method, APV could be more complex as it has two distinct valuations: the project's inherent value with no leverage and the value of the financing benefits of the tax shield. In addition, where the company has a stable debt-to-equity ratio, there is circular interdependence: the debt level depends on the value of the project, while the project value is influenced by the present value of the tax shield, which is a function of the debt level. This involves solving for the project value and debt capacity at the same time.

The APV approach has relevance as a valuation method. It shows more flexibility and transparency than the WACC method, especially when the firm does not have a constant capital structure policy over time. It also displays explicitly the effect of the interest tax

[40] PV is the Tax shield.
[41] Berk, J. B., & DeMarzo, P. M. (2007). *Corporate finance*. Pearson Education, p. 686.
[42] PV_{FDC} represents the present value of the financial distress cost.

shield on the value of the total investment, providing managers with an unobstructed vision of how financing choices affect firm value. In highly leveraged transactions, such as acquisitions, a significant portion of the value created in these cases could potentially be from the tax benefits of debt financing, and therefore, APV is particularly well-suited to such circumstances.

Chapter 2: Value Added from a Takeover

2.1 Different Perspectives on Economic Evaluation in M&As

2.1.1 Introduction to Valuation Categories

The primary scope of mergers and acquisitions is the creation of value. As discussed in the first chapter, the main condition that needs to be satisfied to have this added value is:

$$V_{AB} > V_A + V_B$$

Equation 12

This inequality indicates that the post-operation value must exceed the sum of the values of the two firms, as stand-alone, to be successful. The challenge lies in understanding how the companies involved contribute to the generation of this added value and in what proportion.

In this context, there are different levels of evaluative categories based on the function they are to fulfill. Generally speaking, two macro areas of evaluation are resonated: those that occur within the preliminary phase and those that occur post-operation. In the first area, there are three types of evaluations:

1. Valuations aimed at determining the exchange ratio are used to estimate the economic value capital of the merged companies. This category is generally influenced by the negotiations between the parties and plays a key role in the exchange ratio, a topic that will be discussed in depth in the next two chapters from a theoretical and quantitative perspective.
2. Another type is the independent expert valuation. The goal is still to analyze the proper exchange ratio but with a purpose more related to verifying the decisions made by the directors of the companies involved in the transaction.
3. This third class includes additional forms of valuations required by the legislature. An example is the already described valuations in business contributions, discussed in section 1.1.3.

An additional category of quantitative determination that occurs at a later stage is the following:

4. In this category, there are the financial statement valuations. Although they occur only once the transaction is completed, directors generally make estimations

already previously. Estimating the accounting effects[43]. Information on how the operation will affect crucial financial ratios, including earnings per share (EPS), goodwill, size of debt, and tax costs, is beneficial to facilitate effective manager decisions and forecasts of potential shortfalls. Moreover, accurate determination of accounting impacts upholds consistency with financial report requirements (e.g., IFRS, GAAP[44]) and preserves honesty to investors and stakeholders, culminating in marketplace trust and merger valuation after consolidation.

To fully understand the value creation process in M&As, it is opportune to analyze the synergies that arise from the creation of the new entity. The next paragraph treats these synergies, focusing on which context they can emerge, the difficulties in the evaluation and the intangible synergies.

2.1.2 Value Creation Through Synergies

Synergies represent the benefits that arise from mergers and acquisitions processes, deriving from the specific competencies and strengths that the companies involved can contribute to the new operational structure. Specifically, there are four main types: revenue, cost, financial and strategic synergies. It is essential to describe the context in which they arise, distinguishing between the kinds of mergers.

A key distinction is the one between external and intra-group mergers. In the first category, the organizations come from different realities, each characterized by distinct strengths and peculiarities that can contribute to the new reality. Involving independent companies in the process is the optimal option to reach synergies and have added value from the deal. In intra-group mergers, instead, the enterprises are already part of the same group, so usually, they do not bring real advantages. Frequently, they are already aligned in terms of coordination, management and strategy, meaning that instead of added value, the goals may focus on company restructuring and fiscal objectives, for instance.

During the deal preparation phase before undertaking a takeover, the acquirer's M&A department must estimate the possible synergies resulting from the process. To do so, the department typically relies on consulting firms and experts to evaluate these advantages. While these assessments often take place in co-located workshops, such analyses may

[43] Perotta, R., & Bertoli, L. (2015). *Le operazioni straordinarie: conferimento d'azienda e di partecipazioni, fusione e scissione*. Giuffrè.

[44] Generally accepted accounting principles.

also be conducted remotely. However, synchronous collaboration and close coordination are central to the process[45].

The valuation of strategic synergies could be difficult due to the lack of standardized documentation, established categories, commonly accepted data models, or norms on how such synergies are best portrayed to convince shareholders. In addition, there are no universal norms regarding the best way to convince the shareholders. So, these synergies are not only captured and described as an analytical process but also as a social one because of the involvement of actors across both the acquiring firm and the target, as well as external stakeholders.

In section 1.2.2, the benefits described are tangible synergies, which are the primary and more visible advantages coming from M&As. However, intangible efficiencies are important too because they can significantly impact the new entity. Among these, some of the most important are knowledge transfer, brand power and innovation capacity.

Regarding knowledge transfer, there are two main types: tacit knowledge and explicit knowledge. The first is typically acquired through experience and it is intuitively understood. In contrast, explicit knowledge refers to information that is captured within documents, such as manuals and reports, and it is stored in databases or papers. While explicit knowledge is easy to share through the company's accessible documents, on the other hand, tacit knowledge is harder to transfer because it relies on interactions and informal networks. In M&As, knowledge can be transferred thanks to active communication, mentoring and collaboration, and even if it may be hard, this is the key to gaining a real competitive advantage.

Innovation is another source of competitive advantage that can be derived when different organizations come together. It refers to the creation of a viable new offering[46] and is a particular characteristic of some businesses that are more inclined than others to innovate. The categories of innovation are mainly two: direct innovation, which refers to what the market directly buys and indirect innovation, about what the market will indirectly buy. The first group indicates product and service-related innovations, while in the second one,

[45] Bauer, F., & Friesl, M. (2024). Synergy evaluation in mergers and acquisitions: an attention-based view. *Journal of Management Studies*, *61*(1), pp. 37-68.

[46] Keeley, L., Walters, H., Pikkel, R., & Quinn, B. (2013). *Ten types of innovation: The discipline of building breakthroughs*. John Wiley & Sons.

there are processes and business models. If one of the companies tends to be a direct innovator and the other one is an indirect one, important synergies may be exploited[47].
A third intangible factor to consider is brand perception. It refers to how an organization is perceived by its customers and the public. It is a very important component of corporate success and in some cases, it is the main advantage of a company. When two strong brands merge, they will certainly have a bigger advantage, strengthening the overall market position. Conversely, in an M&A in which the market perception of one of the participants is not optimal, the benefits may be limited, leading to a reduction in the expected synergies.

2.1.3 Stand-Alone Assumption

In practice, one of the primary valuation methods used in M&As is the stand-alone approach, which assumes that the merging firms will continue to remain independent entities. Thus, individual companies are valued, accounting for the value that each of the involved entities can contribute to the merger[48]. In this valuation, various elements are considered in estimating the current value of the company, including human capital, asset base, distribution channels, current structure of production or service, and operating cost structure.
Within this methodology, two relevant distinctions are recognized regarding this practice: the *stand-alone as is* and the *stand-alone with adjustments*. Stand-*alone as is* considers a firm solely based on its current situation, without including any future development, cost savings, or expansion strategy, and most importantly, it does not consider changes that may arise from the merger or acquisition process. Alternatively, the second approach of standalone adopts expected changes such as expected cost savings, operational improvements, or revenue gains that would presumably occur independently of the merger. It offers a more forward-looking valuation but requires subjective assumptions, hence increasing the risk of estimation error. The choice between the two approaches depends on the setting of the transaction and the level of uncertainty regarding the target's future performance.

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[47] Soderquist, E. (2024). *Innovation in organizations: Knowledge, creativity and the processes of innovation* [Lecture slides]. Athens University of Economics & Business.
[48] Potito, L. (2016). *Le operazioni straordinarie nell'economia delle imprese*. G. Giappichelli Editore, p. 85.

The stand-alone is used to determine the suitability of an acquisition target in the M&A deal and whether the transaction will improve the buyer's valuation after the acquisition. Following this assessment, the acquirer must conduct due diligence on the target company to determine the target's ability to create positive synergy in the parent company[49].
Nonetheless, the stand-alone values of firms remain often unverifiable due to information asymmetries, where the executives have private knowledge about their respective firms. This can lead to inefficiencies in merger negotiations, as firms may report incorrectly on their true values, thereby making it difficult to efficiently allocate the merger gains. Additionally, when some stand-alone values are not disclosed, merging firms may be forced to offer higher premiums to induce participation, generating merger process inefficiencies. The inability to check stand-alone values ex-post also adds to these inefficiencies, as merger mechanisms have difficulty aligning incentives and avoiding adverse selection[50].

2.1.4 Value Added Distribution Theories

Although there is no convincing theory on how the added value from a merger should be distributed between the merging companies, this section includes several perspectives that have divided economists over the past decades.
A first theory enunciates that all the added value should go to the incorporating company, as it is the surviving entity and absorbs all the assets and liabilities of the incorporated one. Since the incorporator is generally larger, it usually makes a decisive contribution to the formation of the merger. However, this motivation is not completely convincing because size is just one of the many factors that play a role in these operations and cannot justify alone the full appropriation of the added value.
A second idea suggests that the added value should be allocated to the shareholders of the incorporated company as a means of compensation for their loss of control. According to this view, the value distribution should be the difference between the value of the merged new entity and the independent value of the incorporated company. This doctrine could assume relevance only if it can be proven that the incorporated firm is the main source of

[49] Corporate Finance Institute. (n.d.). *Standalone value.*
[50] Brusco, S., Lopomo, G., Robinson, D. T., & Viswanathan, S. (2007). Efficient mechanisms for mergers and acquisitions. *International Economic Review*, *48*(3), pp. 995-1035.

the synergies, due to its distinctive competencies[51]. Moreover, this theory assumes that all the shareholders suffer a loss of control, which is not always the case because minor shareholders may have never had control.

A further valuation approach argues that the correct method is to distribute the value proportionally to the contribution of each company to the newly formed entity. This view suggests that benefits from the merger should be divided according to the ability to bring value to the new management[52]. This hypothesis is very suggestive and also aligns with the principle of fairness, but it overlooks the consideration that the value of a company taken in isolation does not necessarily reflect the value as part of a merger. It may be precisely this very fact that the additional value cannot be allocated under principles of economic rationality that guide toward stand-alone valuation.

The total amount of value generated in an M&A deal is not the only metric of success. A key aspect concerns how this value is distributed amongst the shareholders. Whereas mergers and acquisitions' synergies create value in aggregate terms, the distribution of this value-added can have long-term implications for shareholder returns and the financial stability of the combined company. Particularly, shareholder returns are influenced by various determinants, ranging from the type of deal (cash vs. share deals) to the premium on deals paid for the target company and ownership patterns of the firms concerned.

2.2 Market Reaction and Investor Expectations

2.2.1 Short-Term Market Reaction to the Announcement

The announcement of a merger or acquisition is one of the most significant events for financial markets as it releases new information that can have a powerful effect on investors' behavior and share prices. In the days and weeks following the announcement, market participants react according to how they think the deal can influence corporate value, finances, and competitiveness. These reactions are driven by several reasons, from the deal's strategic rationale and premium paid for the target company to overall market conditions. While certain deals are received with enthusiasm, resulting in stock price appreciation, others raise suspicions or doubts, resulting in a decline in share value.

[51] Potito, L. (2016). *Le operazioni straordinarie nell'economia delle imprese*. G. Giappichelli Editore, pp. 84-85.

[52] Savioli, G. (2012). *Le operazioni di gestione straordinaria*. Giuffrè Editore, pp. 354-355.

A recent example of a positive market reaction is what happened in the case of the transaction involving A2A and Ascopiave, which is listed on Euronext STAR Milan and is one of the leading national operators in the natural gas distribution sector. On December 19, 2024, the two companies announced that a preliminary purchase agreement had been signed regarding Ascopiave's acquisition of 100% of the shares of a corporate vehicle that will own, at closing, a business unit. It will comprise in its entirety a compendium of assets consisting of approximately 490,000 gas distribution PDRs[53] in the Provinces of Brescia, Cremona, Bergamo, Pavia and Lodi. The 2023 RAB for these assets was €397 million, with an EBITDA of €44 million[54]. Five days after the announcement, on December 24, 2024, Mediobanca increased its target price on Ascopiave to €3.75 per share (from the previous €3.55), confirming its "Outperform" recommendation. Mediobanca then upgraded the estimates by including the impact of the consolidation of gas distribution assets acquired from A2A and the exercise of the put option on Ascopiave's remaining stake in EstEnergy. On average, it raised its 2025-27 estimates by +24% per year in EBITDA and +37% in adjusted net income[55].

In contrast, a case where the announcement of the takeover resulted in a decline in share market price is the one mentioned in Chapter 1, section 1.3.1, between Monte dei Paschi di Siena and Mediobanca. On January 24, 2025, when MPS launched a voluntary and full exchange offer on Mediobanca shares, MPS's stock plunged 9%, closing at €6.69 and falling from its recent peak at €7.12, marked only a few days earlier on January 20 [56].

The short-term market reaction has been viewed as an early and imperfect predictor of a deal's success, though its predictive ability is still a debatable issue. Managers tend to monitor the trend of their company's share price closely in the days following the public announcement of a deal. This focus is often driven by the need to reassure themselves that they did not overpay and that their efforts to value synergies, plan communications,

[53] The PDR code identifies the re-delivery point, or the physical point where the natural gas is delivered by the seller

[54] A2A S.p.A., & Ascopiave S.p.A. (2024, December 19). *A2A e Ascopiave: sottoscritto contratto per la compravendita di asset reti gas*. A2A. https://www.gruppoa2a.it/it/media/comunicati-stampa/a2a-ascopiave-contratto-compravendita-asset-reti-gas

[55] Teleborsa. (2024, December 23). *Ascopiave, Mediobanca alza target price e conferma Outperform*. Teleborsa. https://www.teleborsa.it/News/2024/12/23/ascopiave-mediobanca-alza-target-price-e-conferma-outperform-97.html

[56] Borsa Italiana. (2025, February 24). *Borsa: Mps scatta (+3%), concambio con Mediobanca si porta a 2,5 volte*. Borsa Italiana. https://www.borsaitaliana.it/borsa/notizie/radiocor/commenti/dettaglio/borsa-mps-scatta-3-concambio-con-mediobanca-si-porta-a-25-volte-nRC_24022025_1405_407437980.html

and navigate legislative hurdles did not overlook anything. Understanding this market mechanism can be useful to determine how investors react to M&A announcements and how they forecast market volatility. However, short-term stock movements, according to many academic researchers, do not predict well a deal's ability to create value. One primary reason for the inconclusiveness of the results is that there are no standards for measuring long-term success in advance[57].

2.2.2 Long-term and Post-Merger Stock Performance

While short-term market reactions to M&A announcements are generally an indication of sentiment and short-run speculation, the real success of deals is normally determined in the long term. Moreover, whether an M&A deal can create value in the long run is a function of post-merger integration, synergy realization, and strategy implementation of the merged firm. Relative to short-term share movement, which is inclined to early pessimism or optimism, long-run stock performance captures the effect of the merger and acquisition on firm growth, profitability, and shareholder returns. However, even long-run M&A success is challenging to determine, as exogenous factors such as macroeconomic conditions, industry trends, and competitive pressures also affect post-merger performance.

A study conducted by McKinsey in 2012 reveals that excess returns over a decade are better correlated with long-term strategies. Companies active in M&A operations, particularly those that made many smaller deals, tended to achieve better long-term excess shareholder returns compared to those focused on large deals, which had a higher chance of resulting in negative returns. Besides, the success of M&A strategies varies quite significantly by industry. Major deals, for instance, have better performance in mature industries when the removal of excess capacity leads to better performance. Small deals, instead, usually require the acquiring companies to have strong execution capabilities[58].

2.3 Value-Destroying, Potential Risks and Challenges

Although mergers and acquisitions are an important corporate growth strategy tool, they do not always lead to the creation of value. While successful takeovers can increase

[57] Rehm, W., & West, A. (2016). *Managing the market's reaction to M&A deals*. McKinsey & Company.
[58] Rehm, W., Uhlaner, R., & West, A. (2012, January). *Taking a longer-term look at M&A value creation*. McKinsey & Company.

market position, the development of synergies, and the generation of long-term profitability, many deals are not able to deliver added value and sometimes can even destroy shareholders' value. The complexity of M&A processes and the potential risks in execution, market forces, and organizational integration threaten the possibility of underperformance.

This section addresses three of the most significant dilemmas that tend to drive value destruction rather than creation:

1) The winner's curse: this is the case in which bidders pay too much for the target as they compete, overestimate, or experience unforeseen risk.
2) Culture and integration: they refer to the obstacles of aligning corporate cultures, management styles, and structures of the companies involved to the merger.
3) Macroeconomic factors: they indicate all external economic forces such as interest rate fluctuations, changes in regulatory policy, and market downturns that can potentially undermine the success of the transaction.

2.3.1 The Winner's Curse

The winner's curse is a phenomenon in which the winning bid in an auction exceeds the actual value of the item being offered. The gap between the auctioned value and the real value can typically be attributed to incomplete information, emotions, or a variety of other factors that may influence bidders. In general, subjective factors usually create this value gap because the bidder faces some difficulties determining and rationalizing an item's true intrinsic value. As a result, the winning bid tends to be overestimated[59].

