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Course of Advanced Corporate Finance

Managing complexity in M&A: hostile takeover strategies and corporate valuation techniques - Intel Corp Case Study

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Introduction

In today's rapidly evolving global economy, mergers and acquisitions (M&A) have emerged as a central strategy for corporate growth, competitive positioning, and value creation. Over the past century, the landscape of M&A has undergone significant transformations, driven by economic cycles, regulatory reforms, and technological advancements. While many transactions are characterized by cooperative negotiations, a focus of this thesis will be on a distinct and complex subset of deals which has increasingly captured the attention of both practitioners and scholars: *hostile takeovers*.

The thesis is structured to progressively build a comprehensive understanding of M&A, starting from fundamental concepts and moving toward specialized topics such as hostile takeovers and valuation techniques to tie together these elements in the final chapter through an empirical case study, showcasing their practical relevance.

More in detail, the first chapter lays the groundwork by providing a comprehensive overview of the M&A landscape. It begins with an exploration of the underlying motivations that drive companies to pursue M&A transactions, including different types of synergies. The discussion then moves into an analysis of historical M&A waves, highlighting how the frequency and nature of M&A is cyclical and influenced by various aspects. The chapter further examines the key players involved in the M&A process, including firms, investment banks, legal advisors, and regulatory bodies. A structured breakdown of the M&A process follows, outlining the various phases from deal origination and negotiation to due diligence, financing, and post-merger integration. The aim is to provide a clear and detailed framework for understanding how M&A transactions are structured and executed in practice.

Building upon the foundation established in Chapter 1, the second chapter delves into a specialized and complex segment of M&A: hostile takeovers. It begins by distinguishing hostile and friendly acquisitions, emphasizing the adversarial nature of these transactions and the challenges they present for both acquiring and target firms. The discussion then moves to the offensive tactics employed by acquiring firms to gain control over a reluctant target. These include several methods that will be discussed in detail. In response to these aggressive maneuvers, target firms deploy defensive strategies aimed at deterring or obstructing the takeover. These strategies are discussed, and the chapter evaluates the effectives of them by considering their broader implications for corporate governance and shareholder value.

Valuation is at the heart of M&A decision-making, as it determines whether a transaction is financially justified. Chapter 3 provides an in-depth exploration of valuation methodologies, beginning with the theoretical foundations of corporate valuation. It highlights the importance of understanding a company's lifecycle stage in selecting appropriate valuation techniques, as different methodologies may be more suitable depending on whether a firm is in a high-growth phase or a mature stage. The chapter first introduces relative valuation techniques, including *Comparable Companies Analysis* (CCA) and *Comparable Transactions Analysis* (CTA). Then intrinsic valuation is discussed, with a detailed examination of the father of all valuation techniques: the Discounted Cash Flow (DCF) model. The chapter explains the process of forecasting, estimating Free Cash Flows, and determining an appropriate discount rate through a detailed breakdown of the Weighted Average Cost of Capital (*WACC*). It also explores key components such as Terminal Value (TV) estimation and sensitivity analysis, which help assess valuation risks and refine estimates. By integrating these methodologies, this chapter equips with a rigorous framework for the valuation of corporate value in M&A transactions, ensuring that decisions are based on robust financial principles.

In order to see how to adapt theory when dealing with real world, chapter 4 transitions from conceptual analysis to empirical application by conducting a comprehensive valuation case study of Intel Corporation. Given the company's positioning in the semiconductor industry and the evolving competitive dynamics, Intel has emerged as a potential acquisition target, making it a compelling subject for an in-depth financial assessment. The chapter begins by outlining the broader context in which Intel operates, providing an overview of industry trends and recent strategic developments affecting the firm. Key industry-specific factors are analyzed to establish a macro perspective on the potential for M&A activity. Additionally, the chapter discusses Intel's historical financial performance and strategic initiatives, including restructuring efforts, competitive positioning, and potential incentives for a takeover bid. Following the contextual analysis done in chapter 3, the valuation process is conducted using multiple methodologies to triangulate Intel's fair value and assess whether its current market price aligns with fundamental valuation metrics. The final section of the chapter synthesizes the findings from the different valuation techniques, presenting a range of potential valuations for Intel and discussing the implications for potential acquirers, investors, and industry stakeholders. The case study also highlights the challenges associated with corporate valuation in dynamic and rapidly evolving industries, reinforcing the necessity of employing multiple valuation methods to mitigate estimation risks. By providing a practical demonstration of what

is discussed in Chapter 3, this chapter reinforces the critical role of corporate finance tools in M&A decision-making. The Intel case study serves as a concrete example of how valuation frameworks are applied in practice, offering valuable insights into the financial, strategic, and industry-specific considerations that shape M&A transactions in the modern corporate landscape.

Ch. 1 – Mergers & Acquisitions: process and general aspects

In the dynamic landscape of global business, companies constantly seek strategies to gain competitive advantage, expand market share, and drive growth. Among these strategies, Mergers and Acquisitions (M&A) stand out as powerful tools for corporate expansion and transformation. M&A activities have become increasingly prevalent in recent decades, reshaping industries and redefining the boundaries of corporate entities.
This chapter delves into the multifaceted world of M&A, exploring the fundamental concepts, processes, and challenges that characterize these complex transactions. From the initial motivations driving companies to pursue inorganic growth, to the intricate space of negotiation and valuation, the key elements that make M&A a critical component of modern corporate strategy will be examined.

"Mergers and Acquisitions, also known as "M&A", can be considered as any process in which the ultimate beneficial ownership and the respective control of a firm are transferred from one subject (or group of subjects) to another" (Caselli, Gigante, & Tortoroglio, 2021).

More in general, the term *corporate restructuring* could be used to refer to "a broad array of activities that expand or contract a firm's operations or substantially modify its financial structure or bring about a significant change in its ownership structure. *Inter alia*, it includes activities such as mergers, purchases of business units, takeovers, slump sales, demergers, and equity carveouts." (Chandra, 2011).

These kinds of extraordinary transactions, that will be discussed later, if leveraged well, can help companies achieve strategic goals efficiently and faster than *internal expansion*.

The intricacies of M&A transactions lie in various aspects ranging from the complexity of building interpersonal relationships and using negotiation and communication skills to the technical side of financial analysis, valuation, and regulatory context. In this sense, for the purpose of a broader understanding, it is useful to know the process in its entirety from the different perspectives of the different players involved.

Through this chapter it will be possible to deep dive into the topic of the rationale and the process behind M&A transactions, together with a comprehensive historical perspective that will lead to a general understanding of the cyclical trend of the deals influenced, especially, by the macroeconomic environment and the regulatory context. At the end of the chapter, it will

be clear who plays which role in a complex transaction by identifying various aspects of the professionals involved in each step of the process.

1.1 Drivers: why M&A?

There are several reasons to consider an M&A deal both for the acquirer and the seller. Among the reasons, one of the most important lies in the broad concept of value creation. The seller usually receives a premium with respect to the ordinary price of the shares and the acquirer could benefit from potential synergies.

"Synergy is the value realized from the incremental cash flows generated by combining two businesses" (DePamphilis D. M., 2018).

In general, a synergy could be expressed as:

$$Value\ (A+B) > Value\ (A) + Value\ (B)$$

According to Gaughan (2018), synergy may allow the combined firm to appear to have a positive *Net Acquisition Value* (NAV).

$$NAV = [V_{AB} - (V_A + V_B)] - (P + E)$$

Where:

V_{AB} = the combined value of the two firms

V_A = the value of A

V_B = the value of B

P = the premium paid for B

E = the expenses of the acquisition process

The term $[V_{AB} - (V_A + V_B)]$ captures the synergistic gain resulting from integrating the two firms, while (P+E) accounts for the total costs of the transaction, including both the acquisition premium and related expenses. For the NAV to be positive, the synergy must exceed these costs. If the incremental benefits fail to offset the premium and other expenditures, the transaction may not deliver net value to the acquirer. Consequently, synergy must be sufficiently robust to justify the premium and absorb deal-related expenses, thus ensuring that the M&A activity indeed creates genuine value.

Building on this principle, according to Damodaran (2006) synergies can be broadly classified into operating and financial.

1.1.1 Operating synergies

Operating synergies broadly refer to improvements in the combined firms' day-to-day activities that enhance efficiency, reduce costs or increase revenue. They manifest in several ways, most commonly as *cost-based synergies* (e.g., economies of scale, economies of scope, operating efficiencies) and *revenue-based synergies* (e.g., cross-selling opportunities, access to new markets, and enhanced pricing power). These synergies are often reflected in higher operating margins, improved cash flows, or accelerated growth.

Cost-based synergies

Economies of scale: by pooling resources, the merged entity can spread fixed costs over a higher volume of output, thus reducing per-unit cost. "Many mergers are intended to reduce costs and achieve economies of scale. […] achieving these *economies of scale* is the natural goal of horizontal mergers. But such economies have been claimed in conglomerate mergers, too. The architects of these mergers have pointed to the economies that come from sharing central services such as office management and accounting, financial control, executive development, and top-level management." (Brealey, Myers, & Allen, Principles of Corporate Finance, 2014). A notable example is ExxonMobil's completed acquisition of Pioneer Natural Resources. In the official press release issued on May 3rd, 2024, ExxonMobil highlights that "Combining Pioneer's differentiated Permian inventory and basin knowledge with ExxonMobil's proprietary technologies, financial resources, and industry-leading project execution excellence is expected to generate double-digit returns by recovering more resource, more efficiently and with a much lower environmental impact." This statement underscores the expectation that, through the combination of resources and competencies, the merged entity generates operating synergies, specifically in terms of economies of scale.

Economies of scope: According to McGee (2014), "economies of scope arise when the average cost of a single product is lowered by its joint production with other products in a multi-product firm". Rather than spreading fixed costs over more units (as in economies of scale), firms pursuing economies of scope leverage complementary capabilities to expand their range of offerings while optimizing combined resources. A relevant example is LVMH's $15.8B acquisition of Tiffany & Co., finalized on January 7, 2021. This transaction strengthened

LVMH's presence in the high-end jewelry market, integrating Tiffany's iconic brand and product lines into its portfolio of luxury maisons. The acquisition allowed LVMG to enhance its marketing efforts, expand cross-selling opportunities among its brands, and utilize its global distribution networks to maximize Tiffany's reach. By combining their resources, the two entities created opportunities for deeper collaboration in branding, retail strategies, and product development. This strategic integration not only reinforced LVMH's leadership in the luxury sector but also exemplified the concept of economies of scope, where shared resources are utilized to create a broader, complementary range of products, driving growth and value creation.

Revenue-based synergies

Revenue synergies focus on expanding top-line growth through strategic post-merger integration. These synergies are often more challenging to realize and quantify, as they rely on market dynamics, customer behavior, and executional excellence.

The main revenue synergies achievable are as follows:

- *Cross-selling*: it allows the combined entity to leverage an expanded product or service portfolio across a broader customer base. By integrating complementary offerings and aligning sales channels, the merged company can increase the share of wallet from existing clients and drive higher overall revenue. The effectiveness of cross-selling depends largely on the degree of product and customer base compatibility. In horizontal mergers, synergies arise when the acquirer and target offer complementary products to overlapping customer segments. For example, in the FIG sector, a bank acquiring an asset management firm can offer wealth management products to its existing retail and corporate clients, generating incremental fee income.
- *Market expansion:* market expansion is one of the primary motivations for cross-border M&A, especially when organic entry is hindered by barriers of any kind. Acquiring an established player provides an immediate foothold, leveraging the target's local brand recognition, salesforce, and infrastructure to penetrate the market more effectively. "Companies that have successful products in one national market may see cross-border acquisitions as a way of achieving greater revenues and profits. Rather than seek potentially diminishing returns by pursuing further growth within their own nation,

companies may use cross-border deals as an advantageous way of tapping another market" (Gaughan, 2018).