On this topic, scholars and experts are divided. According to some, this theory can be extended to M&A processes, since they somewhat mirror an auction due to negotiations and pressures that may arise from other potential buyers. According to others, there is no correlation between the winners' curse and observed returns to bidders in corporate takeovers.

In general, economists in favor of this theory tend to associate the concept of the winner's curse with public acquisitions, but Brander and Egan, in their research, hypothesized that this phenomenon is also relevant in private M&As, although with some distinctions.

[59] Hayes, A. (2024, July 21). *Winner's curse: Definition, how it works, causes, and example*. Investopedia. https://www.investopedia.com/terms/w/winnerscurse.asp

Theoretically, in private transactions, acquiring firms are likely to face far higher informational asymmetries as private targets disclose less financial information than publicly traded companies. With such asymmetry information and less access to a target's financial data, acquirers are likely to overestimate synergies and the standalone value of the target.

Empirical findings suggest that while the average return for private acquisitions is slightly positive, around 46% of acquiring firms experience statistically negative abnormal returns at the announcement, indicating a possible winner's curse. Moreover, the winner's curse is intensified by competitive bidding environments. In the case of multiple bidders for a private target, the most optimistic bidder wins and is likely to overpay since it is very difficult to calibrate bids when the competitors are multiple[60].

Interestingly, despite these factors, research finds that the winner's curse is generally stronger in public acquisitions than in private ones. One explanation is that private sellers have more bargaining power and prefer to negotiate with a single buyer rather than conduct competitive auctions. This reduces the risk of overbidding and overestimation, and thus private acquisitions are less exposed to extreme winner's curse effects than public M&As.

Regarding the most skeptical side of scholars, Boone and Mulherin's findings in their empirical analysis of the relationship between winner's curse theory and corporate takeovers found that, contrary to conventional wisdom, market competition and strategic decision-making processes may mitigate the risks of overbidding, preventing systematic value destruction in takeovers. Traditional economic theory supports the hypothesis that bidder returns are negatively correlated with competition and uncertainty, as firms caught in bidding wars risk offering prices above the target's intrinsic value.

However, while more basic regression models indicate that bidder returns decline with increased competition, the advanced analyses that control for endogeneity do not confirm the existence of a systematic winner's curse in M&As. Similarly, when examining whether the target valuation uncertainty leads to lower bidder returns, the study conducted by Boone and Mulherin finds no significant evidence in support. If the winner's curse prevailed, acquirers would experience long-term underperformance due to overpayment,

[60] Brander, J. A., & Egan, E. J. (2017). The winner's curse in acquisitions of privately-held firms. *The Quarterly Review of Economics and Finance*, *65*, pp. 249-262.

yet post-merger financial data reveals no systematic decline in operating performance for firms that secured deals through competitive bidding[61].

Each of the two sides of the literature has strengths and weaknesses, but the key takeaway is that perfect information does not exist. In a hypothetical case of complete knowledge, all participants would be rational in their decisions and skilled at valuation, fully efficient. Perfect markets would exist, and no overpayment or arbitrage opportunities would ever occur. Thus, every case needs to be considered individually because of the emotions and asymmetry of information that may arise during these deals.

2.3.2 Culture and Integration

In mergers and acquisitions, it is necessary to consider not only the benefits but also the key role played by culture. Culture is a central theme within organizations and, in general, it refers to the set of beliefs and values regarding what is desirable and undesirable within a community of people and a set of formal and informal customs that support those values. The most insightful cultural observers are often outsiders because cultural givens are not implicit in them. So, it is usually difficult for people to recognize their culture and how it influences them. Culturally influenced beliefs and actions feel right to people, even while their implicit core principles make it difficult for them to understand why they act the way they do or why other ways of acting might also be appropriate. Its elements are long-standing, not a matter of fads.

When two organizations merge, there must be both a strategic fit and a cultural fit. The former refers to alignment from a strategic perspective, which refers to how well two companies complement each other in terms of resources, capabilities, and long-term goals in a merger or acquisition. Strong strategic alignment ensures that the new entity can realize synergies, such as cost savings, market expansion, or improved innovation. It includes factors such as product compatibility, market positioning, and operational efficiency. Cultural fit, on the other hand, is about how the values, beliefs, behaviors, and organizational norms are aligned between two companies that are involved in an M&A deal. It includes various elements such as leadership style, communication practices, decision-making, employee involvement and organizational culture, determining how

[61] Boone, A. L., & Mulherin, J. H. (2008). *Do auctions induce a winner's curse? New evidence from the corporate takeover market*. *Journal of Financial Economics, 89*(1), pp. 1–19.

well the two organizations can adapt to each other, collaborate, and achieve synergies in a post-merger integration.[62]

In addition to ensuring a fit between the organizations involved, it is necessary to focus on the integration process once the operation is concluded. Firstly, it is opportune to distinguish between integration, assimilation and marginalization. In particular, integration is the mechanism by which both the combining firms adjust to each other to form a new third entity incorporating elements from both sides. Assimilation occurs when the target adjusts only to the acquirer while portions of the purchased organization disappear and are replaced. In contrast, marginalization involves focusing solely on the high-value assets of the targets with less interest in the acquired company as an entire entity[63].

Several conditions can be applied to the pre-acquisition experience positively. High levels of managerial attention and careful and thorough planning for integration can mitigate the risk of negative learning curves. The documentation of the integration experience also enhances the chances of successful learning, provided that higher-order routines are present that allow an acquirer to distinguish between instances of integration where prior experience can be used and instances where a different approach must be taken.

Nonetheless, integrations tend to bring out negative emotional responses and negatively affect the physical and psychological health of the integrating employees. As a result, employees tend to approach integration procedures with a critical attitude, although this is not always the case. The success of integration depends largely on the setup of structures, processes and systems, which, in turn, influences and is influenced by the perception of employees and other internal and external stakeholders regarding the merger.

Finally, the depth of integration and the level of autonomy a purchased company retains a critical strategic choice in integration projects. Greater autonomy is likely to yield greater motivation on the part of the employees of the target company and preserve the ability for independent thinking, which is particularly important in knowledge-based acquisitions. Conversely, deep integration increases the controllability of a target by an

[62] Hofer, M. (2023, July 24). Cultural fit in M&A. ByMichaelHofer. https://www.bymichaelhofer.com/articles/cultural-fit-in-mergers-and-acquisitions

[63] Dauber, D. (2012). Opposing positions in M&A research: culture, integration and performance. *Cross Cultural Management: An International Journal*, *19*(3), pp. 375-398.

acquirer as well as routine and ability transfer. However, target-to-acquirer ability transfer can hurt integration performance, often in the form of imposed management know-how and operations routines transfer[64].

2.3.3 Macroeconomic Factors

Macroeconomic factors can significantly influence M&As in terms of volume as well as the type of deals. Aggregates such as gross domestic product (GDP) growth, interest rate, inflation, and trade policy have a significant impact on corporate strategy and investor sentiment. For instance, high GDP growth generally follows high M&A volumes due to enhanced corporate profitability and confidence on the part of investors. Conversely, economic volatilities such as unstable interest rates and increasing trade tensions can lower the deal-making spirit. Events in recent times, such as tariffs, have caused market instability, which has forced some firms to postpone mergers and public offerings. It takes an understanding of the workings of such macroeconomic variables to deal with the complexity of M&A transactions.

The economic environment is not just a background. It has a direct impact on the behavior of investors and business activity. Financial markets, in theory, would react consistently to M&A announcements in terms of timing, but practically, investor reactions typically vary depending on the overall economic environment. Several studies have shown that during periods of economic prosperity or stability, the announcement of acquisitions usually provokes prudent or even skeptical reactions, especially when the deal is perceived to be unnecessary or too aggressive. Conversely, when these kinds of announcements happen during recession periods, they are seen more positively, suggesting courage, strength, or a good opportunity to catch up. This difference in perception reflects the general tendency of people to respond more strongly to adverse circumstances than to positive ones. Positive business conduct during economic downturns may be of heightened importance and evidence of stamina in adversity. The motivations behind M&As also tend to change with the business cycle stage. During expansions, deals are likely to be driven by growth, consolidation in the market, or policy rivalry. During contractions, though, acquisitions are more likely to be opportunistic, to

[64] Steigenberger, N. (2017). The challenge of integration: A review of the M&A integration literature. *International Journal of Management Reviews*, *19*(4), pp. 408-431.

save assailed companies, stabilize operations, or exploit temporarily depressed valuations[65].

While overall business cycle and market sentiment are determinants of the strategic rationale for M&A deal-making, a closer examination of some macroeconomic drivers shows how this further materially impacts transaction feasibility and structuring, particularly in domestic versus cross-border contexts. Moreover, the distinction between domestic and cross-border transactions is that the former refers to operations between firms from the same country, while in cross-border, the companies involved come from different nations.

For instance, currency depreciation in the target nation can make domestic companies more attractive to international acquirers as the relative acquisition price decreases. However, at the same time, it also entails volatility, particularly in the pre-purchase stage, due to variable exchange rates, as the perceived value and strategic value of the target could be impacted by these varying rates.

Two of the most influential macroeconomic determinants in this case are inflation and interest rates. High inflation reduces consumer power and increases the risk to investors, and this will, therefore, discourage M&A activity. Since inflation is also directly related to monetary policy, rising inflation means that higher interest rates are imminent, discouraging firms from engaging in capital-intensive activities like acquisitions. At the same time, low interest rates normally stimulate M&A since firms can afford to finance deals at lower costs using debt. High interest rates, on the other hand, raise the cost of capital and, therefore, reduce the viability of acquisitions and reduce deal size.

Another key macroeconomic metric is GDP growth, a numerical measurement of the national economic health. Normally, expanding GDP encourages M&A activity due to the ability of companies to have extra money in hand and anticipation of future development possibilities. Growth in the economy, however, increases competition within the M&A marketplace, thus boosting valuations and the possibilities of abandonment. Such an impact is particularly effective in developing markets, in which institutional weakness and market turbulence amplify the likelihood of non-realization. Macroeconomic conditions thus formed by the destination and setting of the companies

[65] Wann, C., & Lamb, N. H. (2016). Are investor reactions to mergers and acquisitions dependent upon the economic cycle?. *Journal of Accounting and Finance*, *16*(6), pp. 61-73.

involved, therefore, become important to enable as well as perhaps abandon the M&A transaction[66].

[66] Kumar, D., Sengupta, K., & Bhattacharya, M. (2023). Macroeconomic influences on M&A deal outcomes: an analysis of domestic and cross-border M&As in developed and emerging economies. *Journal of Business Research*, *161*, 113831.

Chapter 3: The Relationship Between Theoretical and Actual Exchange Ratios

3.1 Exchange ratio

3.1.1 The Role in Share-for-Share Deals

A central focus of this thesis is the analysis of the gap between the theoretical exchange ratio (TER), derived from valuation models, and the actual exchange ratio (AER), determined through negotiations. This chapter explores the nature of that relationship, which is important to understanding how economic value is ultimately distributed between the merging entities. These two metrics also form the analytical foundation for the empirical analysis in Chapter 4. However, before going into the specifics, the context in which they assume relevance, namely, share-for-share deals, should be analyzed.

Acquisitions can be structured primarily as cash deals, share-for-share deals, and mixed deals, which are a combination of the first two types. Cash deals are characterized by the payment method for shares, which is through cash. The shareholders of the target exit the ownership completely, bearing no risk, which is fully carried by the acquiring company and avoids equity dilution.

In share-for-share mergers, the acquirer offers its equity as consideration for the target shares, and consequently, the exchange rate is fixed in terms of relative market valuations. The number of shares issued is based on the share price of the acquiring company at or around the agreement date. The higher the share price, the fewer shares the acquirer will need to issue for the same value of transaction to gain control, while, at the same time, limiting dilution and reinforcing the post-deal ownership position. This motivates target companies to strategically manage reported earnings before the deal, trying to influence their stock price and the perceived valuation.

Whether the plan is effective, though, depends on how efficient the capital market is and whether or not investors or analysts can see through and compensate for manipulated earnings. This emphasizes the role of information asymmetry in setting the final exchange terms, which can widely deviate from theoretical standards with mere reference to intrinsic valuation[67].

In this context, the determination of the exchange ratio between the companies involved in the transaction becomes relevant to determine how the shareholders of the companies

[67] Botsari, A., & Meeks, G. (2008). Do acquirers manage earnings prior to a share for share bid?. *Journal of Business Finance & Accounting*, *35*(5-6), pp. 634-635.

participate in the capital of the resulting company. The economic values of the shares or units of the participating companies are compared and thus the number of shares to be issued by the resulting company against each share cancelled as a result of the merger[68]. In this sense, the exchange ratio works not only as a money consideration but as a control and legal instrument, because it determines how control, ownership, and ultimately power will be allocated in the new company. Well past the mere mathematical formula, the exchange ratio decides the post-merger corporate governance structure by setting relative levels of pre-existing shareholders' participation in decision-making, for example, voting rights and representation in the BoD. This will be particularly crucial in mergers between firms of comparable sizes, where control becomes more delicate and harder to assign.

The exchange ratio is typically determined by the relative valuations of the merging entities, but it also depends on a wide range of other factors. Market forces such as short-run fluctuations in share price, changes in accounting methodologies, and strategic requirements are all certain components that drive the ratio that needs to be negotiated. Moreover, negotiation leverage, perceived synergies, and the parties' risk profiles will often cause departures from a purely theoretical or fair value-based exchange rate.

Ultimately, the exchange ratio is both at the center of mergers and acquisitions due to its ability to dictate the financial allocation of value between the acquirer and the target company, and also because it is one of the most important elements of governance legitimacy, procedural fairness, and stakeholder confidence in the outcome of the transaction.

3.1.2 Legal Relevance of the Exchange Ratio

In addition to its economic and strategic role, the exchange ratio lies at the heart of the legal framework of merger activity. In share-for-share mergers, especially, it is the formal mechanism whereby continuity of ownership is established and reconfigured. It is a fundamental component of both the merger agreement itself and the broader regime of regulation. National legal regimes typically require the exchange rate to be disclosed and explained in merger documents, subjecting it to review by independent professionals and shareholders. This legal regime attests to the function of the ratio as not just a technical

[68] Perotta, R., & Bertoli, L. (2015). *Le operazioni straordinarie: conferimento d'azienda e di partecipazioni, fusione e scissione*. Giuffrè, pp. 410-411.

valuation outcome, but as a necessary insurance policy against transparency, fairness, and safeguarding of all parties in the deal.

In the Italian Civil Code, the exchange ratio is mentioned within Articles 2501-ter, 2501-quinquies and 2501-sexies. An initial reference can be found in 2501-ter, concerning the merger plan, which includes a list of information that the administrative body of the companies participating in the merger must provide, precisely the exchange ratio of the shares or quotas, as well as any cash adjustment[69].

Inside Article 2501-quinquies, which governs the report of the administrative body, can be found another mention of the exchange ratio determination. Specifically, the administrative body must prepare a report explaining both legally and economically the exchange ratio of the shares or units, also indicating the valuation criteria[70].

Finally, Article 2501-sexies concerns the report of the experts. One or more experts, for each of the companies involved, are in charge of providing a report on the exchange ratio of shares or quotas. These must provide among the information the methods used for determination and any difficulties encountered within the process. An opinion on the adequacy of the methods used in the estimation is also required[71]. Needs to be emphasized, however, that these opinions expressed by the experts are not binding, nor do they have to contain an indication of an alternative exchange, since this is the exclusive responsibility of the administrative bodies of the participating companies. Above all, experts must verify that the valuation methods are homogeneous with each other and lead to comparable values, even if they do not coincide with the absolute values of the economic combinations intended to be merged. Their task, therefore, is to verify whether more than one criterion was used and, if so, what was the influence of each method in determining the relative values of the economic combinations involved[72].

Beyond its formal inclusion in the merger project and the relative expert reports, the exchange ratio may acquire legal significance after the transaction has been approved. In the Italian legal framework, Article 2504-quater of the Civil Code foresees that the merger resolution is subject to challenge before the court if the latter is affected by serious

[69] Italian Civil Code, Art. 2501-ter, as amended by Legislative Decree No. 123 of 2012.
[70] Italian Civil Code, Art. 2501-quinquies, as amended by Legislative Decree No. 123 of 2012.
[71] Italian Civil Code, Art. 2501-sexies, as amended by Legislative Decree No. 123 of 2012.
[72] Perotta, R., & Bertoli, L. (2015). *Le operazioni straordinarie: conferimento d'azienda e di partecipazioni, fusione e scissione*. Giuffrè.

irregularities. These include instances wherein the exchange ratio is unfair, poorly justified, or the outcome of a conflict of interest. Whereas such challenges occur rarely and under strict admissibility rules, their potential existence further consolidates the dual nature of the exchange ratio, both as a technical valuation outcome as well as one potential basis of legal challenge. As it currently exists, its proper articulation and clear exposition are vital not only to support internal compliance with governance requirements but also to prevent post-merger litigation risk.

To conclude, the exchange rate in a share-for-share merger is far more than a figure: it is a legislatively rooted factor that affects the form, reasonableness, and validity of the entire transaction. By putting requirements on boards and experts and through the specter of judicial review, the legal regime ensures that this focal element of the merger procedure is transparent, proportional, and treated equally by all shareholders. The legal meaning of the exchange ratio thus doubles as a fulcrum bridging corporate governance, practice valuation, and compliance with regulation. Although the Italian legislation provides for an expert for each company participating in the merger, companies may nevertheless request the court to appoint a single expert, called the common expert, to be appointed.