- *Enhanced pricing power:* one of the most common ways M&A enhances pricing power is by reducing market fragmentation. When two significant players merge, they eliminate price competition between them, leading to a more rationalized industry pricing structure. This is particularly relevant in oligopolistic industries such as airlines, telecommunication, and pharmaceuticals. As a consequence, it is possible to attract antitrust scrutiny over the transaction because the regulators need to monitor deals that could lead to monopolistic pricing.

In general, cost synergies are preferable over revenue synergies due to their higher predictability, direct impact on EBITDA, and stronger influence on valuation multiples. For instance, in an acquisition where €1M in cost synergies is realized, the full amount is reflected in EBITDA. However, €1M in revenue synergies must account for costs associated with them and the effect is even bigger when looking at the valuation multiples. Assuming that the company is trading at a 10x EV/EBITDA multiple, €1M in cost synergies adds €10M in Enterprise Value, while €1M in revenue synergies, assuming 30% EBITDA margin, will translate in just €3M increase in EV.

1.1.2 Financial synergies

With respect to operating synergies, as suggested by Damodaran (2012), financial synergies focus on capital structure and fiscal efficiencies, such as tax benefits, more effective deployment of excess cash, elevated debt capacity, or diversification effects. These financial gains can materialize either as increased cash flows or in the form of a lower discount rate, further enhancing the overall value of the combined entity.

Below are detailed explanations of these concepts:

- *Tax benefits:* These occur when the merged entity pays less tax than the two individual companies would have paid separately. For example, this may happen when a profitable company acquires a loss-making firm and leverages the latter's net operating losses to reduce its tax burden.

- *Cash slack:* refers to a situation where a firm has excess cash but no viable investment opportunities, while another firm has high-return projects but lacks the financial resources to pursue them. In this case, according to Caselli, Gigante, & Tortoroglio (2021), cash-rich company will transfer funds to the firms with abundant opportunities in order to invest the funds and generate a return on investment. Usually, it happens considering a publicly traded firm (or a very large private one) acquiring a small firm. This rationale explains why acquisitions of smaller firms can be successful, as they allow underutilized cash to be deployed into productive investments. Example: imagine Alpha SpA, a large tech company with €50M in excess cash but limited growth opportunities in its current market. On the other hand, Beta srl, a small startup, has developed a groundbreaking AI-powered software solution in the MadTech industry but it's struggling in scaling its operations and bring the product to the market. By acquiring Beta srl, Alpha SpA can provide the necessary financial resources to develop and commercialize the product. Through this transaction, both companies benefit because Alpha generates a return on its investment, while Beta gains the resources needed to succeed.
- *Debt capacity:* steadier and more predictable cash flows could lead the combined entity to an increase in debt capacity based on its lower cost of capital. According to Ang, Daher, & Ismail (2019), "the market is unaware of the potential synergy gains that the increase debt capacity can produce. Due to the presence of asymmetric information, […] the market may have to gradually learn of management's plan over time. The gradual revelation of the acquirer's investment opportunities and its exercise of the option to use the additional debt capacity may ultimately be incorporated into share prices over time. Thus, longer term returns complete the shorter-term returns.". Through this finding is possible to understand the complexity involved in the valuation of financial synergies, and in broader terms, in the valuation of extraordinary transactions ex-ante.
- *Diversification:* "diversification is the most controversial source of financial synergy, since in most publicly traded firms, investors can diversify at far lower cost and with more ease than the firm itself. For private businesses or closely held firms, there can be potential benefits from diversification" (Caselli, Gigante, & Tortoroglio, 2021).

"Creating significant amounts of synergy is inherently difficult. Moreover, managers should understand that creating synergy involves opportunity costs. Pursuing synergy through attempts to create a new unit by integrating formerly independent operations can "distract managers' attention from the nuts and bolts of their businesses, and it crowds out other initiatives that might generate real benefits". In fact, in many instances, attempts to create synergy destroy rather than create value for stakeholders. An important reason for this, in addition to opportunity costs, is the "hidden" costs that can accompany acquisitions. Examples of these include culture clashes and misunderstandings, "turf" battle, and the lack of requisite knowledge to develop and use effective acquisition integration process." In financial terms, synergy can be thought of as the present value of all future profits that are directly attributable to a new combination that an acquisition has created. In operational terms, synergy reflects the ability of two or more firms or units to create value working together than they were able to create operating separately. In managerial terms, synergy is created when the firm's decision-makers are dedicated to finding ways to integrate units so that their newly formed patterns of joint efforts generate a competitive advantage and, in turn, create additional value. For shareholders, financial and/or operational synergy must yield gains (as represented by enhancements in their overall wealth) that they cannot obtain through their own investment decisions. […] Actual synergies result in the creation of a competitive advantage for the firm over its rivals. Such value-enhancing synergies can be generated through several sources, including: (1) improved operating efficiencies that are based on scale or scope economies, and (2) the sharing of knowledge or skills across units (it is possible, for example, that "value can be created simply by exposing one set of people to another who have a different way of getting things done"). Across industries and types of acquisitions, history shows that "strategic acquisitions", ones in which firms with overlapping businesses couple their operations, tend to generate more synergy than acquisitions that bring together firms competing in unrelated businesses. It is because of this that the melding of complementary resources, as discussed and described before, can play a crucial role in efforts to create synergy and, ultimately, acquisition success."

1.2 M&A Waves

"Merger and acquisition (M&A) strategies have been popular among U.S. firms for many years. Some believe that these strategies played a central role in the restructuring of U.S. businesses during the 1980s and 1990s and that they continue generating these types of benefits in the

twenty-first century" (Hitt, Ireland, & Hoskisson, 2016). This is also true for different periods and for the rest of the world.

Based on a combination of economic, regulatory, and technological shocks, M&A deals could be represented by cyclical trends. Gaughan (2018) identifies 6 *merger waves* in the 1897-2007 period.

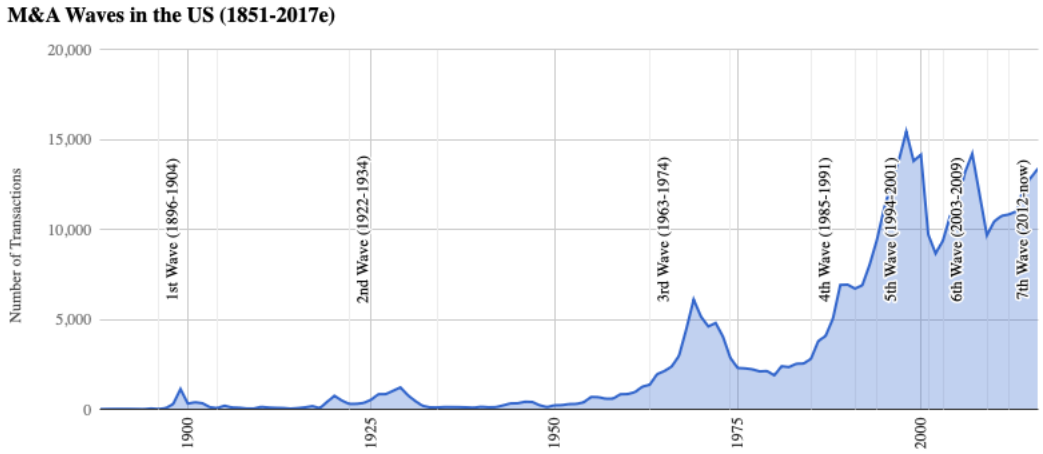

Figure 1 - M&A Waves in the US (1851-2017e) [Source: (IMAA - Institute for Mergers)]

1.2.1 First wave (1897-1904): Horizontal M&As

The first M&A wave was primarily characterized by horizontal mergers, where companies acquired or merged with direct competitors. This practice led to the creations of near-monopolistic market structures, particularly in heavy industries such as steel production, oil refining, and railroads. These consolidations allowed companies to expand their operations geographically, creating national-scale enterprises and securing dominance in their respective markets. As Nelson (1959) pointed out: "*Five of these years, 1898-1902, saw a burst of merger activity never exceeded in importance in our history, with 1,028 firms disappearing into mergers in 1899 alone. The huge turn-of-the-century merger were produced U.S. Steel, American Tobacco, International Harvester, Du Pont, Corn Products, Anaconda Copper, and American Smelting and Refining, to name only a few. Its effect on American industry was widespread and enduring. […] The merger wave ebbed during 1903 and 1904, and reached its lowest point in the third quarter of 1904.*"
This trend is visually depicted in figure 2, showing the *quarterly series of firm disappearances by merger* from 1895 to 1920. The peak highlights the unprecedented consolidation activity,

particularly during the most active years of this wave. For instance, in a single quarter of 1899, 410 firms disappeared into mergers, underscoring the intensity of corporate consolidation during this period.

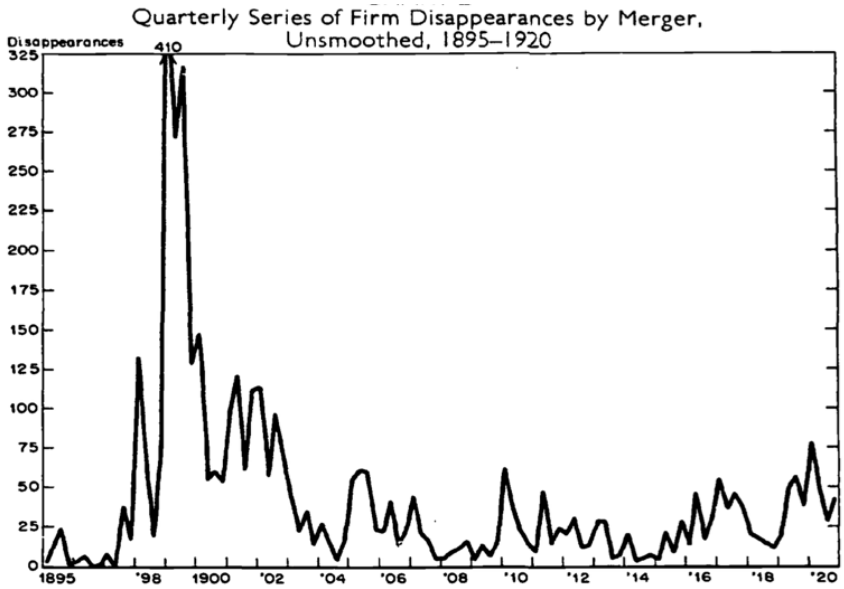

Figure 2 - Quarterly Series of Firm Disappearances by Merger, Unsmoothed, 1895-1920 [Source: (Nelson, 1959)]

This wave reflected the lack of effective regulatory oversight at the time, as the *Sherman Antitrust Act* (1890) was initially under-enforced. This allowed companies to pursue aggressive strategies, achieving economic of scale and eliminating competition. The dominance of these newly formed giants had a profound and lasting impact on the structure of American industry, setting the stage for future regulatory interventions and more sophisticated merger strategies in subsequent waves.

1.2.2 Second wave (1916-1929): Vertical M&As

The second wave of mergers and acquisitions, spanning from 1916 to 1929, marked a shift in corporate consolidation strategies. As George J. Stigler (1950) observed: “The era of merger for monopoly ended in this country roughly in 1904, when the *Northern Securities* decision made it clear that this avenue to monopoly was also closed by the antitrust laws. […] One great change has taken place in the merger movement since *Northern Securities* decision: the share of the industry merged into one firm has fallen sharply. […] The new goal for merger is oligopoly”. This period was characterized by a focus on vertical integration. The “Roaring

Twenties", thanks to the post-WWI economic boom and to some technological advancements in manufacturing and communication, was a period of economic prosperity and rapid growth in the US.