3.2 Theoretical Exchange Ratio (TER)

3.2.1 Valuation-Based Construction of TER

Various factors must be contemplated when calculating the exchange ratio between the companies involved in the M&As. Among these, one of the most important is the contribution that each of the firms gives to the combined entity. In most cases, much uncertainty results from this issue, and this is why a stand-alone business complex valuation is suggested and often adopted, as discussed in section 2.1.4. This approach assumes that the estimation should be based on how much the shareholders of the two firms are going to sacrifice, rather than when it results from the merger, and so the pre-merger business complexes are analyzed individually. Under this assumption, the theoretical exchange ratio, which does not consider the different interests of the parties involved or even their contractual powers, is defined[73].

The theoretical exchange ratio is the first number derived from the relationship between the two companies. It is calculated solely on the economic values of the companies'

[73] Guatri, L., & Bini, M. (2009). *Nuovo trattato sulla valutazione delle aziende.* Egea, pp. 781-782.

shareholders, while the expected synergies, the perceived risks, and the parties' bargaining power are added later as a result of the negotiations and analysis carried out by the two companies.

The theoretical exchange, precisely because of its neutral and financial nature, does not consider the dilutive effect of issuing new shares, nor the transaction's impact on governance or the future allocation of value created. By deliberately excluding the effects of synergies, negotiation leverage, and governance changes, it acts as a neutral benchmark that reflects the intrinsic relative value of each entity before the intervention of any strategic or contractual considerations. This is an excellent starting point, but it needs to be supplemented later with other elements to determine an actual exchange that reflects the numbers and the operation's industrial, strategic and relational logic.

The following formula can calculate the theoretical exchange ratio:

$$TER = \frac{\frac{EV_B}{n_B}}{\frac{EV_A}{n_A}}$$

Equation 13

In *Equation 13*, EV_B represents the equity value of the incorporated company and n_B is the number of shares in which its equity is divided. In contrast, EV_A is the equity value of the incorporator and n_A is its number of shares[74].

The formula just mentioned is the classic one used in the basic case, in which the companies involved have capital divided into ordinary shares without different categories. In general, while the theoretical exchange ratio is a formal and objective standard for the measurement of the relative economic significance of the combining firms, it remains a simplification and an assumption model. Its validity is contingent upon the basis of valuation sought and on the consistency of inputs utilized in the estimation of the separate values of the combining firms.

3.2.2 Different Categories of Shares

It often happens that different shares are forming the capital, and it is therefore appropriate to analyze some special cases that may occur. The shares that are traded may have special characteristics that give their holders different property and administrative rights within

[74] Perotta, R., & Bertoli, L. (2015). *Le operazioni straordinarie: conferimento d'azienda e di partecipazioni, fusione e scissione* p. 411. Giuffrè.

the company. Thus, these special features assign a different, higher value to these securities than to ordinary-type shares. It is then necessary to allocate the value of share capital among the different securities by differentiating the value according to the rights they confer to the holder[75].

The company to be incorporated might have savings shares, and in this specific case, it is not possible to calculate the unit value of each share by simply dividing the economic value assigned to the company by the total number of shares making up the capital. It is first necessary to express the number of savings shares in equivalent units by establishing the ratio that exists between the two categories of shares. To do this, companies generally rely on an estimate derived from market values for the twelve months before the transaction. Once the percentage of the average value of savings shares relative to ordinary shares is found, that value is multiplied by the savings shares to convert them into ordinary equivalent units.

Once the unit value of the two categories of shares has been found, a new problem arises, namely, whether it is appropriate to give rise to two separate exchange ratios for each. Specifically, three hypotheses may arise:

i) When the incorporated company's capital consists of ordinary shares only and the incorporating company has both categories. In this case, the exchange ratios must be two, although often the incorporated company decides to issue new savings shares to the shareholders of this same class of the incorporated company.

ii) Incorporator with capital consisting of ordinary shares and savings shares and also incorporated with both categories. In this scenario, separate exchange ratios are usually determined if it is found from the quotations that the ratios of ordinary shares to savings shares are different between the two companies[76].

iii) A listed company with shares of multiple categories absorbing an unlisted company with only ordinary shares. This case can be linked to (i). Two exchange ratios need to be used, and the fact that one of the two is unlisted

[75] Savioli, G. (2020). *Le operazioni di gestione straordinaria*. Giuffrè Editore, p. 370.
[76] Potito, L. (2016). *Le operazioni straordinarie nell'economia delle imprese*. G. Giappichelli Editore, pp. 88-89.

will be considered in capital estimates[77]. This particular case will be discussed in more detail later in section 3.3.2.

In general, while the theoretical exchange ratio is a formal and objective standard for the measurement of the relative economic significance of the combining firms, it remains a simplification and an assumption model. Its validity will essentially be contingent upon the basis of valuation sought and on the consistency of inputs utilized in the estimation of the separate values of the combining firms. This is perhaps most easily observed in multi-share class or skewed corporate arrangements, where there are additional factors to be considered. In line with this, the TER must therefore be considered not as an absolute or inherent measure, but rather as a product of valuation which necessarily reacts to the methodologies and assumptions on which it is built, an important consideration that will be addressed in the following section.

3.2.3 Valuation Criteria: Sensitivity, Homogeneity, and the Role of Experts

The most crucial consideration in determining a legitimate TER may be the consistency of valuation criteria utilized. Theory and practice of valuation emphasize using similar approaches in determining share capital of the entities to be merged because valuations in mergers are relatively more judgmental than decisions of intrinsic value. In such a scenario, the theoretical ratio would only be meaningful if both firms' stand-alone values are established using methods that are technically and rationally compatible with each other, say Discounted Cash Flow, market multiples, or book value, and applied on the same assumption basis.

The valuation output is highly sensitive to variations in key inputs, including expected growth rates, discount rates, terminal value estimates, and capital structure. In addition, hybrid approaches, including dividend capacity, operating margins, and cash flows expected, widen the range of possible valuation outcomes even further. As a result, regardless of whether the first TER is quantified on a similar basis, differences in input variables and interpretation assumptions can radically distort the ultimate figure. Even the problem of quantifying synergies, for instance, remains fairly new territory in financial literature and introduces a further degree of subjectivity to the exercise since it is based on forecasted estimates and expected post-merger performance.

[77] Guatri, L., & Bini, M. (2009). *Nuovo trattato sulla valutazione delle aziende*. Egea, p. 790.

After applying a base formula for TER, such as the one presented in Section 3.2.1 (*Equation 13*), two immediate technical adjustments are typically required:

(i) Rounding of the resulting fraction and corresponding monetary settlements.

(ii) Correction for any existing equity stake already held by the acquiring company, as the TER concerns only the third-party shareholders[78].

Due to these adjustments and the inherent modeling variability, the theoretical exchange ratio is best understood not as a fixed value but as a range of plausible ratios, within which the actual negotiated exchange ratio may fall. The relative position of the actual share exchange ratio within that range reflects the effective gain or sacrifice attributed to each party. In particular, in periods of low market optimism or financial crisis, when trust and valuations tend to be conservative, the TER may be shaped by a partial attribution of synergies, leading to more cautious and asymmetric swap ratios.

This variability in valuation estimates under different assumptions has a similar analogue in macroeconomic literature, especially regarding the estimation of equilibrium exchange rates. There, modest differences in parameters such as trade elasticities, potential output, or fiscal policy can produce widely different estimates of the desired level of equilibrium, often throughout 10 to 30 percent around a point estimate[79]. Rather than offering a single, exact rate, these models typically offer a decent range within which the equilibrium is thought to be situated. This argument also supports the notion that the theoretical exchange ratio in M&A cannot be imagined as a certain, immovable value, but as a range affected by persistent and congruent valuation methods. Just as real consequences arise due to exchange rate deviations for external balance, discrepancies in company valuation assumptions may affect how value is perceived and allocated within a merger, revealing the negotiated nature of the theoretical exchange ratio.

In addition to the fact that these evaluations are exposed to small estimation errors and potential variations, a central assumption is that of homogeneity. The data used to determine the exchange ratio must be comparable. Homogeneity refers not only to the use of the same methods and criteria but, more importantly, to the use of the same rules and

[78] Taliento, M. (2023). The valuation of the share exchange ratio in stock for stock transactions. Allocation of synergies and financial implications. *Economia Aziendale Online-*, *14*(3), 669-683.

[79] Bayoumi, T., Clark, P., Symansky, S., & Taylor, M. (1994). *Robustness of equilibrium exchange rate calculations to alternative assumptions and methodologies* (IMF Working Paper No. WP/94/17, pp. 3–4, 16, 22. International Monetary Fund.

behaviors in essential valuation choices. So, it is fundamental not only to use the same formulas in the calculation, but to use the same methods and on the content derived from these analyses, using demonstrable methods for documentation[80]. Above all, to ensure that this component is respected, the legislature decided that experts from outside the companies should give their opinion on this ratio.

While the legal relevance of the exchange ratio and the expert's reporting duties are analyzed in section 3.1.2, the financial significance of their role goes further when considering the construction of the theoretical exchange ratio. In this more technical context, the need for homogeneity in valuation criteria is not simply a legal formality, but an indispensable condition for comparability and reliability.

From a financial point of view, the expert's role extends beyond simple testing and enters the realm of valuation engineering. As a technical advisor, the expert must critically review not only the congruence of the methods of valuation but also their inherent financial rationale, compatibility with market practice, and sensibility of assumptions. This role is essential in helping to ensure that risk factors, forecasts, and discounting mechanisms are consistently interpreted within both parties. Through the completion of this detailed financial examination, the professional avoids strategic prejudice that might otherwise distort the theoretical exchange ratio to ensure that it remains an accurate indication of the individual economic values of the firms to be merged. Furthermore, where there are complicated cases, the technical judgment of the expert must be invoked to reconcile multiple viewpoints on valuation to a reasonable and fair comparative basis. Theoretical valuations highly depend on the methodological choices, such as the adoption of income, market, or asset-based approaches, and on the consistency in applying these across both merging entities. Moreover, the increasing complexity and sensitivity of valuation outputs to assumptions have increased the importance of involving independent financial advisors in the exchange rate determination process. Their role is fundamental to ensure that valuation methodologies are technically robust, unbiased, and aligned with the principles of fairness and transparency.

[80] Guatri, L., & Bini, M. (2009). *Nuovo trattato sulla valutazione delle aziende*. Egea, p. 785.

3.3 Actual Exchange Ratio (AER)

3.3.1 Strategic, Market, and Negotiation Dynamics

The Actual Exchange Ratio (AER) is the final ratio that is agreed and applied in a share-for-share merger. It differs from the theoretical exchange ratio in the sense that it is not only affected by technical valuations but also by a broader range of factors specific to the transaction. The AER covers where various external, strategic, and financial parameters converge in the form of a consensus value. In this section, the total nature and significance of the AER as the basis for later analysis of driving factors are covered.

The AER is stated in the Merger Plan within the report of the governing body and is the final exchange ratio, which determines how many new shares of the acquiring company are to be allotted to the shareholders of the merged company in exchange for their stocks, which cease to exist. This ratio is defined after the TER and takes into consideration many more factors concerning the merger and the companies that are part of it. Although the latter is later modified to arrive at the actual exchange rate, the TER is of great importance because it is an initial number derived from the stand-alone valuation process of the companies and is a basis from which to begin negotiations to arrive at the final one. It is obvious, however, that this rate should be subject to modification, since it does not take into account the principal reason behind this type of transaction, which is to create an added value that benefits the new operating entity and makes it worthwhile.

Counterparties must reach a shared AER at the end of negotiations. These may not have the same TER initially; however, real talks can only begin once an equal starting point is reached, perhaps even reached with the help of a third party[81]. After a prior assessment of analysis of the transaction, its feasibility, and the values to be proposed, negotiations begin. This step performs very important functions, primarily that of moving from a neutral financial basis to a strategic and negotiating relationship, where industrial, operational, and governance considerations come into play. Economic value remains the focus, but it is adjusted according to negotiations and factors that may not be part of the TER but are still relevant.

A major factor to consider is that the AER, apart from reflecting negotiation leverage, should still carry a tolerable image of equity in front of the shareholders. Although one-

[81] Perotta, R., & Bertoli, L. (2015). *Le operazioni straordinarie: conferimento d'azienda e di partecipazioni, fusione e scissione.* Giuffrè, pp. 412-413.

party negotiation dynamics are advantageous, a significantly imbalanced exchange ratio will give cause for concern for minority shareholders or render the deal open to future attack. Therefore, the AER must be constructed in a range that shareholders perceive as fair and reasonable to support approval processes and facilitate post-merger stability.

In addition, broader competitive and market conditions can exert considerable leverage on the ultimate exchange rate. In a highly active mergers and acquisitions market, or when there are alternative bids for the same target company, the AER can be constructed with higher premiums to secure the transaction. Conversely, in troubled or opportunistic mergers, where there is one financially troubled party, the exchange ratio will tend to reflect a penalization of the less attractive party's shareholders, even more so from the initial stand-alone valuations.

Having outlined the general dynamics to guide the determination of the Actual Exchange Ratio, the following sections will examine each of the independent factors that ordinarily require their readjustment in detail, with the effect of premiums, bargaining power, and transaction-specific features starting first.

3.3.2 Premiums

While the overall approach to the calculation of the Actual Exchange Ratio AER has been defined, it is important to add that some factors generally enter, rearrange and revisit the initial valuation equilibrium. In the specific, in the building of the AER, the most significant adjustment to the initial theoretical valuation comes from the addition of various premiums.

Premiums are the added value above the stand-alone valuations of the merging firms, and they are utilized to capture items that are non-financial, such as the acquisition of control, market forces, and strategic positioning. In merger transactions, it is common for the acquiring company to offer a premium to the shareholders of the target company to secure their approval and to signal anticipated benefits from the merger. This part addresses the different types of premiums that are usually present in M&A transactions, with particular focus on control premiums, market premiums, and quotation premiums, and addresses their rationale and impact on the final exchange ratio.

Among all the premiums that operate on the creation of the Actual Exchange Ratio, the market premium is particularly powerful. In M&As, it is generally observed that the

bidding firm pays a higher price for the target company than what such a company would be worth outside of a purchase deal, if made public earlier to the marketplace. This disparity is the market premium and is attributed to strategic considerations as well as forecasting on the post-merger performance. In particular, the prospect of operational synergies, cost efficiencies, and enhanced market access typically justifies a premium over the going market price on the basis that the whole will be greater than the sum of the parts[82].

The degree of the market premium, however, varies considerably based on broader macroeconomic and industry-related circumstances. A higher premium is typically associated with high-growth or high-competitive-pressure industries. Moreover, a well-functioning institutional framework, with good investor protection and transparent financial disclosure, is likely to make payment of a higher premium easier, since it reduces perceived risk for the acquirer. Cultural and regulatory attributes of the target's home country also influence the premium: companies that operate in safe and transparent conditions tend to command a higher valuation premium.

At the firm level, intrinsic properties of the target, like ownership, investment, and size, also determine the amount of the premium. Smaller or more concentratedly owned firms are likely to be associated with higher premiums because the combination is simpler and there is more intimate transmission of control rights. Besides, targets with significant research and development expenditure, or those that are located in highly differentiated technological niches, tend to need premiums to reflect their valuable future strategic intangible assets and growth opportunities driven by innovation.

Lastly, the market premium cannot be thought of as an overpayment surplus relative to the price of previous shares. Rather, it is a strategic realignment that reflects expectations of future value creation, sector-specific opportunity, and overall synergy potential of the transaction.

Another important premium to consider is the control premium. The power to manage the company, either directly or indirectly, is a determining factor in the actual exchange rate. In fact, in cases where the possibility of being able to govern the company arises, an upward adjustment equal to the value of control must be made. Thus, the control premium

[82] Zhang, C.C. (2019). *The Review of Factors Affecting Merger Premium*. *Journal of Service Science and Management*, 12(2), pp. 200–213.

measures the consideration one is willing to pay to obtain the exercise of important rights such as approval of the budget, appointment of directors, and determinations of compensation[83].

Alongside these factors, the quotation premium may also have an important role. It becomes relevant only if the incorporating company is listed and the target is not. However, there is a division on this issue with two different points of view. On the one hand, some argue that the premium should increase the value of the company's economic capital. On the other hand, some scholars rightly believe that the premium is an attribute of the individual securities exchanged that does not result in increased value, since the shareholders of the incorporated company will receive securities on the exchange in return[84]. This interpretation is based on the idea that the liquidity of a security, while a benefit to the holder, does not change the intrinsic value of the underlying assets. Thus, the listing premium concerns a different quality of the shares received, which are more easily traded and visible in the market, without any real increase in the economic value of the incorporated company.

In short, premiums play a central role in defining the Actual Exchange Ratio, introducing adjustments that take into account not just financial appraisals but also strategic, governance, and liquidity factors. Their application shows the intricacy of taking theoretical valuations and converting them into negotiated results, setting the stage for further influences such as the inclusion of synergies and expected post-merger gains.

3.3.3 Integration of Synergies in the AER

As previously discussed, synergies are one of the most important sources of value creation in merger and acquisition transactions. They can arise from cost reductions, revenue enhancements, financial optimizations, and repositioning on a strategic basis. Furthermore, they are the primary reason for pursuing combinations where the inherent value of each firm would otherwise not be able to justify the transaction on a standalone basis. However, while the identification and valuation of synergies is an important assignment of the deal preparation process, their incorporation into the exchange ratio is a complex and highly negotiable process.

[83] Dallocchio, M., Lucchini, G., & Scarpelli, M. (2015). *Mergers & acquisitions*. Egea, pp.127-128.
[84] Savioli, G. (2020). *Le operazioni di gestione straordinaria*. Giuffrè Editore, pp. 376-377.

The achievement of expected synergies within the Actual Exchange Ratio relies on their nature, the degree of confidence, and the negotiating dynamics between the merging firms. In some transactions, they are fully reflected in the exchange ratio, providing immediate value recognition for both the shareholders group. In others, they are only partially reflected, or even fully retained by the acquirer as a reward for assuming the attendant execution risks.

Although the most successful M&As are those with revenue synergies, which aim to grow an industrial project, very often others can arise that are more difficult to quantify. These must be estimated in the calculation of the AER and included in the business plan prepared by the management of the companies involved. The post-merger company should be valued as a combined entity, and the value of synergies is expressed as follows:

$$\text{Synergies Value} = V_c \text{ with synergies} - (V_a + V_b \text{ without synergies})$$[85]

Equation 14

Equation 14 expresses that synergies represent the added value and thus they are equal to the difference between the value of the combined entity, including synergies, minus the sum of the two merging companies as stand-alone, so without considering the value of synergies.

However, despite synergies being often defined as the primary source of value creation in mergers, it must be kept in mind that they do not necessarily give value to shareholders. As emphasized by academic studies, expected synergies must exceed some threshold level to be able to successfully counterbalance inherent risks like the co-insurance effect or integration issues. That is, only if the market value of potential synergies is sufficiently great is it capable of offsetting potential wealth transfers and ownership dilution to benefit shareholders in a net manner. Otherwise, even mergers inducing some amount of operating synergies may fail to benefit shareholder value. This critical perspective underlines the importance of a meticulous and pragmatic analysis while incorporating synergies into the Actual Exchange Ratio negotiation[86].

[85] Dallocchio, M., Lucchini, G., & Scarpelli, M. (2015). *Mergers & acquisitions*. Egea, pp. 113-116.
[86] Kürsten, W. (2008). Synergies, shareholder value and exchange ratios in "value-creating" mergers: Why shareholders should doubt management's pre-merger promises. *Managerial Finance*, *34*(4), 252-261.

3.4 Deviation Between Theoretical and Actual Exchange Ratios

3.4.1 Sources of Divergence

The theoretical exchange ratio serves as a benchmark that is based on valuations made by the merging firms, and it usually differs from the actual exchange ratio. The difference arises due to economic considerations, bargaining processes, strategic considerations, deal structuring, and market alignments.

In real transactions, the final result embodies not just relative valuations of the firms involved but also anticipated future synergies, bargaining power disparities, control premiums, and possible implementation risks. Among the many sources of divergence between theoretical and realized exchange ratios, expected synergies are high on the list, already addressed in section 3.3.3. But synergies represent only one element of a broader bargaining matrix, in which many strategic and informational considerations and financial terms contribute to determining the final exchange ratio.

Before covering the determinants of the deviations, it is appropriate to introduce the concept of exchange ratio differential[87], which is calculated as follows:

$$\Delta \mathrm{ER} = \frac{\mathrm{TER} - \mathrm{AER}}{\mathrm{AER}} \ \%$$

Equation 15

It is therefore a key task of directors to explain to shareholders that the valuation figures are based on incomplete information and that the TER does not include various factors negotiated by the parties[88].

An interesting insight provided by exchange ratio determination research in academic literature is that the final result of the transaction reflects not only independent valuations of the firms but also how future performance expectations and perceived risk shape the terms of the negotiation. Different theoretical models, such as those incorporating post-merger price-to-earnings multiples or estimates of dividend growth, generate distinctive sets of exchange ratios acceptable to the acquirer and the target companies. The ranges establish the parameters within which each will bargain according to their estimates of valuation and position. Even where such models produce a theoretically "fair" range, actual exchange ratios will generally differ due to asymmetries in growth expectations,

[87] Delta concambi.

[88] Guatri, L., & Bini, M. (2009). *Nuovo trattato sulla valutazione delle aziende*. Egea, p. 785.

market sentiment, and strategic incentives. This confirms that the negotiated exchange ratio reflects not just intrinsic firm value, but a moving equilibrium of expected synergies, risk attitudes, and willingness to bear wealth transfers or dilution in exchange for more overarching strategic objectives[89].

Moreover, another important, but often underrated, reason for the deviation between TER and AER derives from transitory market distortions, namely price pressure effects around merger announcements. Empirical results suggest that mergers financed with stock, and especially those involving fixed exchange ratios, are subject to significant short-term downward pressure on the acquiring firm's share price, largely driven by merger arbitrage short selling. This movement artificially depresses the market capitalization of the acquirer at a moment when it is most required, and this can distort the relative perceived values of the firms and influence the final negotiation outcome. These distortions challenge the hypothesis of perfectly efficient markets by suggesting that exchange ratios can be affected not only by intrinsic valuation and strategic considerations but also by short-run supply-demand imbalances in the equity markets. Therefore, price pressure mechanisms must be assumed to account for an important share of reported deviations from theoretical exchange ratios of real M&A transactions[90].

Ultimately, all these factors covered in this section contribute to explaining the formation of the AER, without falling within the TER calculation. To them, of course, must be added the expected synergies and rewards already described in section 3.3.3.

3.4.2 Role of Advisors

The actual exchange ratio results from far more than valuation outputs or market expectations in isolation: it is also the consequence of a specified negotiation process where financial and legal advisors are engaged. These professionals do not merely convert valuation outputs, but they shape how they are converted into the financial terms of the transaction. By influencing the deal's structure, advisors balance financial optimization with governance decisions, regulatory needs, and strategic considerations. The deal structure chosen, cash, stock, or more complex arrangements such as collars and earn-

[89] Bae, S. C., & Sakthivel, S. (2000). An empirical analysis of exchange ratio determination models for merger: a note. *Journal of Business Finance & Accounting*, *27*(3-4), pp. 511-521.

[90] Mitchell, M., Pulvino, T., & Stafford, E. (2004). Price pressure around mergers. *The Journal of Finance*, *59*(1), pp. 31-63.

outs, is the ultimate driver of what will happen to the value to be transferred between the acquiring and target companies, often driving the departures from the theoretical exchange rate.

It is well to distinguish these advisors from independent experts who are court-appointed in a legal jurisdiction. In M&A deals, financial, legal and strategic advisors are private organizations like investment banks, law firms, advisory boutique firms, engaged by the acquirer, the target, or by both supporting valuation, structuring, and negotiation. They are not institutional or independent, but rather oriented towards advancing the client's strategic and financial goals.

The success of these third parties in M&A transactions depends not only on their technical expertise but also on their strategic ability to influence the deal's outcome for the benefit of their client. Empirical results show that the engagement of high-quality, top-of-the-line advisors can generate substantial value for the buyer. Particularly, top investment banks are associated with considerably greater abnormal returns for acquirers, especially in public deals, where their reputation and negotiating power have greater bargaining leverage. This effect appears to be not only due to their capacity to identify better-targeted deals with greater synergy potential, but also, though less so, to their capacity to negotiate a greater proportion of synergies. But this latter advantage weakens when the target firm is also counseled by a premier institution, suggesting that the net effect depends on the relative influence of advisory presence on both sides. The presence of credible advisors, therefore, can make a significant difference to the negotiation terms and final split of value, including the effective exchange ratio agreed to by the parties[91].

Today, in M&A agreements, especially when large firms are engaged, the involvement of advisors has become standard practice. Behind this choice are several determining factors, such as achieving a deal structure that reflects and considers their relative expectations, risk preferences, and value allocation.

A very current potential takeover, in which various advisors have played an important role within the deal, is the one of Mediobanca to Banca Generali. On April 28, 2025, Mediobanca, in a press release uploaded on its website, announced the submission of A voluntary public exchange offer for all the shares of Banca Generali worth € 6.3 billion,

[91] Golubov, A., Petmezas, D., & Travlos, N. G. (2012). When it pays to pay your investment banker: New evidence on the role of financial advisors in M&As. *The Journal of Finance*, *67*(1), pp. 271-311.

paid entirely in shares of Assicurazioni Generali. The main purpose is to transform the Mediobanca Group into a leader in Wealth Management, creating a leader in the European market, distinctive in positioning, brand, and quality of human capital. The financial advisors for the transaction were Mediobanca, Centerview Partners, Equita, and Goldman Sachs, while the legal advisors were Chiomenti and Carlo Marchetti. Thanks to them, the exchange ratio is set at 1.70 Generali shares for each ex-dividend Banca Generali share. The exchange ratio is set on April 25, 2025, prices and AG shares to service the transaction will be sourced from Mediobanca's current holdings in Generali. Moreover, a value of synergies of 300 million euros has been estimated, divided between 150 million euros in revenues[92] and 150 million euros in costs[93]. Mediobanca's forecast is to complete the execution of the exchange offer by October 2025[94].

This transaction particularly illustrates how the employment of high-profile consultants and a structured negotiating process not only contribute to the technical execution of the transaction but also to the crafting of its financial profile. In this sense, determining the real exchange ratio is not a mere mechanical outcome of valuation models but the result of a complex interplay between strategic synergies, market perceptions, relative bargaining power, and the facilitation of expectations by the advisors and the ability to limit informational asymmetries.

The Mediobanca-Banca Generali case shows how the advisor is a catalyst to bring the two parties' interests together, designing a framework in line with anticipated value creation and finally rationalizing deviation from the theoretical exchange ratio. It emphasizes that the AER is not just a neutral figure but a negotiated resolution to reconcile opportunity, risk, and strategic needs in the merger context.

[92] €85m from cross selling and cross fertilization, because the Banca Generali network will be able to offer its clients Mediobanca's PB&CIB products and MBWM will be able to take advantage of BG's best practices in terms of platform and investment solutions. The remaining €65m come from funding: resulting from ALM and lower cost of funding on excess liquidity from the new combination.

[93] €90m in administrative expenses for the increased scale and efficiency of the new reality and €60m HR related to optimization of structures and adoption of best practices in the new perimeter.

[94] Mediobanca. (2025, April 28). *Voluntary public exchange offer for all shares of Banca Generali – Investor Information Memo*. https://www.mediobanca.com/en/investor-relations/mediobanca-28-april.html.

3.4.3 Effects on Shareholder Value and Ownership Dilution

The structuring and negotiation of the exchange ratio have implications that extend well beyond the technical mechanism of the transaction. Perhaps most concrete and immediate are its consequences for shareholder value and post-merger ownership structure. Specifically in share-for-share transactions, where the allocation of value between target and acquirer not only determines pecuniary gain to each but also affects governance dynamics, voting rights, and possible returns to existing shareholders.

To quantify these effects, it is necessary to move beyond the theoretical foundations of valuation and instead analyze how the chosen exchange ratio affects key financial metrics such as earnings per share, market perception, and ownership dilution.

Financial analysts usually use tools like the Theoretical Ex-Rights Price (TERP), which serves to estimate the adjusted share price after dilution that arises with the issue of new shares. This section examines how effective the exchange ratio may impact on the results of shareholders and serves to point out the structuring choice in establishing the perceived fairness and economic impact of the merger.

One of the key financial metrics utilized to estimate the impact of a merger on shareholder value is the projected change in earnings per share (EPS). In practice, EPS accretion and dilution analysis has now become a standard component of M&As, often guiding internal decision-making and external investor communications. As contended based on empirical evidence, mergers expected to increase the acquirer's EPS, so-called accretive deals, are generally welcomed by the market, but dilutive deals might attract negative reactions. Nevertheless, in a large sample study, Andrade showed that EPS accretion would not necessarily imply true value creation. His research finds that even the transactions that lack fundamental value improvement of overall firm value can be supported by favorable market reaction if EPS can be expected to rise following a merger. What this suggests is that investors may respond at least partially to the illusion of financial improvement rather than its actuality. The study also finds that such an impact is more pronounced in firms with a less sophisticated investor base, implying that accretion is sometimes viewed as a measure of the quality of transactions, although it results from accounting mechanics and not operating gains. These findings serve to underscore the importance of reading EPS-

based measures cautiously, and of augmenting them with a more vigorous scrutiny of long-term determinants of value and the actual economic effects of the exchange ratio[95].

Although originally developed for capital increases, TERP's logic applies equally well in mergers where share issuance leads to potential dilution and value redistribution. Its underlying rationale can be extended to share-for-share M&A transactions as a tool for measuring dilution.

TERP estimates the theoretical post-transaction share price after discounting for issuing new shares at a discount. In raising capital, existing shareholders may be protected from a diminution in value either by subscribing for the new issue or by selling their rights on the market. Similarly, in a merger, the issuance of new shares to the target shareholders results in value reallocation that may be approximated by TERP reasoning, which helps analysts to determine whether the exchange ratio reflects a premium, discount, or equitable treatment of the acquirer shareholders.

A material difference between the TERP and the pre-merger price of the bidder's shares can serve as a proxy for market-implied dilution, especially in situations where the offer terms are considered to be unfavorable or when the new shares issued are a high proportion of the post-merger capital structure. The spread between TERP and market value, thus, reflects not just technical correction, but also the implied risk-reward trade-off inherent in the deal's structure[96].

[95] Andrade, G. (1999). Do appearances matter? The impact of EPS accretion and dilution on stock prices. *The Impact of Eps Accretion and Dilution on Stock Prices (June 1999)*.

[96] Dallocchio, M., Lucchini, G., & Scarpelli, M. (2015). *Mergers & acquisitions*. Egea, pp.369-375.

Chapter 4: Empirical Analysis of Exchange Ratio Determinants

4.1 Methodology and Dataset Description

4.1.1 Research Objectives

This thesis's primary objective is to analyze and understand the factors involved in the formation of the actual exchange ratio. To do this, it was necessary to start with a description of M&As, with a special focus on merger transactions. Define when companies resort to this tool and their main purpose: to create added value through the union of two or more different entities. It was studied how it does not start directly from the negotiations to define the exchange ratio, but rather a stand-alone analysis is required in which companies are evaluated through methods before moving to the negotiation and definition phase of the AER.

This empirical chapter aims to investigate if and how certain observable determinants motivate the disparity between the theoretical exchange ratio and the actual exchange ratio. This research specifically examines the role-played using evaluation, negotiation-related disclosure, and the involvement of court experts in the deal's final terms.

This empirical analysis builds on the theoretical foundations laid in Chapters 2 and 3, which address the sources of value in M&A transactions and the factors contributing to discrepancies between TER and AER. Initially, a cluster analysis is applied to categorize similar transaction groups based on the valuation methods utilized. Secondly a discriminant analysis determines whether it is feasible to account for such clusters with the observed deal features. Furthermore, the linear regression model checks whether the gap between TER and AER is statistically correlated with negotiation cues and expert intervention. Finally, logistic regression examines whether certain firm-specific or deal-specific variables are related to the exclusive application of stand-alone valuation methods.

In general, the chapter attempts to empirically verify whether the theoretical-negotiated exchange ratio difference can be accounted for rationally with identifiable trends or if it is an instance-based outcome determined by less visible dynamics. By bridging theoretical concepts and actual case data, this chapter aims to contribute to the empirical understanding of how valuation practices and governance disclosures impact value allocation in merger processes.

4.1.2 Dataset Construction

In conducting empirical analyses, a dataset was constructed based on an initial sample of 105 corporate transactions that took place between 2018 and 2025, including mergers, acquisitions and business combinations. From the initial dataset, 47 Acquisitions and business combinations were excluded because they do not require an exchange ratio determination. Moreover, an additional 18 mergers were discarded because in those cases, the acquiring company already owned 100 percent of the shares of the acquired company, and according to Article 2501, comma 1 of the Italian Civil Code, such mergers do not require the fulfillment of the obligation to prepare the expert's report, the drafting of the administrative body, and especially the determination of the exchange ratio[97]. In the end, from the initial dataset, 43 mergers by absorption were extracted.

For each absorption merger, the data to be analyzed were collected from official documents, including the merger plan, the merger deed, the expert's report, and the administrative body report. Documents and data were retrieved using Orbit, the Italian Chamber of Commerce portal, and the official websites of the companies involved.

The resulting dataset included 40 variables for each transaction, from which 3 were removed due to missing data in some observations, reducing the usable variables to 37. Additionally, 4 new variables were added to explicitly define the qualitative variable on the evaluation methods used by the companies. As a result, 41 variables are in the dataset, of which 8 were used in the analysis: 7 are binary and 1 is continuous.

4.1.3 Variables Description

The continuous variable is *value difference (AER - TER)*, which measures the deviation between actual and theoretical exchange ratios. This variable was obtained by running the difference between AER and TER, which are two other variables in the dataset. In some cases, the TER was not included in the document, so it was calculated with the data available. In particular, during the process, when both companies' stand-alone equity values were available, the following formula was used:

[97] It is opportune to note that IFRS number 3 on business combinations, as an explication of the prevalence of substance over form, requires a distinction to be made in business combinations between transactions depending on the party that after the combination has control of the resulting entity. From this perspective, acquiring a company already controlled, is not an economically relevant transaction.

$$\text{TER} = \frac{V_{\text{stand-alone, target}}}{V_{\text{stand-alone, acquirer}}}$$

Equation 16

When the valuation ranges were disclosed, after calculating the minimum and maximum TER, the mean stand-alone value was used:

$$\text{TER}_{\text{average}} = \frac{\text{Average value of target}}{\text{Average value of acquirer}}$$

Equation 17

Lastly, in some cases, the equity value and the number of shares were known, so the TER was calculated as:

$$\text{TER} = \frac{\frac{\text{Equity value}_{\text{target}}}{\text{Shares}_{\text{target}}}}{\frac{\text{Equity value}_{\text{acquirer}}}{\text{Shares}_{\text{acquirer}}}}$$

Equation 18

The remaining 7 variables used are the following binary (dummy) variables:

- *Use of DCF method*
- *Use of the multiple method*
- *Only stand-alone valuation used*
- *Court-appointed expert involved*
- *Mention of negotiations in documentation*
- *Acquiring company is listed*
- *Range explanation*

These variables were selected because they capture both valuation methodology and legal elements that, according to the literature and the structure of the M&A process, could influence the formation of the actual exchange ratio.