"The antitrust environment of the 1920s was stricter than the environment that had prevailed before the first merger wave. By 1910, Congress had become concerned about the abuses of the market and the power wielded by monopolies. It also had become clear that the Sherman Act was not an effective deterrent to monopoly. As a result, Congress passed the Clayton Act in 1914, a law that reinforced the antimonopoly provisions of the Sherman Act." (Gaughan, 2018)

1.2.3 Third wave (1965-1969): Conglomerate era

During the third wave, according to DePamphilis (2018), firms with high P/E ratios grew earnings per share (EPS) through acquisition rather than reinvestment by buying firms with lower P/E ratios but high earnings growth to increase the EPS of the combined companies.

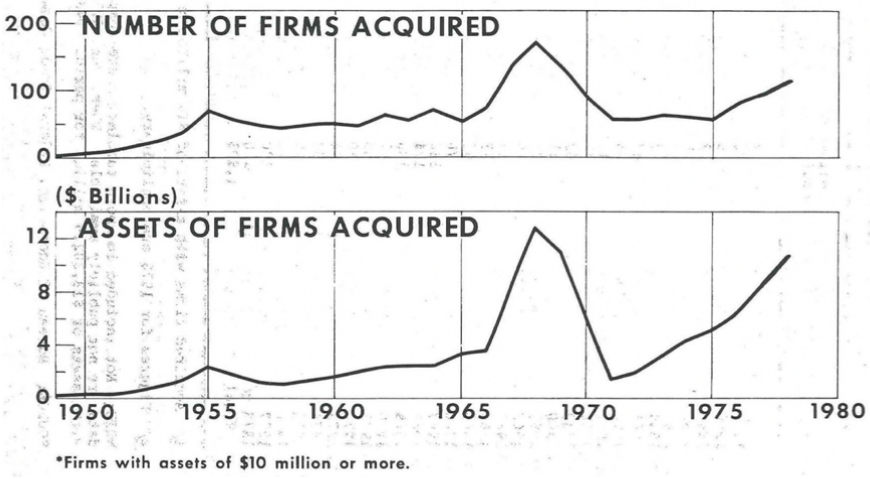

Figure 3 - Large manufacturing and mining firms acquired 1948-1978 [Source: (Federal Trade Commission, 1980)]

This period, often referred to as the "Conglomerate Era", began during the economic boom of the 1960s and was characterized by the formation of large, diversified corporations through unrelated diversification. This trend was partly a response to antitrust regulations that limited vertical and horizontal acquisitions. The introduction of the Celler-Kefauver Act in 1950 strengthened antitrust laws by addressing a critical gap in the Clayton Act, which had failed to prevent anticompetitive acquisitions because it was limited by the fact that it only applied to acquisitions of stock and not acquisitions of assets and this meant that companies could still acquire the assets of a competitor (e.g., factories, equipment, or intellectual property) without

triggering antitrust scrutiny. The Celler-Kefauver Act addressed this issue by extending antitrust regulations to cover asset acquisitions, making it harder for companies to engage in anticompetitive mergers. As a result, the businesses were pushed to pursue their inorganic growth mainly through conglomerate mergers. Indeed, according to Gaughan (2018), "a large percent of the M&As that took place in this period were conglomerate transactions. The Federal Trade Commission (FTC) reported that 80% of the mergers that took place in the 10-year period between 1965 and 1975 were conglomerate mergers". According to Mariani (2017), the economic effects of this wave are contradictory, indeed some scholars highlighted positive CARs for bidders, while other evidence has shown insignificant long-term profitability for them.

1.2.4 Fourth wave (1984-1989): LBOs and hostile takeovers

"The fourth merger wave, which occurred from 1984 to 1989, was qualitatively different from the previous waves. […] Previous mergers could be broadly defined as friendly combinations of two firms; however, in this period, hostile takeovers and corporate raids began to dominate due to changes in the takeover market." (Cho & Chung, 2022).

We'll go deeper into the concept of *hostile vs. friendly* takeover, and it will be even clearer after that, but it's important to underline how this wave was marked by a surge in hostile takeovers and the extensive use of speculative financial strategies. The period was also characterized by the emergence of "megamergers", involving some of the largest U.S. corporations, indeed the total number of M&As didn't reach unprecedent levels but the volume was truly higher than before.

"M&A volume was clearly greater in certain industries. […] The oil and gas industry accounted for 21.6% of the total dollar value of M&As from 1981 to 1985. During the second half of the 1980s, drugs and medical equipment deals were the most common. One reason some industries experienced a disproportionate number of M&As as compared with other industries was deregulation. When the airline industry was deregulated, for example, airfares became subject to greater competition, causing the competitive position of some air carriers to deteriorate. The result was numerous acquisitions and a consolidation of this industry. The banking and petroleum industries experienced a similar pattern of competitively inspired M&As" (Gaughan, 2018).

Year	Buyer	Target	Price (bil $)	Price (2014 $)
1988	Kohlberg Kravis	RJR Nabisco	25.1	54.1
1984	Chevron	Gulf Oil	13.3	31.4
1988	Philip Morris	Kraft	13.1	28.3
1989	Bristol Myers	Squibb	12.5	26.2
1984	Texaco	Getty Oil	10.1	23.8
1981	DuPont	Conoco	8.0	22.6
1987	British Petroleum	Standard Oil of Ohio	7.8	16.9
1981	U.S. Steel	Marathon Oil	6.6	18.7
1988	Campeau	Federated Stores	6.5	14.0
1986	Kohlberg Kravis	Beatrice	6.2	13.8

Source: Wall Street Journal, November 1988.

Figure 4 - Ten Largest Acquisitions, 1981-1989 [Source: (Gaughan, 2018)]

The fourth wave also witnessed the rise of leveraged buyouts (LBOs), an operation in which a high level (on average 60-70%) of debt secured against assets and cash flows of the target is involved. Among the ten largest acquisitions of the 1980s, one stands out in terms of both magnitude and resonance, becoming the pop symbol of LBOs: the buyout of RJR Nabisco. The KKR-led buyout of RJR Nabisco in 1988 remains the most emblematic LBO of the era, illustrating both the aggressive use of junk bonds to finance highly leveraged deals and the corporate excesses that defined the decade, The transaction, widely chronicled in *"Barbarians at the Gate"* ultimately strained RJR Nabisco with unsustainable debt, forcing asset sales and restructuring efforts that fell short of initial expectations. The deal became a cautionary tale of the limits of debt-fueled acquisitions and the risks inherent in highly leveraged transactions.

"In the fourth wave, the term *corporate raider* made its appearance in the vernacular of corporate finance. The corporate raider's main source of income is the proceeds from takeover attempts. […] Although arbitrage is a well-established practice, the role of M&A arbitragers in the takeover process did not become highly refined until the fourth merger wave. […] Arbitragers became a very important part of the takeover process during the 1980s. Their involvement changed the strategy of takeovers. Moreover, the development of this "industry" helped facilitate the rising number of hostile takeovers that occurred in those years" (Gaughan, 2018).

By the end of the 1980s, market conditions shifted. The excessive use of junk bonds and leveraged financing led to growing concerns about financial stability and credit risk. The fourth wave was truly important because it fundamentally reshaped corporate finance and M&A

strategy, with lasting consequences for financial markets, regulatory frameworks, and business practices. Its legacy is still evident in several aspects, such as:

- *Institutionalization of Private Equity:* they emerged as a dominant force in corporate restructuring and the wave set the foundation for more structured investment platforms. In addition, they started to rely on diversified capital structures, combining senior debt, mezzanine financing, and equity contributions to balance leverage with financial sustainability;
- *Corporate Governance:* new hostile takeover defense strategies emerged and became the standard remaining, also nowadays, key features of corporate governance providing management with more control over corporate strategy;
- *Globalization:* While the fourth merger wave was primarily a US phenomenon, its influence accelerated the globalization of M&A. The context of the 80s set the stage for cross-border M&A growth in the 1990s, as we'll explore in the following section.

1.2.5 Fifth wave (1992-2001): Globalization and Cross-Border M&As

According to Black (2000) the fifth wave "can be considered to be the first truly international takeover wave. […] A growing percentage of takeovers are cross-border; major stock markets are increasingly linked; and U.S.-only takeover activity in 1999 was only about 40% of the worldwide total measured by transaction value, and 30% measured by number of transactions". Started just 3 years after the end of the previous one, this wave was broadly characterized by strategic mergers, globalization, and cross-border transactions. This period saw corporations increasingly engaging in strategic rather than purely financial mergers, as firms sought to enhance market competitiveness, achieve synergies, and expand internationally. Globalization and cross-border deals represented the foundations of the fifth wave.

The global M&A landscape of the 1990s was shaped by several interrelated factors. One of the primary drivers was the unprecedented expansion of equity markets, which provided companies with a low-cost source of capital for acquisitions. The availability of abundant liquidity, coupled with economic growth and corporate restructuring, led to a surge in strategic mergers. Unlike the hostile takeovers of the previous wave, the fifth one was defined by a more collaborative and synergistic approach to M&A.

Deregulation and privatizations were among the major drivers of M&A activity during this period. Governments worldwide, particularly in Europe, engaged in large-scale privatization programs as a means to reduce fiscal deficits, enhance economic efficiency, and stimulate private investments. “Beginning in 1993, the Balladur government launched a new and even larger French privatization program, which has continued under the Jospin administration […]. Several other western European governments--including Italy, Germany and, most spectacularly, Spain--also launched very large privatization programs during the late-1980s and early-1990s. These programs typically relied on public share offerings”. (Megginson & Netter, 1999).

According to Dupuis (2005), the definition of privatization is giving up of control, by the general government over a State-Owned Enterprise (SOE), primarily by the disposal of shares and other equity in this enterprise. There are different methods of sale, such as (i) the direct sale of financial assets, (ii) the indirect sale, where the sale of shares Is not done directly by the government but by a public corporation (e.g. public holding corporation – or any kind of government agency), and (iii) the restitution of assets to former owners (in king or through financial compensation) as a specific case.

Particularly, the Italian privatization program was driven by:

- The need for fiscal adjustment
- The need for developing capital markets and equity culture, also through strengthening institutional investors and market infrastructures
- Improvement in corporate efficiency

As for the size, state-owned enterprises’’ value added as percentage of GDP declined from 19% to 2.6% in the period 1990-2002. The volume was over €120B sold between 1992 and 2003

	Corporation (Group)	Method of Sale	Percentage Sold	Gross Proceeds (€m)
1993	Italgel	Private agreement	62.12	223
	Cirio-Bertolli-DeRica	Private agreement	62.12	160
	Credito Italiano (IRI)	Public offering	58.09	930
	SIV (EFIM)	Auction	100.00	108
	Total for Year			1,422
1994	IMI – First Tranche	Public offering	32.89	927
	COMIT (IRI)	Public offering	54.35	1,493
	Nuovo Pignone (ENI)	Auction	69.33	361
	INA – First Tranche	Public offering	47.25	2,340
	Acciai Speciali Terni	Private agreement	100.00	322
	SME – First Tranche	Private agreement	32.00	373
	Total for Year			6,377
1995	Italtel	Auction	40.00	516
	Ilva Laminati Piani	Private agreement	100.00	1,298
	Enichem Augusta (ENI)	Auction	70.00	155
	IMI – Second Tranche	Private agreement	19.03	472
	SME – Second Tranche	Accept takeover bid	14.91	176
	INA – Second Tranche	Private agreement	18.37	871
	ENI – First Tranche	Public offering	15.00	3,253
	ISE	Auction	73.96	191
	Total for Year			7,106
1996	Dalmine	Auction	84.08	156
	Nuovo Tirrena	Auction	91.14	283
	SME – Second Tranche	Accept takeover bid	15.21	62
	INA – Third Tranche	Conv. Bond issue	31.08	2,169
	IMI – Third Tranche	Public offering	6.94	259
	ENI – Second Tranche	Public offering	15.82	4,582
	Total for Year			7,742
1997	ENI – Third Tranche	Public offering	17.60	6,833
	Aeroporti di Roma	Public offering	45.00	307
	Telecom Italia	Core investors + Public offering	39.54	11,818
	SEAT Editoria	Core investors + Public offering	61.27	854
	Banca di Roma	Public offering + bond issue	36.50	980
	Total for Year			20,940

Figure 5 - Major Italian privatizations 1993 – 2002 (1/2) [Source: Slides from M&A and Investment Banking course]

	Corporation (Group)	Method of Sale	Percentage Sold	Gross Proceeds (€m)
1998	SAIPEM (ENI)	Public offering	18.75	589
	ENI – Fourth Tranche	Public offering	14.83	6,711
	BNL	Public offering	67.85	3,464
	Total for Year			10,764
1999	ENEL	Public offering	31.70	16,550
	Autostrade	Auction + public offering	82.40	6,722
	Mediocredito Centrale	Auction	100.00	2,037
	Total for Year			25,382
2000	Aeroporti di Roma	Direct sale	51.20	1,327
	Finmeccanica	Secondary public offer	43.70	5,505
	COFIRI	Direct sale	100.00	504
	Banco di Napoli	Tender share to takeover bid	16.20	493
	Total for Year			7,933
2001	ENI – Fifth Tranche	Accelerated block building	5.00	2,721
	Total for Year			2,907
2002	Telecom Italia	Placement with institutions	3.50	1,400
	Total for Year			1,498

Figure 6 - Major Italian Privatizations 1993 – 2002 (2/2) [Source: Slides from M&A and Investment Banking course]

The fifth wave ended abruptly with the bursting of the dot-com bubble in 2000-2001, which led to a collapse in stock prices and a slowdown in deal activity. The overvaluation of tech companies, combined with excessive optimism in the equity markets, resulted in a significant reduction in M&A transactions in the early 2000s. Despite its sudden conclusion, it left a lasting impact on global corporate finance on topics such as megamergers, integration of global markets, and new standards for corporate governance. Moreover, it coincided with a period that

left an indelible mark on the industrial structure in several countries around the world, including Italy.

1.2.6 Sixth wave (2004-2007): Private Equity and Mega-Deals

The sixth wave was characterized by the comeback of LBOs performed by Private Equity firms and by mega-deals. According to Gaughan (2018), "the low interest rates gave a major boost to the private equity business. Leveraged acquisitions became less expensive for private equity buyers to do, as the bulk of the financing costs was relatively low-interest-rate debt. The economy and the market were also thriving, so equity financing was also readily available. The rising market made it easier to be successful in the private equity business. Private equity firms found it easy to raise equity capital and equally easy to borrow money at extremely attractive rates. […] They were able to generate high returns for the equity holders. This made private equity firms thrive, which, in turn, fueled the demand for M&A targets".

This period saw consolidation across multiple sectors, with some industries, such as financial services, energy and natural resources, healthcare, and TMT, experiencing huge levels of M&A activity, and it also saw new key developments in deal structure such as the use of a higher level of leverage, collateralized loan obligations (CLOs), and covenant-lite loans.

The sixth wave ended with the "Lehman Brothers" 2007-08 financial crisis, and M&A activity declined to levels comparable to 2004. The collapse of Lehman Brothers marked a defining moment in financial history, triggering an immediate market shock that severely disrupted M&A transactions.

In the aftermath of the crisis, governments and regulatory bodies imposed stricter financial oversight, curbing the use of high-risk lending practices that had fueled the wave of restructurings and bankruptcies. The Basel III framework introduced higher capital requirements for banks, reducing their ability to underwrite large, debt-driven transactions and this led to a huge contraction of in private equity-backed deals, as investors became wary of leveraged structures too. The post-crisis regulatory environment forced PE firms to adapt, shifting toward more sustainable financing models and focusing on long-term value creation rather than rapid, debt-fueled exits. Despite its short life and its unexpected conclusion, the sixth M&A wave left a lasting impact on corporate finance and M&A strategy, reshaping the role of private equity, financial regulation, and cross border deal-making in the following decades.

1.3 Players

Mergers and Acquisitions involve a complex network of stakeholders who play critical roles in shaping, negotiating, financing, and regulating transactions. Understanding these key players and their functions is essential to comprehending the M&A process in its entirety. This section categorizes M&A participants into four primary groups: *firms*, *financial players*, *advisory firms*, and *regulatory bodies*. Each of these stakeholders influences deal execution, structure, and success, contributing to the overall framework of the transaction.

1.3.1 Firms

At the core of any M&A transaction there are the buyer and the seller, whose strategic and financial objectives drive the deal. The acquirer, also referred to as the buyer or the bidder, can be categorized into two primary groups: strategic buyers and financial buyers. Strategic buyers are companies operating in the same market (or similar) of the target and include competitors, conglomerates, companies operating along the supply chain, etc., while financial buyers primarily consist of Sovereign Wealth Funds, Family Offices, Hedge Funds, and Private Equity Funds (Caselli, Gigante, & Tortoroglio, 2021) that acquire companies with the intention of restructuring and subsequently enhancing their value before exiting.

Below are some Pros and Cons:

STRATEGIC BUYERS	
Pros	**Cons**
Can generally pay a premium due to synergies and lower cost of financing	Eliminate sophisticated financial buyers capable of moving quickly
Have greater knowledge of business allowing for less due diligence time and faster consummation of a deal	Financial buyers could be attractive to management due to possible equity participation
Means that acquisition for cash or stock reduces possibility of financing contingencies	Some financial buyers are quasi-strategic buyers do to existing portfolio companies
Allows for potential tax deferral if stock is used	May participate in the sell-side process in order to gain access to competitive information on the target, without having a real interest in acquiring it

Table 1.1 – Pros and cons of strategic buyers [Personal elaboration on info gathered from the slides of the course *M&A and Investment Banking*]

The target company, or seller, can be either publicly traded or privately held. Public acquisitions require shareholder approval and are often subject to increased scrutiny from regulatory bodies. Private transactions, on the other hand, are typically negotiated with a more limited group of owners or investors, often resulting in a more streamlined decision-making process.

The role of the Board of Directors in M&A transactions is of primary importance. The decision for an M&A transaction is made by the BoD and the management team, with all of the consequences that are inherent to group situations (Kummer & Steger, 2008). Specifically, it has the duty of ensuring that the proposed deal aligns with the company's long-term strategic vision while safeguarding shareholders' interests. The board is responsible for overseeing negotiations approving transaction terms, and mitigating risks associated with the deal (Noghrehkar, 2024). In order to do so, the board is required to perform a thorough assessment of market expansion opportunities, competitive positioning, operational efficiencies, and all the associated analysis. They must weight potential synergies and associated risk for long term in order to act in the best interest of shareholders and to maximize value for them. An additional aspect of the board's role, which is fundamental for our purpose, is about defensive strategies against hostile takeovers. In cases where an unsolicited bid threatens corporate autonomy, board may adopt countermeasures, that will be explained in detail in chapter 2, to prevent/react to hostile bidders from gaining control.

1.3.2 Advisors

Among all the advisors involved in a transaction, financial advisors (mainly investment banks) are the key players of this category. They coordinate all the process to ensure the smoothest deal execution as possible. Indeed, the choice of the right investment bank is critical for the company because the success of the deal and consequently the maximization of shareholder value may depend on it.

During the process, investment banks provide advice and deal opportunity, make contact with a seller or buyer, give the necessary support in terms of negotiation, valuation, and deal structuring. Independent advisory firms have also as a mean of significant income the possibility to draft fairness opinion letters – documents that assess the validity and fairness of the proposed deal (DePamphilis D. M., 2018).

Another important part of the process covered by financial advisors is the one regarding due diligence and risk assessment.

The other key participants in an M&A process are lawyers and accountants.

Lawyers draft and review transaction agreements and ensure that the deal adhere to applicable regulatory requirements and corporate governance standards. They also conduct legal due diligence and work closely with regulatory bodies to ensure compliance with antitrust laws, and other strict requirements. For instance, in a hostile takeover attempt, lawyers for the target company may claim an antitrust violation of the acquiring company in order to prevent the target company from being taking over (Wu, 2002).

Accountants (and tax advisors) play a pivotal role in the process by preparing pre- and post-closing financial statements, assessing main adjustments to the EV, assisting in Vendor Due Diligence, and analyzing tax implications of the transaction.
In addition, accountants play the role of reputation intermediary, just like lawyers. A reputable auditor will not represent a dishonest client that may result in ruining his reputation (Wu, 2002).

Other advisors that could be involved in the transaction include:

- Market consultant: specialize in conducting industry research, assessing competitive landscapes, and signing off business plan.
- Insurance advisors: review the target company's existing insurance arrangements, ensuring that adequate coverage is in place for potential liabilities.
- Pension advisors: responsible for assessing pension liabilities and retirement obligations that may be inherited by the acquiring company.
- Environmental consultants: participate in site visits and conduct EHS (Environmental, Health, and Safety) due diligence. Their objective is to identify environmental liabilities, such as contamination risks and regulatory violations. Their expertise ensures that the acquiring firm is not exposed to hidden risks that could result in significant financial penalties or operational constraints. This need for this kind of advisors (e.g. ESG advisors) is growing more and more among other in recent years.

According to DePamphilis (2018) another key role is played by Public Relations Firms. These firms help in shaping public perception during an M&A transaction, particularly in cases of hostile takeovers or contested acquisitions. They are responsible for ensuring that coherent and persuasive message is communicated to shareholders, media, and regulatory bodies. In hostile takeovers attempts, the message to target shareholders must be that the acquirer's plans for the company will increase shareholder value more than the plans of current management. Given the importance of communication and information management in M&A transactions,

PR firms play a more substantial role than one might assume at first glance. While they may seem external to the core financial and legal aspects of a deal, their influence on public sentiment and shareholder decision-making can be decisive in determining the outcome of a transaction.

1.3.3 Regulators

Regulators that affect M&A activity exist at all levels of government and involve security, antitrust, environmental, racketeering, and employee benefits laws. State antitakeover statutes place limitations on how and when a hostile takeover may be implemented. (DePamphilis D. M., 2018)

As discovered in the previous sections, the external environment, particularly the regulatory policies, plays a decisive role in shaping M&A trends. Indeed, we saw that macroeconomic factors such as interest rates directly influence M&A activity by determining the cost of capital, and on the other hand, the regulatory environment governs the feasibility of certain categories of deals, occasionally even leading to major contractions as observed in the first M&A waves analyzed above.

Beyond shaping market trends, regulators influence individual transaction by affecting deal timelines and approval processes. Regulatory scrutiny may prolong due diligence, impose compliance burdens, or necessitate structural modifications to meet legal requirements. In certain cases, deals may be postponed and renegotiated or even blocked if they are deemed detrimental to market competition, financial stability, or public interest, particularly when they affect specific sectors. Consequently, regulatory strategy needs to be a component of M&A planning, requiring firms to anticipate legal hurdles and proactively engage with governing authorities.