	Merger Description	Type of Merger Operation	Legal Form of Acquiring Company	Legal Form Target	Acquiring Company is Listed	Target is Listed	Year of Merger Announcement	Year of Merger Execution	Financial Advisors	Legal Advisors	Pre-existing stake in target by acquiring company	Pre-existing stake in acquirer by target	Capital Increase for Merger	Use of Treasury Shares	Court-Appointed expert	Common Expert	Positive Fairness Opinions	Valuation Expressed as a Point Estimate or as a Range	Range Explanation	Synergies Mentioned	Types of Synergies (costs/revenues/others)	EPS Impact Estimated(Si/No)	AER = TER	TER	AER	Percentage Difference (AER-TER)	Value Difference (AER-TER)	stand alone valuation	Only Stand-Alone Valuation	Valuation Methods Used(DCF, multiples, NAV..)	Use of DCF	Use of DDM	use of multiples	other Methods Used	Number of Valuation Methods	Same Valuation Criteria	Explicit Weighting of Valuation Methods	Market Reaction	Disclosure Level of Exchange Ratio	Mention to negotiations in the Document	Reference to TER	Exchange Ratio contested	Exchange Ratio Challenged by Authority	Stronger Bargaining Power
1	Merger between TGS asa and PGS asa	Absorption Merger	S.P.A.	S.P.A.	listed	listed	18/09/2023	01/07/2024	2	2	no	no	yes	no	no	no	yes	point estimate	no	yes	not specified	no	yes	0,06829	0,06829	0,00%	0,00	yes	yes	DCF, historical prices	yes	no	no	yes	2	yes	no	not given	2	yes	no	no	no	incorporator
2	Merger between Mondo TV Suisse and Mondo Tv France	Absorption Merger	S.P.A.	S.P.A.	listed	not listed	30/11/2023	18/12/2023	1	0	no	no	yes	no	no	yes	yes	range	yes	yes	costs, economies of scale, management integration	no	yes	25	27,5	10,00%	2,50	yes	no	DCF, market multiples	yes	no	yes	no	2	yes	no	not given	5	yes	yes	no	no	target
3	Merger between Media Group and Netweek	Absorption Merger	S.P.A.	S.R.L.	listed	not listed	11/08/2022	13/04/2023	1	1	no	no	yes	no	yes	yes	yes	point estimate	no	yes	commercials, operative	no	no	9,9	9,9	0,00%	0,00	yes	yes	DCF, transaction multiples, sum of parts	yes	no	yes	yes	3	no	no	not given	5	no	yes	no	no	incorporator
4	Merger between life storage and Extra Space	Absorption Merger	S.P.A.	S.P.A.	listed	listed	03/03/2023	02/04/2023	4	4	no	no	yes	yes	no	no	yes	range	yes	yes	costs, revenues	yes	no	0,805	0,895	11,18%	0,09	yes	no	DCF, multiples	yes	no	yes	no	2	yes	no	negative	5	no	no	no	no	incorporator
5	Merger between Digital Magics S.p.A. and LVentureGroup S.p.A.	Absorption Merger	S.P.A.	S.P.A.	listed	listed	28/12/2023	01/04/2024	3	0	no	no	yes	no	yes	yes	yes	range	yes	yes	revenues, costs, strategic	no	no	9,38	9,2	-1,92%	-0,18	yes	yes	DCF, market multiples, previous transaction., SOTP	yes	no	yes	yes	4	no	no	not given	5	yes	yes	no	no	incorporator
6	Merger in "Arveme in Tranyestion"	Absorption Merger	S.P.A.	S.P.A.	not listed	listed	16/06/2023	19/09/2023	4	2	yes	no	yes	no	yes	yes	yes	point estimate	no	yes	strategic	no	yes	6,9883	6,9883	0,00%	0,00	yes	yes	DCF, NAV, market multiples	yes	no	yes	yes	3	no	no	not given	4	yes	no	no	no	equilibrium
7	Merger between Sferanet and Oildata	Absorption Merger	S.P.A.	S.R.L.	listed	not listed	18/10/2024	31/09/2024	0	2	yes	no	yes	no	yes	yes	yes	range	yes	yes	costs, operational , organizational, administrative	no	no	169,5	169	-0,29%	-0,50	yes	no	DCF, market multiples	yes	no	yes	no	2	yes	no	not given	4	yes	no	no	no	incorporator
8	Merger between Compagnia Immobiliare Azionaria S.p.A. and Compagnie Funciere du Vin Sp.A.	Absorption Merger	S.P.A.	S.P.A.	not listed	listed	23/02/2024	30/04/2024	0	0	yes	no	yes	no	yes	yes	yes	point estimate	yes	yes	costs, organizzational	no	no	0,00356	0,0036	1,12%	0,00	yes	no	asset base valuation method	no	no	no	yes	1	yes	yes	not given	4	yes	no	no	no	incorporator
9	Merger between Portale Sardegna and Destination Italia	Absorption Merger	S.P.A.	S.P.A.	listed	listed	09/11/2022	26/01/2023	2	2	no	no	yes	no	yes	yes	yes	point estimate	no	yes	costs, revenues	no	no	2,42	2,45	1,28%	0,03	yes	no	DCF	yes	no	no	no	1	yes	no	not given	5	yes	yes	no	no	incorporator
10	Merger between BCC S. Michele Caltanissetta and BCC Toniolo S. Cataldo	Absorption Merger	S.C.A.R.L.	S.C.A.R.L.	not listed	not listed	12/08/2022	01/10/2022	4	3	no	no	yes	no	no	yes	yes	point estimate	no	yes	costs	no	yes	2	2	0,00%	0,00	yes	yes	results and prospects	no	no	no	yes	2	yes	yes	not given	2	no	no	no	no	equilibrium
11	Merger between BPER and CARIGE	Absorption Merger	S.P.A.	S.P.A.	listed	not listed	03/06/2022	24/11/2022	6	0	yes	no	yes	no	yes	yes	yes	range	yes	yes	costs, funding, revenues	no	yes	11,234	11,234	0,00%	0,00	yes	yes	multiples, DCF, NAV adjusted NAV, multiples	yes	no	yes	yes	5	no	no	not given	4	no	yes	no	no	incorporator
12	Merger between BPER and BML	Absorption Merger	S.P.A.	S.P.A.	listed	not listed	03/06/2022	24/11/2022	6	0	no	no	yes	no	yes	yes	yes	range	yes	yes	costs, funding, revenues	no	yes	0,045	0,045	0,00%	0,00	yes	yes	NAVe multiples	no	no	yes	yes	2	no	no	not given	4	no	yes	no	no	incorporator
13	Merger between Blu Banca and Banca Valconca	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	01/05/2022	01/01/2023	3	1	no	no	yes	no	yes	yes	yes	point estimate	no	yes	costs, commercial, industriale strategic	no	yes	0,0035	0,0035	0,00%	0,00	yes	yes	market quotations (Hi-Mrf), multivariate regression	no	no	yes	yes	2	yes	yes	not given	5	yes	yes	no	no	incorporator
14	Merger between Mirabilia Network Sc.r.l. and Isnart S.c.p.a.	Absorption Merger	S.C.P.A.	S.C.A.R.L.	not listed	not listed	26/06/2023	20/02/2025	0	0	no	no	yes	no	yes	yes	yes	point estimate	no	yes	costs, operational, organizational	no	yes	2,15	2,15	0,00%	0,00	yes	yes	asset base valuation method	no	no	yes	yes	1	yes	yes	not given	5	yes	no	no	no	equilibrium
15	Merger between Vivibanca and Banca Popolare Mediterraneo	Absorption Merger	S.P.A.	S.C.P.A.	not listed	not listed	02/03/2023	13/07/2023	1	3	no	no	yes	no	yes	yes	yes	range	yes	yes	revenues, business model, operational	no	no	4,34	5	15,21%	0,66	yes	no	Dividend Discount Model, adjusted NAV	no	yes	no	yes	2	yes	yes	not given	4	yes	yes	no	no	equilibrium
16	Merger between Digital Destination Com. S.r.l. and Sostravel.com S.p.A.	Absorption Merger	S.P.A.	S.R.L.	listed	not listed	05/05/2022	29/09/2022	3	2	no	no	yes	no	yes	yes	yes	range	yes	yes	costs, revenues	no	yes	590,9	590,9	0,00%	0,00	yes	no	DCF unlevered	yes	no	no	no	1	yes	yes	not given	5	yes	yes	no	no	equilibrium
17	Merger between Banca Popolare Valconca Sp.A. and Cherry Bank S.p.A.	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	02/06/2023	30/12/2023	3	2	no	no	yes	no	yes	yes	yes	range	yes	yes	costs, corporate banking	no	yes	1	1	0,00%	0,00	yes	yes	Dividend Discount model, multiples	no	yes	yes	no	2	no	no	not given	4	yes	yes	no	no	incorporator
18	Merger between Banca Regionale di Svil. Sp.A. and Banca C. Pop. S.C.p.A.	Absorption Merger	S.C.P.A.	S.P.A.	not listed	not listed	01/02/2025	01/01/2025	2	2	yes	no	yes	yes	yes	yes	yes	point estimate	no	yes	costs, revenues, fiscal, risk	no	yes	30	30	0,00%	0,00	yes	yes	net asset value, DDM, 6 multiples method	no	yes	yes	yes	3	no	yes	not given	3	yes	no	yes	no	incorporator
19	Merger between Nexi and yesa	Absorption Merger	S.P.A.	S.P.A.	listed	not listed	11/02/2021	31/01/2021	7	4	no	no	yes	no	yes	yes	yes	point estimate	no	yes	costs, operative, technological	no	no	1,545	1,5761	2,01%	0,03	yes	no	DCF, market multiples, multiples	yes	yes	yes	no	3	yes	no	not given	4	yes	yes	no	no	equilibrium
20	Merger between Nexi and Nets	Absorption Merger	S.P.A.	S.R.L.	listed	not listed	15/11/2020	01/07/2021	11	6	no	no	yes	no	yes	yes	yes	point estimate	no	yes	costs, revenues, investments	no	no	0,1754	0,176049	0,37%	0,00	yes	no	DCF, market multiples, sum of parts, multiples	yes	no	yes	yes	4	yes	no	not given	4	yes	yes	no	no	equilibrium
21	Merger between Generali Buyesness Solution and Cattolica Service	Absorption Merger	S.C.P.A.	S.C.P.A.	not listed	not listed	28/09/2022	21/12/2022	2	2	no	no	yes	no	no	no	yes	point estimate	no	yes	industrial	no	yes	0,513	0,513	0,00%	0,00	yes	yes	net asset value	no	no	no	yes	1	yes	no	not given	4	no	no	no	no	equilibrium
22	Merger between Retelit and Irideos	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	26/03/2024	08/05/2024	1	1	yes	no	yes	no	no	no	yes	point estimate	no	yes	costs, operative, human resources, process	no	yes	27	27	0,00%	0,00	yes	yes	net asset value, DDM, metodo 6 multiples	no	no	no	yes	1	no	no	not given	3	no	no	no	no	incorporator
23	Merger between Credem and Cassa di Risparmio di Cento	Absorption Merger	S.P.A.	S.P.A.	listed	not listed	17/05/2021	14/07/2021	4	1	no	no	no	yes	yes	yes	yes	range	yes	yes	costs ,revenues, industrial	no	no	0,60	0,64	6,67%	0,04	yes	no	market multiples, DDM	no	yes	yes	no	2	yes	no	not given	5	yes	yes	no	no	equilibrium
24	Merger between UniCredit and Banco BPM	Absorption Merger	S.P.A.	S.P.A.	listed	listed	25/11/2024	ongoing	5	4	no	no	yes	no	no	no	yes	entrambi	yes	yes	not quantifiable	no	no	0,235	0,175	-25,53%	-0,06	yes	no	DCF, market multiples, market price	yes	no	yes	yes	3	no	no	negative	4	no	yes	yes	yes	incorporator
25	Merger between Monte dei Paschi and Mediobanca	Absorption Merger	S.P.A.	S.P.A.	listed	listed	24/11/2025	ongoing	5	2	no	no	yes	no	no	no	yes	point estimate	no	yes	revenues, costs, funding	no	no	2,19	2,3	5,02%	0,11	yes	no	market quotations (Hi-Mrf), multivariate regression	no	no	no	yes	1	yes	no	negative	4	no	yes	yes	no	incorporator
26	Merger between Exxon and Pioneer	Absorption Merger	S.P.A.	S.P.A.	listed	listed	10/10/2023	05/01/2024	2	2	no	no	yes	no	no	no	yes	range	yes	yes	costs, operative, technological	no	no	2,155	2,3234	7,81%	0,17	yes	no	DCF, previous transaction	yes	no	no	yes	2	yes	no	positive	4	yes	yes	yes	no	incorporator
27	Merger between Credit farma and Farbanca	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	17/06/2021	11/04/2022	1	0	yes	no	yes	no	yes	yes	yes	range	yes	yes	costs, ricavo, governance	no	yes	36,8	36,8	0,00%	0,00	yes	yes	DDM, market multiples, regression, direct transaction	no	yes	no	yes	4	no	no	not given	4	yes	yes	no	no	incorporator
28	Merger between Alia and Acqua Toscana	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	28/04/2022	27/01/2023	4	1	no	no	yes	no	yes	yes	yes	range	yes	yes	industrial, operational, commercial	no	no	0,62	0,39	-37,10%	-0,23	yes	no	DCF, sum of parts	yes	no	no	yes	2	no	no	not given	4	yes	yes	no	no	equilibrium
29	Merger between Alia and Conyesag	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	28/04/2022	27/01/2023	4	1	no	no	yes	no	yes	yes	yes	range	yes	yes	industrial, operational, management	no	no	1,47	0,96	-34,69%	-0,51	yes	no	DCF, sum of parts	yes	no	no	yes	2	no	no	not given	4	yes	yes	no	no	equilibrium
30	Merger between Cerved Group and Castor Bidco	erve absorption Me	S.P.A.	S.P.A.	listed	not listed	05/10/2021	14/10/2022	4	3	no	yes	yes	no	yes	yes	yes	point estimate	no	yes	operational, innovation	no	yes	5000,1386	5000,139	0,00%	0,00	yes	yes	OPA, DCF, NAV	yes	no	no	yes	3	no	no	not given	5	yes	yes	no	no	target
31	Merger between Campi and Poligrafia S. Faustino	Absorption Merger	S.R.L.	S.P.A.	not listed	listed	30/04/2021	26/10/2021	1	1	no	no	yes	no	yes	yes	yes	point estimate	no	yes	reorganization, delisting	no	yes	4,296	4,296	0,00%	0,00	yes	yes	DCF, NAV, multiples ,quotation	yes	no	yes	yes	4	no	no	not given	5	yes	yes	no	no	target
32	Merger between A2A and LGH	Absorption Merger	S.P.A.	S.P.A.	listed	not listed	23/11/2020	31/12/2021	2	2	yes	no	yes	yes	yes	no	yes	point estimate	no	yes	operative, investments, integration	no	no	0,947	0,928	-2,01%	-0,02	yes	no	DCF, market multiples, multiples di transazioni	yes	no	yes	no	3	yes	no	not given	3	yes	yes	yes	yes	incorporator
33	Merger between Recordati and Rosyesni investments	erve absorption Me	S.P.A.	S.P.A.	listed	not listed	15/06/2020	12/04/2021	1	1	no	yes	no	no	yes	yes	yes	range	yes	yes	administrative, structural, fiscal	no	yes	1,313	1,313	0,00%	0,00	yes	yes	DCF, multiples, NAV	yes	no	yes	yes	3	no	no	not given	5	yes	yes	no	no	target
34	Merger between INVA and services Previdenziali Valle d'Aosta	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	16/12/2020	31/12/2021	0	0	no	no	yes	no	yes	yes	yes	point estimate	no	no	not quantifiable	no	yes	369,19	369,19	0,00%	0,00	yes	yes	asset base valuation method	no	no	no	yes	1	yes	yes	not given	4	yes	yes	no	no	incorporator
35	Merger between Quarantacinque and CADIT	Absorption Merger	S.P.A.	S.P.A.	listed	not listed	29/05/2018	04/06/2018	1	1	yes	no	yes	no	yes	yes	yes	range	yes	yes	strategic, industrial, commercial	no	no	2,155	2,156829	0,08%	0,00	yes	no	DCF, market multiples, similar transactions	yes	no	yes	no	3	yes	no	positive	5	yes	yes	no	no	incorporator
36	Merger between INWIT and Vodafone Towers	Absorption Merger	S.P.A.	S.R.L.	listed	not listed	18/11/2019	31/03/2020	1	2	yes	no	yes	no	yes	yes	yes	range	yes	yes	costs, revenues	yes	no	0,5757	0,5658	-1,72%	-0,01	yes	no	DCF, market multiples, multiples, similar operations	yes	no	yes	yes	4	no	no	positive	5	yes	yes	no	no	equilibrium
37	Merger between Esyes lor S.A. and Luxottica	Absorption Merger	S.P.A.	S.P.A.	listed	listed	16/01/2017	01/10/2018	3	3	no	no	yes	no	yes	yes	yes	range	yes	yes	productive, distributive, R&D, technological	no	no	0,438	0,461	5,25%	0,02	yes	no	DCF, market multiples, target price analsists	yes	no	yes	yes	3	yes	no	positive	5	yes	yes	no	no	target
38	Merger between COFIDE and CIR	Absorption Merger	S.P.A.	S.P.A.	listed	listed	11/03/2019	19/02/2020	4	2	yes	yes	yes	no	yes	yes	yes	point estimate	no	yes	costs, governance	no	yes	2,01	2,01	0,00%	0,00	yes	yes	DCF, NAV, market prices	yes	no	no	yes	4	yes	no	positive	4	yes	yes	no	no	incorporator
39	Merger between Crédit Agricole Cariparma and CRC	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	21/12/2017	21/07/2018	2	1	yes	no	yes	no	yes	yes	yes	point estimate	no	yes	investments, digitalization	no	yes	0,07	0,07	0,00%	0,00	yes	yes	DDM	no	yes	no	no	1	yes	yes	positive	4	yes	yes	no	no	incorporator
40	Merger between Crédit Agricole Cariparma and CARIM	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	21/12/2017	08/09/2018	2	1	yes	no	yes	no	yes	yes	yes	point estimate	no	yes	investments, digitalization	no	yes	0,032	0,032	0,00%	0,00	yes	yes	DDM	no	yes	no	no	1	yes	yes	positive	4	yes	yes	no	no	incorporator
41	Merger between Crédit Agricole Cariparma and CARISMI	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	21/12/2017	23/06/2018	2	1	yes	no	yes	no	yes	yes	yes	point estimate	no	yes	investments, digitalization	no	yes	0,043	0,043	0,00%	0,00	yes	yes	DDM	no	yes	no	no	1	yes	yes	positive	4	yes	yes	no	no	incorporator
42	Merger between yesIfi and Linea Comune	Absorption Merger	S.P.A.	S.P.A.	not listed	not listed	30/06/2018	25/10/2018	0	0	no	no	yes	no	yes	yes	yes	point estimate	no	yes	costs, services	no	yes	1,4744	1,4744	0,00%	0,00	yes	yes	asset base valuation method	no	no	no	yes	1	yes	yes	positive	4	yes	yes	no	no	incorporator
43	Merger between Banca di credito popolare and Banco regionale di svilupp	Absorption Merger	S.C.P.A.	S.P.A.	not listed	not listed	24/05/2022	30/06/2022	2	2	yes	no	yes	yes	yes	yes	yes	point estimate	no	yes	strategic	no	yes	0,0333	0,0333	0,00%	0,00	yes	yes	market multiples, financial method	no	no	yes	yes	2	yes	no	positive	4	yes	yes	no	no	incorporator

4.2 Correlations, Cluster and Discriminant Analysis

4.2.1 Correlations Found

Bivariate Pearson correlations were computed as an exploratory step before entering into multivariate modelling. In the specific, this tool was used to find statistically significant relationships among key variables related to valuation methods, governance practices, and firm characteristics. The present study results point to various patterns that, in the context of corporate finance, are both statistically robust and theoretically relevant.

First, as shown in *Table 3*, there is a strong and highly statistically significant positive correlation between the court appointment of an expert and the common expert for both parties: $r = 0.782$, $p < 0.001$. From a legal and corporate governance perspective, this is intuitive, for usually, when a judge requires the involvement of experts, such would often be on the grounds of neutrality or credibility of such a procedure, which would often result in the appointment of a single profession accepted by both parties. This further supports the viewpoint that legal safeguards in mergers by absorption kick in predominantly on issues concerning third-party validation of ownership and valuation complexity.

		Court-appointed expert involved (yes=1)	Common expert for both parties (yes=1)
Court-appointed expert involved (yes=1)	Pearson Correlation	1	.782**
	Sig. (2-tailed)		<.001
	N	43	43
Common expert for both parties (yes=1)	Pearson Correlation	.782**	1
	Sig. (2-tailed)	<.001	
	N	43	43

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3: Correlation Between Types of Experts Involved in Merger Valuation

Second, a moderate inverse correlation ($r = -0.414$, $p = 0.006$) exists between applying only stand-alone valuation methods and whether or not the acquirer is listed. This result indicates that listed acquirers would be less likely to depend solely on stand-alone valuation and might be more likely to employ multi-method techniques, to provide greater transparency and to satisfy investor expectations. From the perspective of corporate finance, this would be an indication that listed companies need to protect exchange ratios against robust and diversified valuation structures, particularly where shareholders are requested to vote in favor of the deal.

		Only standalone valuation used (yes=1)	Acquiring company is listed (yes=1)
Only standalone valuation used (yes=1)	Pearson Correlation	1	-.414**
	Sig. (2-tailed)		.006
	N	43	43
Acquiring company is listed (yes=1)	Pearson Correlation	-.414**	1
	Sig. (2-tailed)	.006	
	N	43	43

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4: Correlation Between Stand-Alone Valuation and Listed Acquirers

There was also a high positive correlation ($r = 0.583$, $p < 0.001$), shown in *Table 5*, between the number of legal advisors and financial advisors in the deal. This would imply that most complex or higher-stakes deals involve wider advisory teams because maybe there is regulatory scrutiny of the deal, due diligence is more multidimensional, or the financial scale of the merger. This aligns with the literature on the execution of M&As: it is not only that advisors work out valuation, but that strategic negotiation and documentation take place through advisors' involvement.

		Number of financial advisors	Number of legal advisors
Number of financial advisors	Pearson Correlation	1	.583**
	Sig. (2-tailed)		<.001
	N	43	43
Number of legal advisors	Pearson Correlation	.583**	1
	Sig. (2-tailed)	<.001	
	N	43	43

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5: Correlation Between Financial and Legal Advisory Involvement

As it is possible to notice in *Table 6*, the listing status of the acquirer is positively related both with the DCF method ($r = 0.623$, $p < 0.001$) and to a lesser extent with the application of multiples ($r = 0.391$, $p = 0.010$). This is in line with financial best practice as listed companies should derive their valuation decisions from future cash flows and market comparables. These companies are also subject to more intense capital market and regulatory scrutiny, and they are incentivized to apply more standardized and widely recognized valuation techniques.

		Acquiring company is listed (yes=1)	Use of DCF method (yes=1)	Use of multiples method (yes=1)
Acquiring company is listed (yes=1)	Pearson Correlation	1	.623**	.391**
	Sig. (2-tailed)		<.001	.010
	N	43	43	43
Use of DCF method (yes=1)	Pearson Correlation	.623**	1	.297
	Sig. (2-tailed)	<.001		.053
	N	43	43	43
Use of multiples method (yes=1)	Pearson Correlation	.391**	.297	1
	Sig. (2-tailed)	.010	.053	
	N	43	43	43

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6: Correlation Between Listing Acquiror and DCF and Multiples Methods

Empirically, these correlations are not only statistically significant but directionally consistent with theory. They provide a useful foundation for further cluster and regression analysis, where causality and predictive power can be examined with greater precision.

4.2.2 Cluster Analysis

After searching for significant correlations in the dataset to explore trends in the application of valuation methods throughout mergers, a hierarchical cluster analysis was conducted using *Average Linkage* (Between Groups) and *Squared Euclidean Distance* as the measure of dissimilarity. Such an approach allows for the identification of homogenous subgroups of transactions in terms of the combination of valuation criteria applied, that is, *use of DCF* and *use of the multiples approach* (both dummy variables).

The cluster analysis considered only the two most common valuation methods: the Discounted Cash Flow (DCF) method and the multiples method. The remaining valuations, such as the Dividend Discount Model (DDM) and other miscellaneous methods, were not included in the clustering process since their diffusion was insignificant in the sample.

The addition of non-activated frequently between observations could have potentially contaminated the clustering algorithm, exaggerating distances between otherwise similar transactions and introducing noise without structural contribution capture. Restricting treatment to the most used and theoretically sound valuation methods keeps the analysis statistically consistent and economically relevant.

Statistically, the agglomeration plan reflects quite an even pattern of coefficients during the early stages, with no huge jumps in the merger coefficients, showing stepwise clustering of like cases. There is a steep spike at stage 42 when the final merge occurs with a coefficient value of 6.480, which attests to the adoption of a three-cluster solution before this steep spike. This is also consistent with standard practice in hierarchical clustering, when a sudden jump in the linkage coefficient would indicate that dissimilar clusters are being merged under coercion.

Economically, the resulting three clusters can be accounted for as follows:

- Cluster 1: Transactions where both the multiples and DCF methods were used, indicating deals with a robust and diversified valuation strategy. These should be the best representatives of corporate finance practice, particularly for delicate mergers where several benchmarks are utilized to ensure fairness and transparency.

- Cluster 2: Transactions where there was use of a single approach, typically either the multiples or the DCF method. These transactions may be representative of mid-complexity transactions or cases where one method was deemed adequate due to ease of structure or magnitude.
- Cluster 3: Transactions where no formal methodology (no DCF, no multiples) was employed in itself. They could be based on stand-alone valuation alone, or ad-hoc approaches. This cluster can include transactions with lower disclosure, lower scrutiny, or internal restructuring without market-based bargaining.

This segmentation reveals important managerial implications. The use of several valuation methods appears to be associated with higher procedural stringency, perhaps by external advisors, listing rules, or minority shareholders. Conversely, transactions in Cluster 3 can raise issues regarding the transparency of the valuation reasoning as well as the governance standards underlying.

Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	26	43	.000	0	0	18
2	41	42	.000	0	0	3
3	40	41	.000	0	2	4
4	39	40	.000	0	3	5
5	34	39	.000	0	4	10
6	20	38	.000	0	0	33
7	35	37	.000	0	0	9
8	31	36	.000	0	0	13
9	32	35	.000	0	7	12
10	16	34	.000	0	5	24
11	30	33	.000	0	0	14
12	19	32	.000	0	9	34
13	27	31	.000	0	8	17
14	24	30	.000	0	11	20
15	28	29	.000	0	0	16
16	17	28	.000	0	15	23
17	5	27	.000	0	13	33
18	23	26	.000	0	1	21
19	21	25	.000	0	0	22
20	6	24	.000	0	14	29
21	7	23	.000	0	18	28
22	9	21	.000	0	19	37
23	12	17	.000	0	16	32
24	14	16	.000	0	10	26
25	13	15	.000	0	0	27
26	8	14	.000	0	24	36
27	10	13	.000	0	25	36
28	4	7	.000	0	21	30
29	3	6	.000	0	20	35
30	2	4	.000	0	28	31
31	1	2	.000	0	30	34
32	12	22	1.000	23	0	39
33	5	20	1.000	17	6	38
34	1	19	1.000	31	12	39
35	3	18	1.000	29	0	40
36	8	10	1.000	26	27	37
37	8	9	1.273	36	22	41
38	5	11	1.333	33	0	42
39	1	12	1.709	34	32	40
40	1	3	1.792	39	35	41
41	1	8	3.188	40	37	42
42	1	5	6.480	41	38	0

Table 7: Agglomeration Schedule of Hierarchical Cluster Analysis

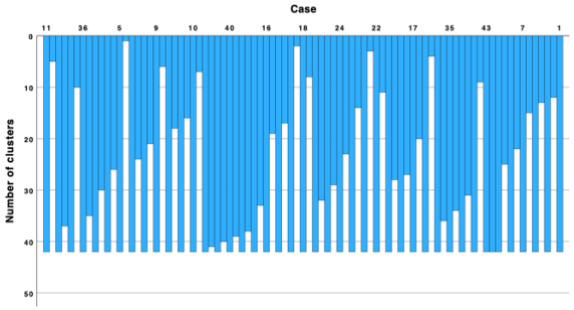


Table 8:Vertical Icicle Plot Clusters

Cluster	N. Oberservations	% using DCF	% using Multiples
1	22	72.6% (16/22)	72.7% (16/22)
2	7	85.7% (6/7)	71.4% (5/7)
3	14	14.3% (2/14)	14.3% (2/14)
Total	43	55.8% (24/43)	53.5% (23/43)

Table 9: Distribution of Valuation Methods Across Clusters

4.2.3 Discriminant Analysis

To provide a test of the robustness and validity of the cluster solution derived in section 4.2.2, a discriminant analysis was conducted on the two variables that were employed in the cluster procedure: *use of the DCF method* and *use of the multiples method*. The aim was to determine whether the three groups could be significantly differentiated by the two variables and whether cluster membership could be reliably predicted from them.

Statistically, both valuation approaches were proven to be significant discriminators among the three clusters. The Tests of Equality of Group Means display very highly significant F-values for both variables:

- Use of DCF method: $F = 10.583$, $p < 0.001$
- Use of multiples method: $F = 8.502$, $p < 0.001$

These results confirm that the clusters differ significantly in their utilization of these valuation approaches.

Furthermore, the Wilks' Lambda values and their respective significance levels confirm the discriminatory power of the functions:

The first canonical discriminant function accounts for 99.3% of the variance, with a canonical correlation of 0.703, indicating a strong relationship of group membership with the predictor variables.

The second function contributes marginally (0.7%) and is not statistically significant ($p = 0.602$), indicating that most of the group separation occurs along the first axis. Box's M test yielded a p-value of 0.497, indicating that the assumption of equal covariance matrices between groups is not violated, which lends support to the validity of the discriminant model.

From a theoretical perspective, this result confirms the interpretation that valuation methodology is not randomly scattered across merger transactions but systematically varies

across characteristic patterns of practice. Deals that have employed both the DCF and the multiples methods form a separate cluster (as in Cluster 1), while those that have employed neither are grouped in Cluster 3. This confirms methodological rigor as a relevant dimension in the taxonomy of M&A activity and highlights different levels of complexity and transparency.

Lastly, the classification matrix shows that 72.1% of the original cases were correctly classified, with highly similar cross-validation results, in support of the model's generalizability. Cluster 1 (the largest cluster) was most accurately predicted (95.5% correct classification), whereas Cluster 3 had a poorer hit rate (71.4%), due to the relative absence of structured valuation methods.

	Wilks' Lambda	F	df1	df2	Sig.
Use of DCF method (yes=1)	.654	10.583	2	40	<.001
Use of multiples method (yes=1)	.702	8.502	2	40	<.001

Table 10: Test of equality of group means

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.975[a]	99.3	99.3	.703
2	.007[a]	.7	100.0	.083

a. First 2 canonical discriminant functions were used in the analysis.

Table 11: Canonical Discriminant Functions Summary

Classification Results[a,c]

		Average Linkage (Between Groups)	Predicted Group Membership 1	2	3
Original	Count	1	21	0	1
		2	6	0	1
		3	4	0	10
	%	1	95.5	.0	4.5
		2	85.7	.0	14.3
		3	28.6	.0	71.4
Cross-validated[b]	Count	1	21	0	1
		2	6	0	1
		3	4	0	10
	%	1	95.5	.0	4.5
		2	85.7	.0	14.3
		3	28.6	.0	71.4

Classification Results[a,c]

		Average Linkage (Between Groups)	Total
Original	Count	1	22
		2	7
		3	14
	%	1	100.0
		2	100.0
		3	100.0
Cross-validated[b]	Count	1	22
		2	7
		3	14
	%	1	100.0
		2	100.0
		3	100.0

a. 72.1% of original grouped cases correctly classified.

b. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

c. 72.1% of cross-validated grouped cases correctly classified.

Table 12: Classifications Results

Average Linkage (Between Groups)	Function 1	2
1	.608	.059
2	.823	-.168
3	-1.366	-.009

Unstandardized canonical discriminant functions evaluated at group means

Table 13: Group Centroids

4.3 Regressions

4.3.1 Linear Regression

The central part of the quantitative analysis is within this section 4.3, which discusses the description of two regression models derived from the dataset. To examine if specific deal-

related factors affect the discrepancy between theoretical and actual exchange ratios, a linear regression model was estimated with *value difference (AER - TER)* as the dependent variable and the two independent variables:

- *Court-appointed expert involved (yes=1)*
- *Mention of negotiations in documentation (yes=1)*

The model is significant with an $R^2 = 0.190$ and $F(2, 40) = 4.691$, $p = 0.015$, showing that the two predictors in combination explain approximately 19% of the variance in the difference between AER and TER. Modest though this explanatory power is, it has significance in the context of real M&A transactions, where many unobserved negotiation variables can influence outcomes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.436[a]	.190	.149	.382646833	.190	4.691

Table 14: Model Summary

The regression coefficients show that the court-appointed expert has a very strong and negative effect on value difference ($\beta = -0.532$, $p = 0.004$). This means that in the presence of an independent expert, the actual exchange ratio will be nearer to the theoretical one, reducing the difference. This result is consistent with the hypothesis that third-party experts have a moderating effect, bringing discipline and transparency to the valuation and negotiation process.

Mention of negotiations in the records has a positive effect ($\beta = 0.351$, $p = 0.051$), just at the border of statistical significance. This implies that where the negotiation dynamics are more explicitly engaged in the deal documents, the gap between AER and TER is more likely to increase. This may be a result of strategic bargaining or power asymmetries that push the ultimate terms away from where they would have otherwise been if determined solely based on valuation fundamentals.

Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	t
1	(Constant)	.194	.140		1.384
	Court-appointed expert involved (yes=1)	-.536	.176	-.532	-3.048
	Mention of negotiations in documentation (yes=1)	.353	.176	.351	2.010

Table 15: Individual Predictors

Variance Inflation Factors (VIF = 1.503 for both predictors) suggest no multicollinearity, and residual diagnostics (histogram, P–P plot, scatterplot) suggest no serious violations of regression assumptions. Standardized residuals fall within the acceptable range (between -1.6 and +1.95), suggesting model validity.