A first example of the regulator activity on M&A deals is the treatment of minority shareholders in a takeover. In the U.S., the standard practice is to conduct a two-step strategy in which the buyer acquires voting control and then completes a full merger with the target through a freeze-out of remaining shareholders.

In EU, “the Member States are required to maintain shareholder protection under the Takeover Directive (TOD) by ensuring that the offeror is required to make a bid addressed to all minority shareholders for all their holdings at an equitable price as means of protection” (Veil, 2017).

EU has more strict regulations than US in different topics such as employee rights and takeover defense measures but, in general, they are very similar under the profile of corporate disclosure obligations and shareholder rights highlighting the fact that, albeit with different degrees of intensity, regulators play a fundamental role in the process.

The Mandatory Tender Offer (MTO) requirement has profound implications for M&A transactions, as it can increase the cost and complexity of acquisitions by obliging bidders to extend the same offer to all shareholders. Additionally, deviations in how different states implement the directive can create regulatory uncertainty for cross-border deals.

In Italy, according to (Asti, Verga, & Deregibus, 2024) the parties involved in a public takeover are subject to certain statutory and regulatory provisions, including:

- Legislative Decree no 58/1998 (TUF)
- CONSOB implementing issuers' regulation no 11971/1999
- Directive 2004/25/EC (Takeover Directive – TOD)
- The Civil Code (rules applicable to *società per azioni*)
- EU Market Abuse Regulation (MAR)
- Listing Rules of Borsa Italiana (*Regolamento dei Mercati organizzati e gestiti da Borsa Italiana S.p.A.*)
- Regulation (EU) 2017/1129 (EU Prospectus Regulation)
- The statutory provisions concerning Foreign Direct Investments
- The statutory provisions concerning Merger Control
- The Regulation (EU) 2022/2560 of the European Parliament and of the Council of 14 December 2022 on Foreign Subsidies Regulation

The two main regulatory bodies for takeovers involving Italian public companies are (Asti, Verga, & Deregibus, 2024):

- The National Commission for companies and the stock exchange (*Commissione Nazionale per le Società e la Borsa (CONSOB)*)
- Borsa Italiana SpA (*Borsa Italiana*)

Certain additional procedures may be needed from regulators such as:

- Bank of Italy (*Banca d'Italia*) or the European Central Bank (ECB)

- Antitrust authorities, including the Italian Competition Authority (*Autorità Garante per la Concorrenza e il Mercato*) or the European Commission
- Insurance Industry Regulatory Authority (*Istituto per la Vigilanza sulle Assicurazioni (IVASS)*)

In the context of companies of "strategic importance", Italian Government has a special power to (a) impose conditions or even (b) a veto or (c) an opposition to the acquisition of shares named *Golden Power.*

"The Golden Power is a set of powers introduced and organically regulated by Decree-Law No. 21 of 2012, which marked Italy's adherence to the censures raised by the European Union, especially against the *Golden Share* system. […] The transaction must be registered with the Government before it is carried out. In the case of an acquisition of a participation or of a business/part of a business, it must be made prior to closing […] The notification should preferably be made by all the parties involved […] The government has 45 days to acknowledge the notification. […] The penalties range from a fine of up to twice the value of the transaction or at least a certain percentage (between 1 per cent and 3 per cent) of the total turnover achieved by the companies involved in the last annual financial statements, to the nullity of the transaction in question and/or the obligation to restore the situation prior to the transaction" (Iacono, 2024).

The Golden Power is a "special power of the Italian government to limit or stop (i) foreign direct investments and (ii) corporate transactions involving Italian strategic assets, such as defense, national security, infrastructure (transportation / energy / communications) as recently extended, following the Covid-19 pandemic, to encompass also high technology, including fintech and Insurtech" (Mazza, 2023). Since January 1st, 2023, it also allows the government to intervene in the case of transactions between Italian companies, in certain sectors. The relevant regulation is contained in the "Energy Decree" of 2022 and provides that the Golden Power also applies to transaction involving the acquisition of Italian companies by Italian companies, limited to the energy, transportation, health, agribusiness, and financial sectors, including credit and insurance (Carmine Fotina, Il Sole 24 Ore, 2024).

1.4 M&A Process

The M&A process is a structured and multi-stage approach that demands significant effort from both the seller and the buyer. It requires careful planning, rigorous analysis, and strategic execution. Rather than simply providing an overview of the procedural steps involved, this section aims to explore the strategic structure underlying the M&A process, which can maximize shareholder value. To achieve this, it is crucial to outline the fundamental requirements and guiding principles upon which the process is constructed.

A successful M&A deal depends on numerous factors, including market conditions, corporate strategy, financing availability, regulatory considerations, and post-merger integration planning. Each phase of the process introduces unique challenges and requires alignment between financial, legal, operational, and strategic aspects. Moreover, companies engaging in extraordinary transactions must evaluate both qualitative and quantitative criteria, such as cultural compatibility, synergies, competitive positioning, and risk mitigation strategies.

Additionally, in highly competitive markets, speed and efficiency in deal execution can be a decisive factor. A well-structured process enables firms to navigate complexities in a coordinated manner. As a result, understanding the underlying drivers of a structured process is fundamental to ensuring a smooth execution and maximizing shareholders' value.

The following sections will provide a detailed breakdown of the essential stages of the M&A process, outlining their strategic significance and practical implications in deal-making.

1.4.1 Key considerations

One of the most crucial considerations in structuring an M&A process is determining whether the timing is optimal for a transaction. The identification of the appropriate time window for divestment depends both on the company's results and on the stage at which the real economy and financial markets are in, but most importantly, in the case of family businesses, on the stage of the company's lifecycle and the personal dynamics and aspirations of the entrepreneurs and their families (Morpurgo, 2023).

Failing to consider these factors among others, could lead to undervaluation or complications in execution.

It has been already mentioned in *table 1.1* the key pros and cons about strategic buyers and the choice of the type of buyers, but it's also central to consider the amount of them to involve in the transaction. This consideration will lead to different approaches in the structure of the sale process. Identifying the right buyer pool is essential to structuring a competitive and efficient process by considering:

- How many financially qualified prospective buyers exist in the market?
- Have any buyers previously expressed interest in the company?
- Are there strategic or financial buyers who are better positioned to maximize value?

While a broader buyer universe can create more competition and increase valuation, it can also bring to a broader dissemination of confidential information, a potential limitation of the ability to give special attention to small group to accelerate the process, and a potential risk of damage of company's image if the auction should fail.

Another key consideration is the structuring of the sale process itself. The choice between a broad auction, a controlled auction, or a negotiated process could significantly impact the final outcome. The trade-offs between different processes highlight the need for sellers to carefully assess their strategic priorities and the characteristics of their potential buyer pool before initiating a sale. Together with this, it's important to examine the possibility of alternatives to a sale by understanding if the company could be a potential IPO candidate, in order to proceed with a different structure or maybe with a potential dual-track process.

From a buy-side perspective, the acquisition strategy must start with a well-defined investment thesis that outlines the rationale for pursuing a specific type of company. Given the financial commitment required for the deal, buyers must conduct in-depth due diligence to ensure the transaction aligns with their objectives. Unlike sellers, who are often driven by maximizing valuation, buyers must focus on risk mitigation and long-term value creation when structuring their deals.

While both the sell- and the buy-side processes involve critical decision-making, the seller must consider a wider range of strategic factors before structuring the process. In contrast, buyers must prioritize all the best efforts to ensure they are acquiring the right asset at the right price.

1.4.2 Sale process options

There are different options for a sale process, and the decision should be in the best interest of the company given by the optimal trade-off between various strategic aspects to consider as shown in *figure 7*.

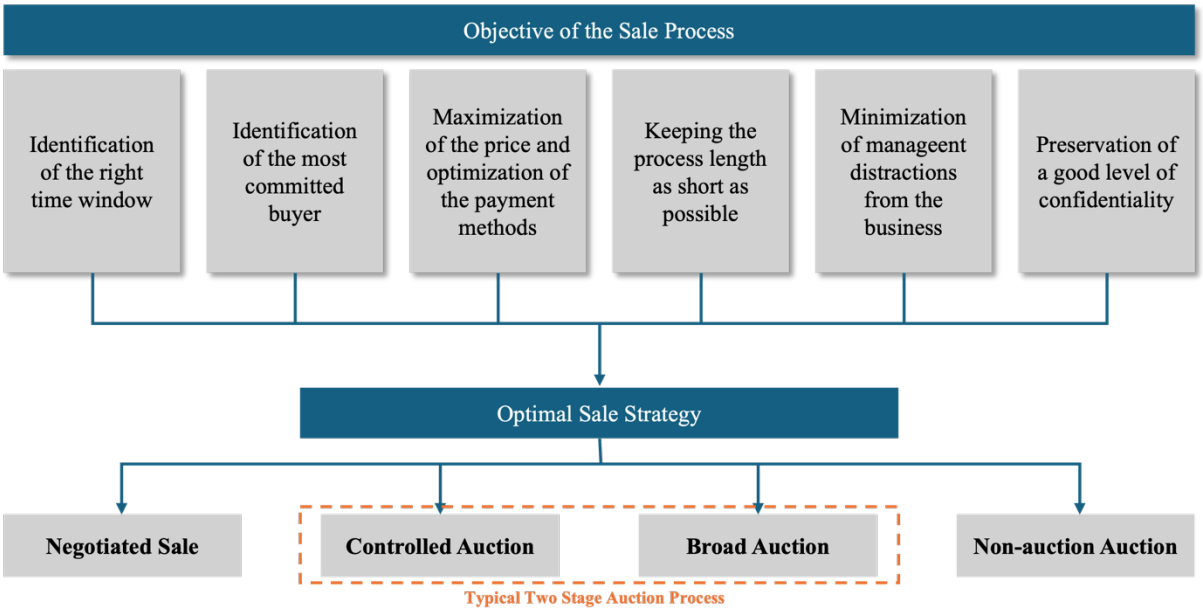

Figure 7 - Objective of the Sale Process [Source: Personal rielaboration on "Gli obiettivi della procedura di cessione" (Morpurgo, 2023)]

1.4.2.1 Negotiated Sale

In the context of a negotiated sale the seller initiates negotiations and due diligence with one selected buyer. According to Rosembaum & Pearl (2009) "A negotiated sale is often initiated by the buyer, whether as the culmination of months or years of research, direct discussion between buyer and seller executives, or as a move to preempt an auction ("*preemptive bid*")".

Through this sale strategy, the seller bypasses the competitive dynamics of an auction process. Negotiated sales are particularly prevalent in transactions involving family-owned businesses, distressed assets requiring expedited resolution, or industries where a small pool of potential acquirers exists due to regulatory or operational constraints.

A negotiated sale offers several advantages, making it a preferable option in certain specific context.

Confidentiality is a key benefit, as engaging with a limited number of potential buyers (or even a single buyer) reduces the risk of information leaks, thereby minimizing potential disruptions

for company stakeholders. This is particularly relevant when dealing with family-owned businesses or private companies that seek to avoid public scrutiny.

Reversibility and flexibility are enhanced in a negotiated process, as sellers retain greater control over the deal structure and can adjust terms based on circumstances. It allows the adoption of another sale strategy if this doesn't yield the expected results (Morpurgo, 2023). Additionally, in this context it is possible to pursue a special *dual track process*, which leave the possibility of an IPO open by exploring this kind of opportunity.