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Court-appointed expert involved (yes=1)	Mention of negotiations in documentation (yes=1)
1	1	2.794	1.000	.02	.02	.02
	2	.118	4.860	.98	.19	.19
	3	.088	5.627	.00	.79	.79

a. Dependent Variable: Value difference (AER - TER)

Table 16: Collinearity Diagnostic

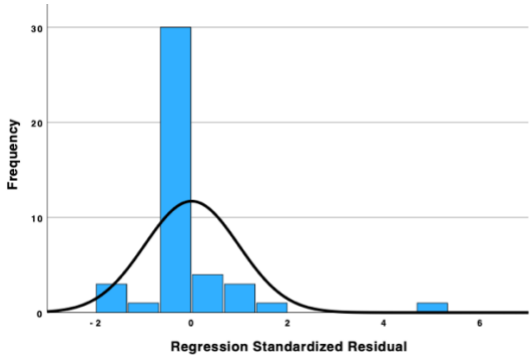


Figure 2: Histogram of Standardized Residuals

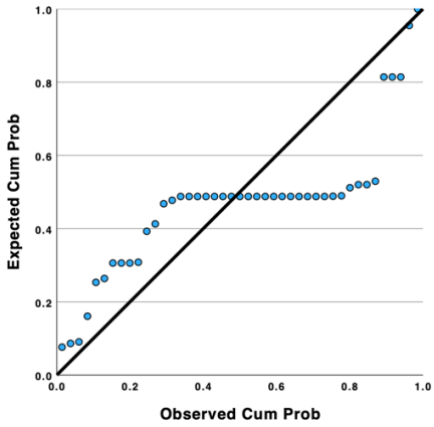


Figure 3: Normal P–P Plot of Standardized Residuals

These findings offer relevant implications; in fact, the involvement of independent experts helps reinforce the alignment between theoretical value and negotiated outcomes, supporting minority shareholder protection and fair pricing mechanisms. Conversely, negotiation references signify deal complexity or asymmetry of power, and they typically result in deviations driven by more strategic than valuation rationality motives. This is consistent with the bargaining power literature in M&A, where dominant actors can gain better terms.

4.3.2 Logit Regression

A binary logistic regression was employed to test the determinants of employing an exclusive stand-alone valuation approach in merger transactions. The dependent variable is the binary variable *Exclusively stand-alone valuation utilized*, and the model contains the two binary independent variables:

- *Acquiring firm is listed (yes=1)*
- *Range explanation provided in documentation (yes=1)*

This research aims to understand whether a transaction's choice to adopt a simplified valuation method is based on its structural or disclosure nature.

The Omnibus Test of Model Coefficients is significant at the statistical level ($\chi^2(2) = 15.409$, $p < 0.001$), which suggests that the model fits the data significantly better than a null model that includes no predictors. The Nagelkerke $R^2 = 0.403$ suggests that the two predictors explain almost 40.3% of the variance in adoption of the stand-alone method. The Hosmer and Lemeshow test is not significant ($\chi^2 = 4.160$, $p = 0.125$), which means that there is no significant misfit and the model's predictions are consistent with the observed data.

		Chi-square	df	Sig.
Step 1	Step	15.409	2	<.001
	Block	15.409	2	<.001
	Model	15.409	2	<.001

Table 17: Omnibus Tests of Logistic Regression

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	43.619[a]	.301	.403

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 18: Goodness of Fit

Step	Chi-square	df	Sig.
1	4.160	2	.125

Table 19: Hosmer and Lemeshow Test

Both explanatory variables are statistically significant indeed *Acquiring company is listed, showing* B = -1.648, Exp(B) = 0.193, p = 0.034, reducing the chances of using just a stand-alone valuation by approximately 80.7%. This, as expected, is since listed firms are scrutinized more, and more formalized procedures for valuation. For *Range explanation provided,* B = -1.976, Exp(B) = 0.139, p = 0.008, so in the case in which explanatory ranges are present, the likelihood of having only a stand-alone approach decreases by approximately 86.1%. This suggests that more diverse valuation methods are accompanied by greater transparency and analytical reports. These findings validate that both disclosure quality and market transparency (listing status) are the most significant determinants of the valuation rationale employed in merger activities.

		B	S.E.	Wald	df	Sig.
Step 1[a]	Acquiring company is listed (yes=1)	-1.648	.775	4.519	1	.034
	Range explanation	-1.976	.749	6.952	1	.008
	Constant	2.186	.741	8.695	1	.003

Table 20: Coefficients: B, Wald, Significance Table

		Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Acquiring company is listed (yes=1)	.193	.042	.879
	Range explanation	.139	.032	.602
	Constant	8.897		

a. Variable(s) entered on step 1: Acquiring company is listed (yes=1), Range explanation.

21: Odds Ratios and Confidence Intervals (Exp(B))

The classification table shows that the model is correct in 69.8% of instances, 83.3% of class 1 (stand-alone used alone) and 52.6% of class 0. This shows a good level of predictive power, especially in identifying cases where the stand-alone is utilized.

Observed			Predicted: Only standalone valuation used (yes=1) 0	Predicted: Only standalone valuation used (yes=1) 1	Percentage Correct
Step 1	Only standalone valuation used (yes=1)	0	10	9	52.6
		1	4	20	83.3
	Overall Percentage				69.8

a. The cut value is .500

Table 22: Classification Table

On a financial basis, the results display that simple valuation methods are more likely in less transparent settings or where the acquirer is unlisted. This may be suggestive of lesser institutional pressure, internal restructuring, or lesser minority shareholder protection. In comparison to these, listed firms and transactions with good quality documents will tend to employ more sophisticated, multi-technique valuation methods, consistent with investor expectations and best practice.

4.4 Case Studies: Disputed Exchange Ratios

During the data collection process in four mergers, contestations of the exchange were found. Specifically, two of these four transactions are very recent and have not yet been completed, so it is interesting to see what the reasons are behind these challenges. The focus is on Monte dei Paschi's hostile offer to acquire Mediobanca and on UniCredit's voluntary public exchange offer for Banco BPM.

4.4.1 Monte dei Paschi's Attempted Hostile Takeover of Mediobanca

As previously introduced in section 1.3.1 as a hostile takeover recent case and then in paragraph 2.2.1 to see a short- term market reaction to an announcement, the attempted merger between Monte dei Paschi di Siena (BMPS) and Mediobanca represents one of the most recent and high-profile examples of a contested exchange ratio in the Italian banking sector. While the strategic and financial implications of the operation have already been presented, this section focuses specifically on the issue of valuation alignment and the perceived fairness of the proposed ratio.

The exchange ratio at the core of the offer, initially set at 2.3 newly issued BMPS shares per Mediobanca share and later adjusted to approximately 2.533 to account for dividend effects, was formally approved by BMPS shareholders[98]. However, it was relegated to outright rejection by Mediobanca's board and major shareholders, who found it value-erosive and unsolicited. Remarkably, such rejection was not based on defects in procedure but on a concern that the exchange ratio grossly undervalued Mediobanca and could not be justified in consideration of its financial strength, business model, and valuation multiples[99].

From the standpoint of this thesis, the case is significant for two reasons. First, it exemplifies a non-judicial form of contestation: no minority shareholder has yet triggered a court-appointed valuation procedure under Article 2441(6) of the Italian Civil Code. Nevertheless, the public and institutional resistance signals a material disagreement over the fairness of the exchange ratio, reinforcing the notion that valuation disputes can occur independently of formal legal mechanisms. Second, it confirms the empirical relevance of factors studied in this chapter: the contestation unfolded in a context lacking structured negotiation and absent an independent expert report, which aligns with the findings of the regression models that linked higher deviations from theoretical exchange ratios to these same conditions.

The case in question illustrates how shareholder alignment and perceived valuation fairness remain central issues in large-scale mergers, particularly when the exchange ratio is proposed unilaterally and without negotiation. It is a practical-real life example where institutional contestation of the exchange ratio served as a major obstacle, despite the absence of legal litigation, thus confirming the broader thesis that exchange ratios are not purely the result of quantitative valuation but are also shaped by strategic dynamics and credibility perceptions.

4.4.2 UniCredit's Voluntary Public Exchange Offer for Banco BPM

The second relevant case chosen is the one regarding the voluntary public exchange offer (OPS) launched by Unicredit (UCG) to Banco BPM (BBPM). On November 25, 2024, UniCredit announced an all-share offer valued at 10.1 billion euros. According to the announcement, the proposed combination aims to strengthen UniCredit's position in one of

[98] Banca Monte dei Paschi di Siena (2025, 17 aprile). *Comunicato stampa – Assemblea di Banca Monte dei Paschi di Siena: via libera all'aumento di capitale per l'OPS su Mediobanca*. Banca MPS. https://www.gruppomps.it/media-e-news/comunicati/cs-17-04-2025.html

[99] Mediobanca S.p.A. (2025, January 28th). *Mediobanca rigetta l'OPS di MPS non concordata e fortemente distruttiva di valore* [Mediobanca rejects MPS's non-agreed and highly value-destructive public exchange offer]. https://www.mediobanca.com/it/stampa-comunicazione/comunicati-stampa/mediobanca-rigetta-l-ops-di-mps-non-concordata-e-fortemente-distruttiva-di-valore.html

its core markets and the entire Group, reinforcing long-term value creation for the stakeholders of both banks. The strategic rationale is to achieve sustainable growth through an enhanced revenue base and reinforced operational and capital excellence, resulting in an increase in profitability. According to UniCredit's Board of Directors, the combined business will offer enhanced returns for shareholders due to the integration and upon achievement of synergies[100].
On April 2, 2025, UniCredit disclosed that Consob had approved the prospectus and offered documentation concerning a maximum of 1,515,182,126 Banco BPM ordinary shares. This followed the initial communication in November and the filing of the offeror document with Consob on December 13, 2024. The publication is an important procedural step, following the approval by Consob, UniCredit formally filed and published the offer materials. The offer period was scheduled to run from April 28 and June 23, 2025, pending the approval of Borsa Italiana, establishing the formal timeline for the involvement of the shareholders in the exchange offer[101].
Subsequently, on April 24, 2025, the Board of Directors of BBPM releases its considerations on the offer made by UniCredit. Several difficulties were encountered in evaluating the bid due to uncertainty in the integration, lack of clarity, and confusion about the terms of the non-agreed-upon bid. The BoD explicitly underlined five main reasons why it believes that the OPS is unsatisfactory for BBPM's shareholders:

1) The consideration is not financially congruous.
2) It does not recognize any premium to BBPM shareholders and is at a discount to the BBPM share price.
3) The market price does not reflect BBPM's fundamentals.
4) The Consideration is entirely in UCG Shares, the performance and valuation of which relative to BBPM shares must be carefully considered.
5) The proposed transaction creates value exclusively for UCG shareholders at the expense of BBPM shareholders.

Among these reasons, the first one is fundamental and in line with the argument of this thesis. It is mentioned in the communication that the average exchange ratio is 0.245x, which is 0.063x higher than the UCG proposed ratio (which is 0.182x). The median of the exchange

[100] UniCredit Group. (2024, November 25). *UniCredit is making a voluntary public exchange offer for Banco BPM for a total consideration of circa €10.1 billion fully in shares* [Press release]. Retrieved from UniCredit website
[101] UniCredit Group. (2025, April 2). *Approval by Consob and publication of the offer document and prospectus; acceptance period from 28 April 2025 to 23 June 2025* [Press release]. Retrieved from UniCredit Group website.

ratios is 0.226x, still significantly above the offer figure. The comparison of BBPM's valuation implied in the average exchange ratio and that implied in the consideration brings out, based on the official price of UCG's shares on the reference date, a difference of €4.6 billion[102].

This valuation, as interpreted by BBPM's Board, is an effective undervaluation of the share capital applied by UniCredit to Banco BPM, before even considering any control premium typically paid in takeover bids. In addition, the nature of the consideration (UCG shares in full) exposes BBPM shareholders to additional valuation and delivery risk, especially considering that there is no common industrial project and that the synergies are not evident. The Board also highlighted that BBPM's autonomous strategic direction, expansion prospects, and dividend policy would all be compromised on the terms of the proposed bid. These objections suggest that the debate over the exchange ratio is not only a matter of fiscal disparity but a real expression of basic institutional and strategic misalignment between the two parties. This case demonstrates that exchange ratios in dispute may not only be the result of quantitatively undervaluing the shares but also more general issues of fairness, governance, and credibility in the consolidation process.

[102] Banco BPM. (2025, April 24). *Presentazione del Comunicato dell'Emittente: Considerazioni del Consiglio di Amministrazione sull'Offerta Pubblica di Scambio volontaria promossa da UniCredit S.p.A.* [Presentation]. Banco BPM.

Conclusions

This thesis is intended to analyze how value is created and distributed in mergers and acquisitions with special reference to the relationship between theoretical and actual exchange ratios in share-for-share transactions. With a combination of stringent theoretical modeling accompanied by an empirical analysis, the study elucidates the complexities and practical implications of M&A negotiations beyond standard models of valuation.

The first part of the work developed the conceptual frameworks, demonstrating how companies are evaluated, using models such as the Discounted Cash Flow (DCF), Adjusted Present Value (APV), and Market Multiples approaches. While they serve as a standardized way of valuing firm value and synergies, the models lack the power to detail how the value can be allocated among the parties. In this case, particular attention was put on the concept of synergies, both tangible and intangible, and the stand-alone constraint. Also examined in the thesis were how macroeconomic factors, integration issues, and market responses affect M&A performance and create potential differences between theoretical projections and real conduct.

The empirical data, based on a sample of 43 recent M&A transactions, selected from 105 operations examined, demonstrated a continued divergence between the theoretical exchange ratio, computed from valuation measures, and the actual exchange ratio, which is the finally agreed exchange ratio after negotiations. Some key results emerged from the statistical analysis.

First, the continued prevalence of the gap between TER and AER indicates that M&A transactions are rarely defined in terms of pure financial models. Instead, they are shaped by positioning strategy, control premiums, market expectations, and negotiating tactics. This confirms that valuation is only the first step in the negotiation process, and a long way from the final word in terms of a merger.

Linear and logit regressions identified a variety of explanatory variables for this variation, including whether or not the firms involved were listed, if financial advisers were engaged, and whether the deal was friendly or hostile. Stronger acquirers also obtained more favorable AERs and deals that were better advised showed a higher probability of diverging from their TERs, suggesting a strategic use of bargaining power and signaling in the market. Cluster and discriminant analyses allowed for the segmentation of deals into various behavioral classes, supporting the contention that value distribution is influenced by structural and institutional context and by objective value appraisal. In addition, bivariate correlations revealed the significance of valuation methods used and governance structure in determining the outcome.

Monte dei Paschi's hostile takeover bid for Mediobanca and UniCredit's public exchange offer for Banco BPM case studies also demonstrated the way exchange ratios become a base for where legal, strategic, and perceptual forces meet. These real-life examples reveal that even when financial calculations are accurate, political and reputational issues may overwhelm in determining the AER, often deviating considerably from theoretical models.

In conclusion, this thesis reveals value allocation in M&As to be a multifactorial and asymmetrical process. While valuation models are a prerequisite for starting negotiations, the terms of exchange itself are largely driven by power dynamics, information asymmetry, market perception, and strategic intent. This contradicts the traditional scholarly focus on post-merger performance as the primary indicator of M&A success and shifts the spotlight to investigating the sharing of value from the outset.

This contribution to the literature offers a mixed methodology that combines quantitative precision with strategic interpretation, underlining the importance of being aware not just of whether mergers create value, but how and for whom it is created. Even more research could extend this perspective by examining cross-border transactions, incorporating ESG and governance considerations, or studying the long-term financial performance of high TER-AER gap transactions. Ultimately, if M&As are to realize their promise as growth and innovation drivers, investors, managers, and regulators all require a deeper insight into value distribution dynamics.