Finally, especially when dealing with a preemptive bid, *speed and efficiency* are also significant advantages, as direct negotiations typically shorten the transaction timeline by eliminating the need for extensive marketing efforts and multiple bidding rounds. In this sense, the seller needs to face management presentations, on site visits, and due diligence with only one subject which is already prepared about the company because it has already done his own research and so this could lead to lower efforts on information memorandum or vendor's due diligence.

Together with the benefits, a negotiated sale can also present certain disadvantages that may impact the ability to maximize the valuation of the transaction. The primary drawback is represented by the limited price discovery that leads to a possible situation in which the price is not maximized, as the absence of competitive tension may result in suboptimal pricing compared to an auction where multiple bidders drive up the offer. Without competitive pressure, the seller may lack the leverage to negotiate superior terms. Moreover, there is an *execution risk* related to the uncertainty of transaction financing and a higher possibility to face complexity in *time schedule*.

"A very delicate point in the adoption of such a strategy is the drafting of the *short list*: the entrepreneur and his advisor take on the difficult task of creating a very short starting list, consisting of a maximum of five potential partners, which must comprehensively encapsulate the universe of potential buyers" (Morpurgo, 2023).

1.4.2.2 Controlled Auction

A controlled (or limited) auction is a structured sale process in which the seller engages with a preselected group of qualified buyers to create a competitive bidding environment while maintaining a certain level of confidentiality compared to a broad auction. This approach seeks to strike a balance between price maximization, confidentiality, and execution certainty. It's

typically used when there is a defined universe of potential buyers who are best positioned to acquire the asset, such as strategic acquirers or PE firms with relevant industry expertise.

The controlled auction process is divided into multiple phases. In *phase I*, a selected group of potential acquirers receives a limited set of information and submits non-binding offers based on preliminary due diligence. Following an initial screening, a smaller subset of bidders is invited to *Phase II*, during which they conduct detailed due diligence and submit final binding bids. This process tends to *optimize valuation* while reducing *execution risks*. By involving multiple bidders, the seller benefits from a competitive price discovery process that enhances the likelihood of achieving a *premium* valuation. Additionally, this approach ensures that only serious buyers are engaged, reducing the risk of deal failure.

Despite the benefits, a controlled auction also has potential drawbacks. The process is more *time-consuming* than a negotiated sale and can bring also complexities in aligning timelines. Furthermore, *information leaks* could be a risk. Moreover, some investors, particularly strategic acquirers, may be reluctant to participate in auction-based processes, preferring direct negotiations for all the benefits that we discussed earlier.

Therefore, the effectiveness of a controlled auction depends on careful selection of buyers, strong process management, and maintaining a competitive dynamic without deterring key participants.

1.4.2.3 Broad Auction

As the term suggests, a broad auction doesn't limit the list of candidates, and it is a process in which the seller contacts all potentially interested buyers in order to maximize competition and optimize the valuation. This approach is typically employed when the primary objective is *price maximization*, particularly for businesses with strong market interest and a broad universe of potential acquirers, including both strategic and financial investors.

"In the broad auction, the procedure is extended to a larger number of potential buyers, well over 15, at least in the initial stage, i.e., that of sending the information memorandum. Many broad auction, in the total absence of a need for confidentiality, have recorder the sending of more than 50 info memos" (Morpurgo, 2023).

The broad auction offers the *highest level of price discovery*, as no potential buyer is excluded, and *competitive tension* ensures that bidders submit their most aggressive offers. Additionally,

the broadest possible exposure increases the likelihood of attracting unexpected high bid. This process also allows the seller to receive extensive *feedback* from potential buyers, improving insights into market perceptions of the business.

However, this sale process come with significant challenges. The *timeframe* is typically longer than that of the processes analyzed previously, and this can delay deal execution and expose the business to market risks. Moreover, the risk of *confidentiality* infringements is higher, as many buyers are approached, increasing the chances of leaks and disclosures. Finally, some strategic buyers may be discouraged from participating due to the public nature of the process or concerns over competing in a broad auction environment.

Given these trade-offs, a broad auction is generally recommended when maximizing price is the primary objective and confidentiality risks are manageable.

1.4.2.4 Non-auction Auction

A non-auction process, sometimes referred to as a bilateral sale, is a hybrid approach between a negotiated sale and a controlled auction. In this process, the seller initiates parallel bilateral discussions with a select group of buyers without explicitly communicating that they are in a competitive process. This approach is particularly useful when the seller seeks to maintain *confidentiality* while still benefiting from *competitive tension* to drive pricing and terms. Unlike a controlled auction, where bidders are explicitly aware of competition, a non-auction process keeps competitive dynamics implicit, ensuring that buyers remain engaged without the pressure of an open bidding process.

The process typically unfolds in two rounds. In round 1 buyers submit non-binding offers, though they are not pressured to submit aggressive offers since there is no explicit threat of being excluded from a second round. In round 2, a refined group of buyers proceeds with further due diligence and submits final binding offers. At this stage the seller may subtly introduce the notion that multiple buyers remain involved, thereby creating a sense of competition without formalizing an auction.

It minimizes confidentiality risks and attracts more potential buyers who might be reluctant to participate in a structured auction. This approach can be particularly useful when strategic buyer prefers direct negotiations, but the seller wants to benefit from some competitive tension without engaging in a fully structured auction.

Finally, being a hybrid process it bring with it a mix of pros and cons directly deriving from the primary processes.

The following table is a visual summary of the impact of the key characteristics in each sale process:

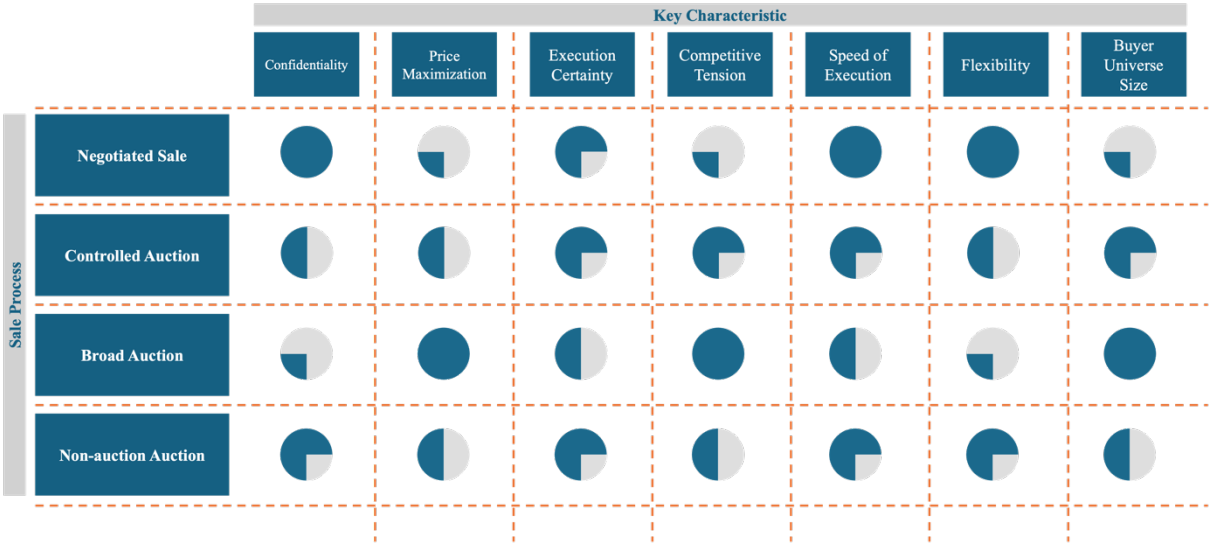

Figure 8 - Summary of pros and cons of each sale process [Personal elaboration]

1.4.3 A general M&A process

"Each M&A transaction has its own set of unique attributes and nuances, to which skilled investment bankers constantly need to adapt. […] Due to the complexity of the transaction, investment banks tend to follow a codified M&A process which is adapted to the specific structure of the Sale/Purchase. For instance, the timeline of a transaction structured as a "Negotiated Deal" will usually be shorter and more flexible than a "Broad Auction"." (Caselli, Gigante, & Tortoroglio, 2021)

As we highlighted in the dedicated part, each participant in the transaction plays a specific role, but the operational process is mostly given to financial advisors.

1.4.3.1 Phase 0 – The preparation phase

The M&A process starts with the preliminary considerations that define the transaction's strategic rationale and objective. On the sell-side, this involves defining the key objectives of

the sale, conducting internal due diligence, and preparing the necessary documentation. The seller's advisors draft the *Information Memorandum* ("IM" or "Info Memo"), detailing financials, market position, and business strategy, alongside the *process letter*, which outlines the transaction timeline and key conditions. After that, it prepares a *Virtual Data Room* (VDR) to facilitate due diligence later in the process. The preparatory phase of the deal culminates in the kickoff meeting and with a *Confidentiality Agreement* ("CA"), which is "a legal binding contract between the target and each prospective buyer that governs the sharing of confidential company information" (Rosembaum & Pearl, 2009)

On the buy-side, the preparation phase consists of conducting various qualitative analyses, beginning with screening the competitive environment. Once this is completed, the bidder might consider making a preemptive bid to eliminate competition and secure exclusivity as we highlighted previously. However, to be credible, the bidder must meet specific requirements, such as having a strong financial standing and a comprehensive understanding of the target company's operations and industry. If exclusivity is not achieved, the buy-side may also explore partnerships (e.g. joint ventures), particularly if the target company operates in multiple business lines and the bidder is interested in only a specific segment. At this stage the choice of the buyer could be critical and beneficial for the transaction because a good advisor can help in achieving more strategic synergies and a better negotiation phase after.

1.4.3.2 Phase 1 – Initial Marketing and Due Diligence

The preparation phase lasts approximately 6 weeks, thus covering weeks 1 – 6 of the process. Phase 1, that will be divided into two macro steps, will cover from week 7 to week 15 considering a similar split between the 2 steps involved.

The sell-side begins by formally approaching potential bidders, distributing the Info Memo and the Phase 1 process letter, and ends with the reception of indicative offers and the shortlisting. With the reception of preliminary and non-binding offers, we begin to delve into the heart of the M&A process. Proposals may be more or less numerous and detailed, depending on which of the described sales strategies has been chosen, and may contain a request for exclusive negotiation. (Morpurgo, 2023)

The buy-side then analyzes the documents to identify key due diligence items and assess the preliminary valuation range, determining the financing requirements for the transaction. During this phase, potential bidders also conduct Q&A session and management meetings as a

critical part of the process, to reach the submission of non-binding offers, allowing room for adjustments based on further findings.

Once the offers are received, it's on the sell-side to select a shortlist of bidders for the next round.

"Whether proceeding with one or multiple buyers the due diligence phase is necessary and inevitable. With it, the company opens its doors to the chosen investors, who will analyze it in all its aspects and potential financial, accounting, commercial, tax, labor, and environmental risks" (Morpurgo, 2023).

The central part of this phase consists of shortlisted bidders accessing to the Virtual Data Room, containing financial statements, legal contracts, operational reports, and commercial data. In structured processes it is possible to find also a first sketch of an SPA, drafted by legal advisors.

The buy-side conducts extensive due diligence, scrutinizing all aspects of the target company as listed above. A pivotal moment in this phase is the managing presentation, during which the target's management provides insights and answers in-depth queries posed by bidders.

All these different activities are reflected in the valuation; indeed, the buyer confirms or refines its valuation range based on new information gathered during this phase.

Additionally, it secures internal board approvals and prepares financing strategies in order to submit the final binding offers.

Unlike the previous offers, these bids are definitive and non-adjustable, meaning that, expect for extraordinary circumstances, the price and terms cannot be renegotiated.

1.4.3.3 Phase 2 – Signing, and Closing

This phase involves evaluating, negotiating, finalizing agreements, and closing the transaction. Once final bids are submitted, the sell-side evaluates competing offers, considering not only price but also execution certainty, strategic alignment, and regulatory implications. Negotiation tactics become critical at this stage, with advisors working to optimize transaction terms.

Once a preferred bidder is selected, after following negotiations, the process culminates in the drafting of the very central document of an M&A deal: The *Sales & Purchase Agreement (SPA)*. The SPA is a legally binding contract between the acquiring and selling parties subject to shareholder approval that can take different forms (i.e. Stock purchase agreement, Asset

purchase agreement, tender offer document, or merger agreement) and is to be considered as a risk management device focused on the completion of the transaction. This document outlines all key conditions, adjustments, break-up fees, covenants associated with the deal. Terms such as earnout, escrow agreements, and closing conditions are addressed to ensure a balanced agreement for both parties.

In easier cases and when dealing with smaller size, generally signing and closing (transfer of shares from the seller to the buyer) coincide. But the two events could have a gap depending on mainly 3 motivational orders: (i) antitrust approval, (ii) golden power, and (iii) structuring of more complex transactions involving contributions, spin-offs, or the use of an LBO scheme (Morpurgo, 2023). Except for the last one, the motivation for a delay lies generally on regulators' heads as we discussed in the dedicated section.

For the buy-side, post-transaction strategies include corporate restricting, cultural integration, and financial consolidation among others. Post-merger integration is vital for realizing expected synergies and preventing operational inefficiencies or talent attrition. Poor integration planning can lead to value erosion, making this a pivotal aspect of the transaction

Ch. 2 – Hostile takeover: tactics and defensive strategies

The complexities of the M&A world extend far beyond a linear process of deal execution that already encompass a dynamic interplay of strategic intensions, regulatory constraints, and tactical choices. Building upon the overview of M&A drivers, processes, and participants presented in Chapter 1, this chapter shifts focus to a particularly intricate side of M&A deals: the *hostile takeover*.

Unlike friendly transactions where mutual cooperation facilitates a smooth execution, hostile takeovers are defined by conflict and resistance. In these situations, the target's Board of Directors and management often oppose the bid, forcing acquirer to adopt aggressive and multifaceted strategies to bypass the top level and appeal directly to shareholders.

This chapter explores the full spectrum of tactics available to both acquirers and targets. On the offensive side, methods ranging from low-key bear hug to more assertive strategies such as proxy fights, tender offers, and open market purchases will be examined. Each method is analyzed in a strategic sense with regulatory implications or cases to provide a broader context.

Together with the discussion on offensive tactics, consideration is also given to the defensive measures that companies may implement to preempt or counteract hostile bids. Preemptive strategies serve to complicate and deter takeover attempts by increasing the financial or operational cost to the acquirer. In contrast, reactive defenses, including corporate restructuring measures and aggressive counteroffers among others, aim to disrupt the acquirer's momentum once the hostile bid is underway.

This multi-layered approach to both offense and defense highlights that the success or failure of a hostile takeover is not solely a function of financial aspects. Instead, it is a reflection of the complex interdependencies between market conditions, regulatory frameworks, and the evolving tactics of corporate players engaged in a complex fight for control.

By integrating both offensive and defensive perspectives, this chapter highlights the strategic imperatives that guide decision-making in hostile M&A transactions. It underscores the importance of timely well-informed decisions and the need for a robust but dynamic strategy that can respond to rapidly changing circumstances in the marketplace.

2.1 Friendly vs. Hostile

M&A deals can be broadly categorized based on the willingness of the target company's Board of Directors (BoD) and management to engage in the transaction. This difference can lead to different valuations, negotiations, and overall different processes.

"In a *friendly takeover*, the target board of directors supports the merger, negotiates with potential acquirers, and agrees on a price that is ultimately put to a shareholder vote. […] In a *hostile takeover*, the board of directors (together with upper-level management) fights the takeover attempt. To succeed, the acquirer must garner enough shares to take control of the target and replace the board of directors. When a takeover is hostile, the acquirer is often called a *raider*". (Berk & DeMarzo, 2017)

In the case of a friendly takeover, both parties collaborate to facilitate all the key aspects of the process, such as due diligence, negotiations, and post-merger integration. This cooperative nature often results in a smoother transition, as management is actively involved in aligning strategic visions and ensuring operational continuity.

Conversely, a hostile takeover bypasses management and appeal directly to shareholders, thus leading to a non-cooperative environment with the buyer having no access to all the relevant information that it needs for the transaction.

Technically, hostile M&A is really only possible in public M&A situations. In publicly traded companies, shares are owned by a multitude of investors, including individuals, institutions, and funds. This dispersed ownership allows an acquiring entity to accumulate a controlling stake in the target company by purchasing shares from these various investors. This can be done via multiple distinct approaches that we'll see precisely in the next section.

In contrast, private companies typically have a small group of owners who hold a significant portion of the company's shares. This concentrated ownership structure makes it difficult for an outside entity to acquire controlling stake without the consent of the existing owners. Additionally, private companies could often have restrictions on the transfer of shares, further limiting the possibility of a hostile takeover.

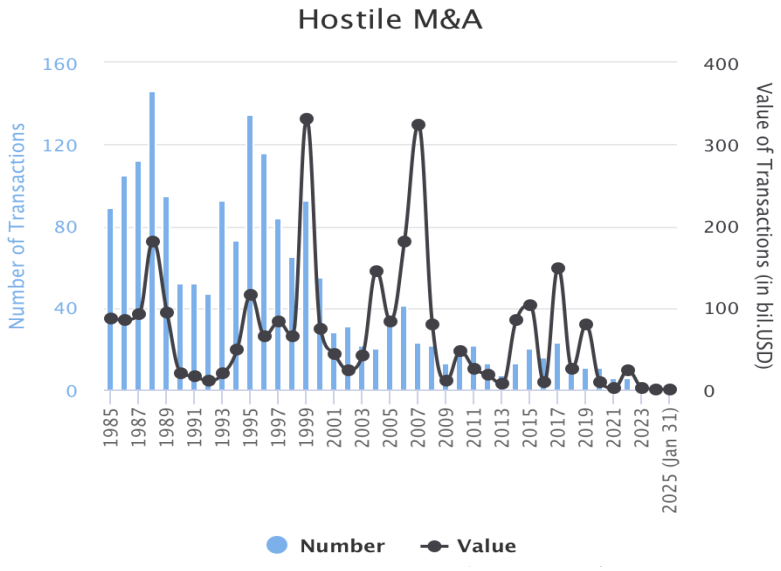

Figure 9 - Number and Value of Hostile M&A (1985-2023) [Source: (IMAA, 2025)]

There were 1.828 hostile takeovers worldwide within the period 1985-2023, as shown in figure 9, provided by IMAA (2025).

Proud (2025) states that, on European banks M&A deals, LSEG M&A database lists 24 hostile and unsolicited $1 billion-plus deals attempted by European banks, of which only five closed, for a 21% completion rate. That compares with a 75% completion rate for the wider universe of bank deals in the region.

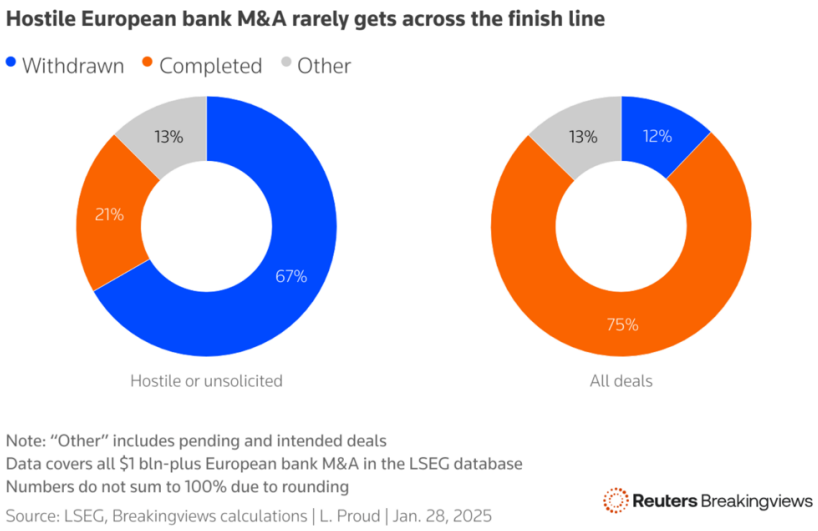

Figure 10 – Hostile or unsolicited deal in comparison with all deals according to status [Source: Reuters (Proud, 2025)]

While it is difficult to make an inference on the whole market, figure 10 demonstrates that, with due consideration of the sector and geography (banks in EU), hostile takeovers show less likelihood to conclude with respect to friendly deals.

2.2 Approach Tactics

There are several approach tactics that could be used by the bidder in order to tackle the target company. Figure 10 graphically reports the typical process of a hostile approach. Generally, acquirers prefer to take part in a friendly takeover than in a hostile one especially for the different environment that would lead to a better overview of the company being the target collaborative in the due diligence process providing all the information and "opening the doors" to the buyer.

So, normally a hostile process starts as a friendly process to which the target gives a *no* as a response. At this point the buyer can choose to walk away or adopt a more aggressive strategy. There are many options to consider but the least aggressive that can normally be tried initially is the bear hug. If it works it would lead to a negotiated settlement, otherwise different more aggressive approaches can be explored, ranging from proxy fight to tender offers.

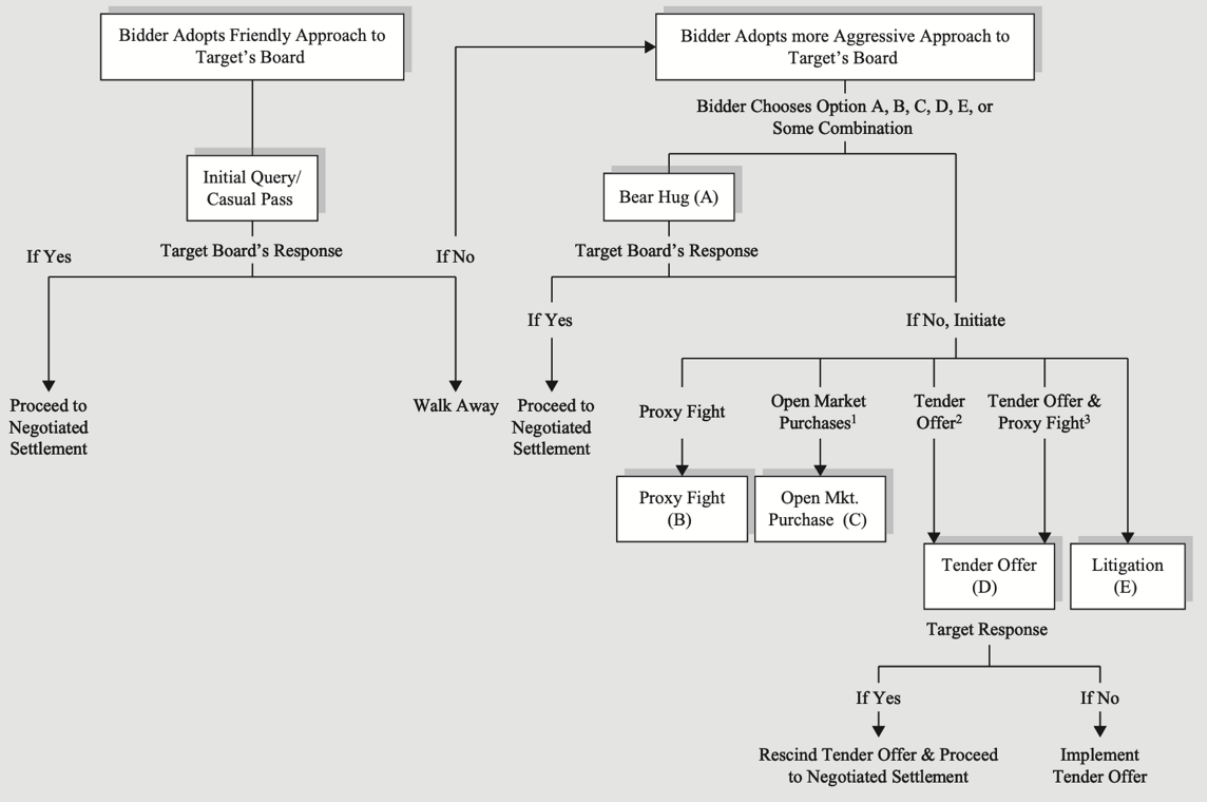

Figure 11 - Key steps and options of a hostile approach [Source: (DePamphilis D. , 2011)]

Before delving into understanding how to defend against a hostile takeover various types of approaches will be explored to get a clearer picture.