Appendix 1: Cluster Output

Case Processing Summary[a,b]

Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
43	100.0	0	.0	43	100.0

a. Squared Euclidean Distance used

b. Average Linkage (Between Groups)

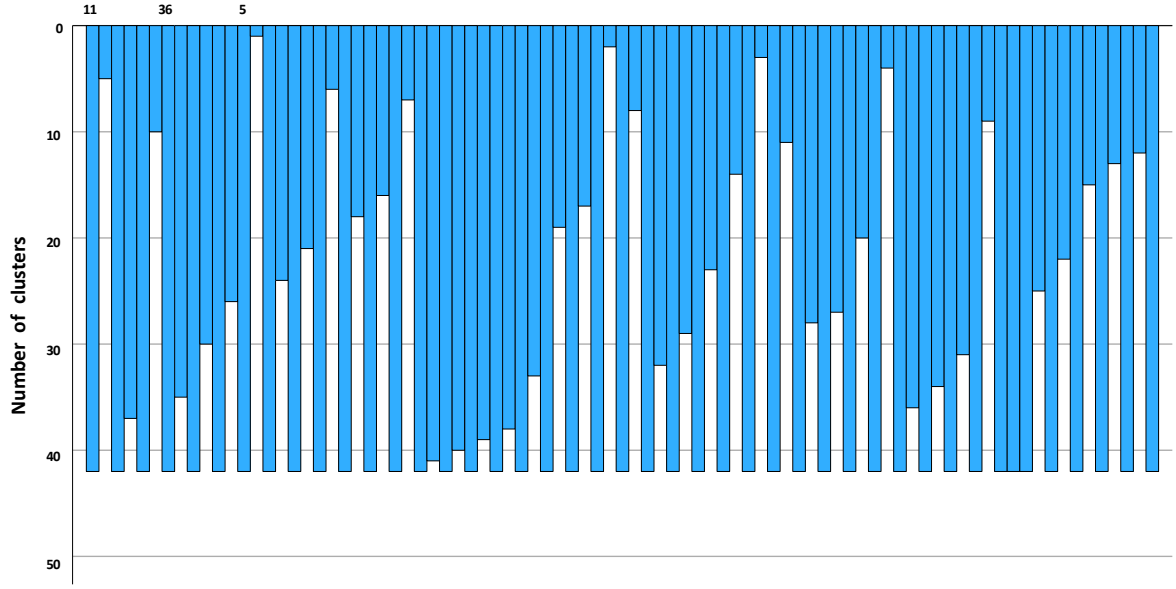
Average Linkage (Between Groups)

Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	26	43	.000	0	0	18
2	41	42	.000	0	0	3
3	40	41	.000	0	2	4
4	39	40	.000	0	3	5
5	34	39	.000	0	4	10
6	20	38	.000	0	0	33
7	35	37	.000	0	0	9
8	31	36	.000	0	0	13
9	32	35	.000	0	7	12
10	16	34	.000	0	5	24
11	30	33	.000	0	0	14
12	19	32	.000	0	9	34
13	27	31	.000	0	8	17
14	24	30	.000	0	11	20
15	28	29	.000	0	0	16
16	17	28	.000	0	15	23
17	5	27	.000	0	13	33
18	23	26	.000	0	1	21
19	21	25	.000	0	0	22
20	6	24	.000	0	14	29
21	7	23	.000	0	18	28
22	9	21	.000	0	19	37
23	12	17	.000	0	16	32
24	14	16	.000	0	10	26
25	13	15	.000	0	0	27
26	8	14	.000	0	24	36
27	10	13	.000	0	25	36
28	4	7	.000	0	21	30
29	3	6	.000	0	20	35
30	2	4	.000	0	28	31
31	1	2	.000	0	30	34

Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
32	12	22	1.000	23	0	39
33	5	20	1.000	17	6	38
34	1	19	1.000	31	12	39
35	3	18	1.000	29	0	40
36	8	10	1.000	26	27	37
37	8	9	1.273	36	22	41
38	5	11	1.333	33	0	42
39	1	12	1.709	34	32	40
40	1	3	1.792	39	35	41
41	1	8	3.188	40	37	42
42	1	5	6.480	41	38	0



Appendix 2: Discriminant Output

Analysis Case Processing Summary

Unweighted Cases		N	Percent
Valid		43	100.0
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	0	.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	0	.0
Total		43	100.0

Group Statistics

Average Linkage (Between Groups)		Mean	Std. Deviation	Valid N (listwise) Unweighted	Weighted
1	Use of DCF method (yes=1)	.73	.456	22	22.000
	Use of multiples method (yes=1)	.73	.456	22	22.000
2	Use of DCF method (yes=1)	.86	.378	7	7.000
	Use of multiples method (yes=1)	.71	.488	7	7.000
3	Use of DCF method (yes=1)	.14	.363	14	14.000
	Use of multiples method (yes=1)	.14	.363	14	14.000
Total	Use of DCF method (yes=1)	.56	.502	43	43.000
	Use of multiples method (yes=1)	.53	.505	43	43.000

Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
Use of DCF method (yes=1)	.654	10.583	2	40	<.001
Use of multiples method (yes=1)	.702	8.502	2	40	<.001

Pooled Within-Groups Matrices[a]

		Use of DCF method (yes=1)	Use of multiples method (yes=1)
Covariance	Use of DCF method (yes=1)	.173	-.005
	Use of multiples method (yes=1)	-.005	.188
Correlation	Use of DCF method (yes=1)	1.000	-.029
	Use of multiples method (yes=1)	-.029	1.000

a. The covariance matrix has 40 degrees of freedom.

Analysis 1

Box's Test of Equality of Covariance Matrices Log

Determinants

Average Linkage (Between Groups)	Rank	Log Determinant
1	2	-3.164
2	2	-3.920
3	2	-4.080
Pooled within-groups	2	-3.426

The ranks and natural logarithms of determinants printed are those of the group covariance matrices.

Test Results

Box's M		5.954
F	Approx.	.895
	df1	6
	df2	3152.075
	Sig.	.497

Tests null hypothesis of equal population covariance matrices.

Summary of Canonical Discriminant Functions

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.975[a]	99.3	99.3	.703
2	.007[a]	.7	100.0	.083

a. First 2 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.503	27.155	4	<.001
2	.993	.271	1	.602

Standardized Canonical Discriminant Function Coefficients

	Function 1	Function 2
Use of DCF method (yes=1)	.754	-.658
Use of multiples method (yes=1)	.679	.735

Structure Matrix

	Function 1	Function 2
Use of DCF method (yes=1)	.734*	-.679
Use of multiples method (yes=1)	.657	.754*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions
Variables ordered by absolute size of correlation within function.

*. Largest absolute correlation between each variable and any discriminant function

Functions at Group Centroids

Average Linkage (Between Groups)	Function 1	Function 2
1	.608	.059
2	.823	-.168
3	-1.366	-.009

Unstandardized canonical discriminant functions evaluated at group means

Classification Statistics

Classification Processing Summary

Processed		43
Excluded	Missing or out-of-range group codes	0
	At least one missing discriminating variable	0
Used in Output		43

Prior Probabilities for Groups

Average Linkage (Between Groups)	Prior	Cases Used in Analysis	
		Unweighted	Weighted
1	.512	22	22.000
2	.163	7	7.000
3	.326	14	14.000
Total	1.000	43	43.000

Classification Results[a,c]

		Average Linkage (Between Groups)	Predicted Group Membership		
			1	2	3
Original	Count	1	21	0	1
		2	6	0	1
		3	4	0	10
	%	1	95.5	.0	4.5
		2	85.7	.0	14.3
		3	28.6	.0	71.4
Cross-validated[b]	Count	1	21	0	1
		2	6	0	1
		3	4	0	10
	%	1	95.5	.0	4.5
		2	85.7	.0	14.3

Classification Results[a,c]

		Average Linkage (Between Groups)	Total
Original	Count	1	22
		2	7
		3	14
	%	1	100.0
		2	100.0
		3	100.0
Cross-validated[b]	Count	1	22

		2	7
		3	14
	%	1	100.0
		2	100.0
		3	100.0

a. 72.1% of original grouped cases correctly classified.

b. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

c. 72.1% of cross-validated grouped cases correctly classified.

Appendix 3: Linear Regression Output

Descriptive Statistics

	Mean	Std. Deviation	N
Value difference (AER - TER)	.049932878	.414914411	43
Court-appointed expert involved (yes=1)	.79	.412	43
Mention of negotiations in documentation (yes=1)	.79	.412	43

Correlations

		Value difference (AER - TER)	Court-appointed expert involved (yes=1)	Mention of negotiations in documentation (yes=1)
Pearson Correlation	Value difference (AER - TER)	1.000	-.329	.043
	Court-appointed expert involved (yes=1)	-.329	1.000	.578
	Mention of negotiations in documentation (yes=1)	.043	.578	1.000
Sig. (1-tailed)	Value difference (AER - TER)	.	.016	.392
	Court-appointed expert involved (yes=1)	.016	.	.000
	Mention of negotiations in documentation (yes=1)	.392	.000	.
N	Value difference (AER - TER)	43	43	43
	Court-appointed expert involved (yes=1)	43	43	43
	Mention of negotiations in documentation (yes=1)	43	43	43

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Mention of negotiations in documentation (yes=1), Court-appointed expert involved (yes=1)[b]	.	Enter

a. Dependent Variable: Value difference (AER - TER)

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.436[a]	.190	.149	.382646833	.190	4.691

Model Summary[b]

Model	Change Statistics		
	df1	df2	Sig. F Change
1	2	40	.015

a. Predictors: (Constant), Mention of negotiations in documentation (yes=1), Court-appointed expert involved (yes=1)

b. Dependent Variable: Value difference (AER - TER)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.374	2	.687	4.691	.015[b]
	Residual	5.857	40	.146		
	Total	7.230	42			

a. Dependent Variable: Value difference (AER - TER)

b. Predictors: (Constant), Mention of negotiations in documentation (yes=1), Court-appointed expert involved (yes=1)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	.194	.140		1.384
	Court-appointed expert involved (yes=1)	-.536	.176	-.532	-3.048
	Mention of negotiations in documentation (yes=1)	.353	.176	.351	2.010

Coefficients[a]

Model		Sig.	Correlations			Collinearity Statistics
			Zero-order	Partial	Part	Tolerance
1	(Constant)	.174				
	Court-appointed expert involved (yes=1)	.004	-.329	-.434	-.434	.665
	Mention of negotiations in documentation (yes=1)	.051	.043	.303	.286	.665

Coefficients[a]

Model		Collinearity Statistics VIF
1	(Constant)	
	Court-appointed expert involved (yes=1)	1.503
	Mention of negotiations in documentation (yes=1)	1.503

a. Dependent Variable: Value difference (AER - TER)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Court-appointed expert involved (yes=1)	Mention of negotiations in documentation (yes=1)
1	1	2.794	1.000	.02	.02	.02
	2	.118	4.860	.98	.19	.19
	3	.088	5.627	.00	.79	.79

a. Dependent Variable: Value difference (AER - TER)

Residuals Statistics[a]

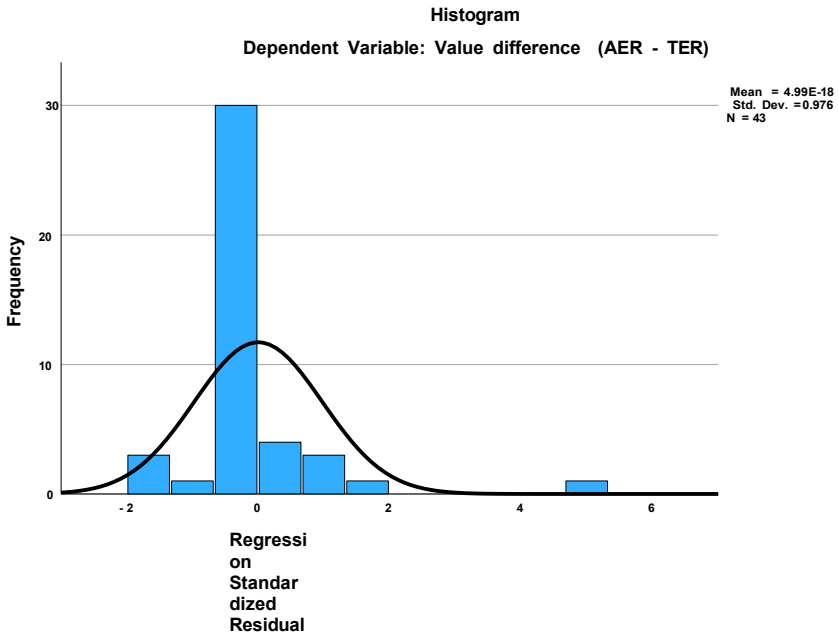
	Minimum	Maximum	Mean	Std. Deviation
Predicted Value	-.341756761	.547709882	.049932878	.180852659
Std. Predicted Value	-2.166	2.752	.000	1.000
Standard Error of Predicted Value	.067	.173	.092	.042
Adjusted Predicted Value	-.429865927	.688916385	.042110511	.199430626
Residual	-.547709882	1.95229006	.000000000	.373425072
Std. Residual	-1.431	5.102	.000	.976
Stud. Residual	-1.605	5.722	.009	1.075
Deleted Residual	-.688916385	2.45561481	.007822367	.454328110
Stud. Deleted Residual	-1.639	13.264	.185	2.130
Mahal. Distance	.328	7.632	1.953	2.760
Cook's Distance	.000	2.814	.083	.428
Centered Leverage Value	.008	.182	.047	.066

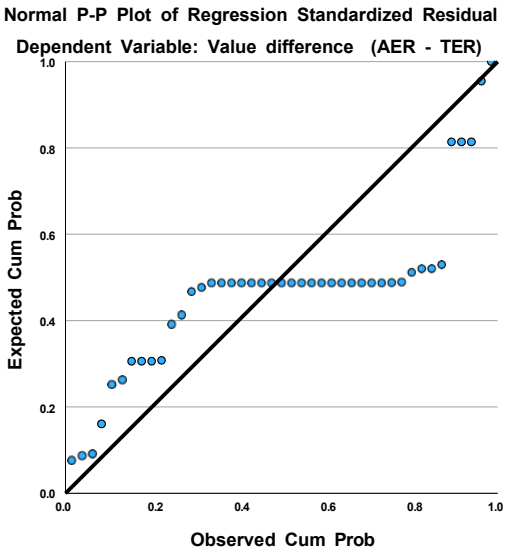
Residuals Statistics[a]

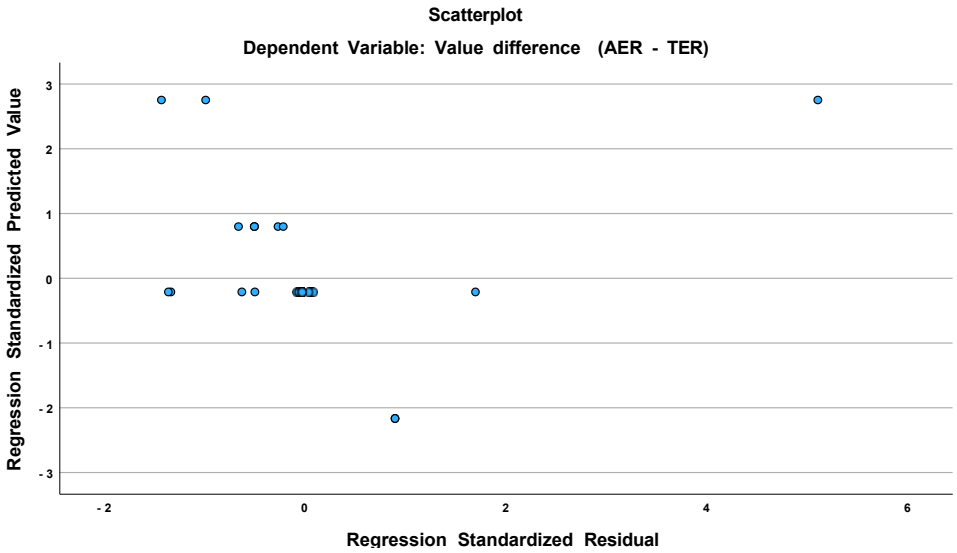
Predicted Value	43
Std. Predicted Value	43
Standard Error of Predicted Value	43
Adjusted Predicted Value	43
Residual	43
Std. Residual	43
Stud. Residual	43
Deleted Residual	43
Stud. Deleted Residual	43
Mahal. Distance	43
Cook's Distance	43
Centered Leverage Value	43

a. Dependent Variable: Value difference (AER - TER)

Charts




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Value difference (AER - TER)
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Scatterplot
Dependent Variable: Value difference (AER - TER)
Regression Standardized Predicted Value
Regression Standardized Residual
3
2
1
0
- 1
- 2
- 3
- 2
0
2
4
6

Appendix 4: Logistic Regression Output

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	43	100.0
	Missing Cases	0	.0
	Total	43	100.0
Unselected Cases		0	.0
Total		43	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
0	0
1	1

Block 0: Beginning Block

Classification Table[a,b]

			Predicted		
			Only standalone valuation used (yes=1)		
	Observed		0	1	Percentage Correct
Step 0	Only standalone valuation used (yes=1)	0	0	19	.0
		1	0	24	100.0
	Overall Percentage				55.8

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.234	.307	.579	1	.447	1.263

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Acquiring company is listed (yes=1)	7.387	1	.007
		Range explanation	10.103	1	.001
	Overall Statistics		13.872	2	<.001

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.409	2	<.001
	Block	15.409	2	<.001
	Model	15.409	2	<.001

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	43.619[a]	.301	.403

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.160	2	.125

Contingency Table for Hosmer and Lemeshow Test

		Only standalone valuation used (yes=1) = 0		Only standalone valuation used (yes=1) = 1		
		Observed	Expected	Observed	Expected	Total
Step 1	1	10	11.314	4	2.686	14
	2	4	2.686	2	3.314	6
	3	5	3.686	5	6.314	10
	4	0	1.314	13	11.686	13

Classification Table[a]

			Predicted		
			Only standalone valuation used (yes=1)		
	Observed		0	1	Percentage Correct
Step 1	Only standalone valuation used (yes=1)	0	10	9	52.6
		1	4	20	83.3
	Overall Percentage				69.8

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.
Step 1[a]	Acquiring company is listed (yes=1)	-1.648	.775	4.519	1	.034
	Range explanation	-1.976	.749	6.952	1	.008
	Constant	2.186	.741	8.695	1	.003

Variables in the Equation

		Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Acquiring company is listed (yes=1)	.193	.042	.879
	Range explanation	.139	.032	.602
	Constant	8.897		

a. Variable(s) entered on step 1: Acquiring company is listed (yes=1), Range explanation.

```
Step number: 1

Observed Groups and Predicted Probabilities

      16 +
                          +
         I
                          I
         I                    1
                          I
F        I                    1
               1          I
R     12 +                    1
               1          +
E        I                    1
               1          I
Q        I                    0                                           1
               1          I
U        I                    0                                           1
               1          I
E      8 +                    0                                           1
               1          +
N        I                    0                                           1
               1          I
C        I                    0                                   1       1
               1          I
Y        I                    0                                   1       0
               1          I
       4 +                    0                                   0       0
               1          +
         I                    0                                   0       0
               1          I
         I                    0                                   0       0
               1          I
         I                    0                                   0       0
               1          I
Predicted ---------+---------+---------+---------+---------+---------+---------+------
----+---------+----------
  Prob:   0        .1        .2        .3        .4        .5        .6        .7
   .8        .9         1
  Group:  0000000000000000000000000000000000000000000000000011111111111111111111111111
1111111111111111111111111

          Predicted Probability is of Membership for 1
          The Cut Value is .50
          Symbols: 0 - 0
                   1 - 1
          Each Symbol Represents 1 Case.
```

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