2.2.1 Bear Hug

"A bear hug is an offer to buy the target's shares at a substantial premium to its current share price and often entails mailing a letter containing the proposal to the target's CEO and board without warning and demanding a rapid decision." (DePamphilis D. M., 2018)

Among the approach tactics, bear hugs are the least aggressive and they occur usually at the begging of the process. It is unlikely that a bear hug will be sufficient to complete a takeover, and it could be a precursor to an eventual tender offer. (Gaughan, 2018)

The aim of a bear hug is to put pressure on the management and force them to take a public position on the takeover, thus making it more likely to also attract additional bidders and start a sort of a broad auction. The main advantage of a bear hug is its simplicity and immediacy; it can quickly attract shareholder attention and support, especially when the premium is significant. Moreover, it minimizes the acquirer's initial costs compared to prolonged battles, so in first instance it is a good ally for a hostile bidder. However, bear hugs also carry disadvantages. The target's management may resist, leading to potential litigation, and if the offer is rejected the acquirer risks damaging its reputation.

According to Gaughan (2018), together with the abovementioned "grizzly" bear hug it's possible to distinguish a "*teddy"* bear hug which is one that doesn't include a price or specific deal terms and it's not meant to be public, making it much less threatening for the target company.

Generally, before sending the "bear hug letter" the bidder starts to buy target's shares on the market and, as we saw in the regulation section, if it crosses certain thresholds there would be the duty to disclose the information.

Regulations play also a crucial role in shaping the dynamics of a bear hug more directly because target's management have a fiduciary responsibility to act in the best interests of the shareholders and so a rejection could lead not only to a direct approach to the shareholders with a tender offer but also to a lawsuit against the management that needs to justify that the decision is in the interests of shareholders.

Elon Musk's acquisition of Twitter could be used as a contemporary example of a grizzly bear hug. On April 14th, 2022, he made a bid of $54.20 per share, thus representing a substantial premium over Twitter's market price, specifically an 18% premium over the latest closing share price and a 38% premium over the share price of the closing on April 1st (last day before Musk's

participation of more than 9% was made public). While Twitter's board initially resisted, the magnitude of the offer, together with Musk's public pronouncements and the potential for shareholder lawsuits, resulted decisive.

The twitter's case underscores how the bear hug leverages financial pressure and public sentiment to achieve its objective, effectively limiting the target's strategic autonomy.

2.2.2 Proxy Fight

A proxy fight (or proxy contest or proxy battle) "is an attempt by a single shareholder or a group of shareholders to take control or bring about other changes in a company through the use of the proxy mechanism of corporate voting. Proxy contests are political processes in which incumbents and insurgents compete for shareholder votes through a variety of means". (Gaughan, 2018)

The process involves spreading proxy statements to shareholders, outlining the acquirer's argument and soliciting their proxy votes to win a corporate vote. These materials often highlight perceived cons in the current management's performance or strategy. The acquirer, at this stage, may also present alternative strategies, such as a proposed M&A deal, a restructuring plan, or any kind of changes in internal policies (i.e. dividend policy). Communication to mobilize shareholder support is the most important aspect for a successful proxy fight. It's all about persuasion.

Being a game of persuasion and strategy, proxy fights can be costly and time-consuming, requiring significant resources to prepare materials, engage solicitations, conduct PR campaigns, and convince the target. The outcome could be reliant on many aspects, one of them being the level of institutional investor support. They hold a substantial portion of shares in many publicly traded companies, and their voting decisions can significantly influence the outcome of a proxy fight. Therefore, one way to reach the goal for the acquirer is to push on the institutional investors and seek their support.

Proxy fights occupy middle ground in terms of aggressiveness within the spectrum of the hostile approaches that we are describing. It is more aggressive than a bear hug, in which the pressure to the board is more in the "financial" spectrum, but it is less aggressive than a tender offer.

An important characteristic of the proxy fight is that, if successful and well communicated, may have the power to be a stepping-stone toward a friendly acquisition. By changing internal

dynamics and demonstrating commitment, this approach can create a more collaborative environment for a cooperative transaction leading to all the positive aspects of a friendly acquisition.

2.2.3 Tender Offer

A tender offer is a direct bid to shareholders to purchase their shares at a specified price (generally with a premium) during a specified timeframe. While the offer itself isn't inherently hostile, the context in which it's made can make it so.

It can be considered friendly if the target's board approves the move after private negotiations with the buyer. In practice, it is associated with a hostile approach because usually the bidder launches a tender offer directly to the shareholder bypassing the BoD.

The main difference with the bear hug is that the objective of the buyer doesn't try to acquire the company buying shares according to the board, but it goes directly to shareholders with the offer to give up their shares.

According to the Italian regulation, it is possible to distinguish between various types of tender offer ("*offerta publica"*). Firstly, they can be separated, based on the payment method, into:

- *OPA – "Offerta Pubblica di Acquisto"*: it is the general "ordinary" tender offer in which the method of payment is generally cash.
- *OPSC – "Offerta Pubblica di Scambio"*: it is the term associated with the exchange tender offer, in which the payment is made through other financial instruments. It also may involve an exchange ratio based on the different value of the two entities.
- *OPAS – "Offerta Pubblica di Acquisto e Scambio"*: in this case the payment method is mixed between the two previous options, the target's shares are paid partly in cash and partly in other financial instruments.

Then, another distinction is on intentionality (we will use "OPA" or "tender offer" as general terms without specifying the previous distinction):

- Voluntary tender offer (OPA "*preventiva facoltativa*" o "*volontaria*"): this type of TO is launched by an acquirer at its discretion. It's not triggered by any legal obligation but rather by its strategic decision to pursue the takeover, potentially targeting all outstanding shares ("*totalitaria*") or a specific percentage ("*parziale*"). The acquirer

determines the offer price and terms, and shareholders individually decide whether to accept or reject. This type of offer demonstrates the acquirer's interest but carries the risk of insufficient shareholder participation to achieve control.

- Mandatory tender offer (OPA "successiva totalitaria" o "*obbligatoria*"): An MTO is triggered by legal requirements, typically when an acquirer surpasses a defined ownership threshold in a listed company. These regulations, designed to protect minority shareholders, compel the acquirer to launch offers for all of the remaining outstanding shares. The offer price is often calculated using regulatory formulas. Specifically, pursuant to Art. 106 TUF *"*Any person who, as a result of purchases for a consideration, comes to own a shareholding exceeding the threshold of **thirty per cent**, shall make a public offer to buy all the ordinary shares. The offer shall be made within **thirty days** at a price no lower than the arithmetic mean of the weighted average market price in the **last twelve months** and the highest price agreed in the same period by the offeror for the purchase of ordinary shares"
- Residual tender offer ("*OPA residuale"* o "*obbligo di acquisto*"): A residual TO is mandated after an acquirer, following a successful tender offer or other acquisition methods comes to hold more than 90% of the voting share capital. According to Art. 108 TUF "any person who comes to own a shareholding exceeding **ninety per cent** shall make a public offer to buy all the shares with voting rights at the price set by Consob unless within **four months** he restores a free float sufficient to ensure regular trading". The aim of this obligation is to protect remaining minority shareholders by providing a final opportunity to exit at a fair price.

A notable example of a hostile tender offer, which is not closed yet, is the case MPS-Mediobanca.

On 24th January 2025, Banca Monte dei Paschi di Siena (MPS) initiated a €13.3 billion takeover bid for Mediobanca (which then targeted it as a hostile takeover), proposing an exchange of 23 MPS shares for every 10 Mediobanca shares held by investors. Mediobanca's BoD unanimously rejected the unsolicited offer in an extraordinary meeting on January 28th, citing a lack of industrial and financial rational and labeling it as "strongly destructive of value". They expressed concerns that the merger would compromise Mediobanca's focus on high value-added business segments and potentially lead to significant customer losses in areas such as Wealth Management and Investment Banking. (Mediobanca - Press Release, 2025)

This case exemplifies a hostile "OPAS", where an acquiring company attempts to take over a target company through a public offer involving both cash and share exchanges, without prior agreement from the target's management.

Collocating it in the broader context of the Italian "*risiko bancario*", this is a situation that highlights how strategic moves could generate very complex situations in the M&A field.

2.2.4 Open Market Purchase

An open market purchase is another way to circumvent management but, differently from tender offer, this time the bidder buys shares on a public stock exchange.

This approach is usually taken before entering a bid in order to establish a toehold position from which the acquirer could launch a real offer and start a takeover attempt with its preferred approach.

Basically, it involves buying the shares in the market anonymously until it reaches the minimum threshold and timeframe to disclose. In Italy this is regulated by Art. 120 TUF under the *Actual Shareholdings ("Partecipazioni Rilevanti")* regulation which states that shareholders are required to disclose shareholdings when exceed 2% or when reach or exceed 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 66.6%, 75%, 90%, and 95% of the company's voting share capital. Similarly, in the United States, the Securities Exchange Act of 1934 requires investors to file a Schedule 13D with the Securities and Exchange Commission (SEC) within 10 days of acquiring more than 5% of a company's voting shares, detailing the purpose of the acquisition and any plans to influence control of the company.

Another example of this could be applied also in regulated industries where passing a threshold triggers many authorization requirements from regulator bodies. For instance, in the EU, the Capital Requirements Directive defines a "qualifying holding" as a "direct or indirect holding in an undertaking which: (i) represents 10% or more of the capital or of the voting rights of the undertaking; or (ii) makes it possible to exercise a significant influence over the management of the undertaking; or (iii) results in the credit institution becoming the proposed acquirer's subsidiary". Acquiring such a holding mandates prior notification and approval from the relevant supervisory authorities, such as the European Central Bank (ECB) withing the Single Supervisory Mechanism (SSM). The assessment criteria include (i) the acquirer's reputation,

(ii) financial soundness, and (iii) the potential impact on the institution's stability. (ECB - Banking Supervision, 2023)

A notable example illustrating the application of these regulations and underlying the complexity of such an approach is UniCredit's acquisition of a stake in Commerzbank. On September 11th, 2024, UniCredit announced that it had acquired around 9% in the share capital of Commerzbank, 4.49% had been acquired in an ABB offering on behalf of the Federal Republic of Germany and the remainder via open market transactions. (Unicredit - Press Release, 2024)

UniCredit's initial 9% stake allowed it to remain below the 10% threshold, which would have necessitated additional regulatory approvals and disclosures. It continued to hold 9% of voting shares but virtually holding around 28% of purely economic participation on Commerzbank through additional financial instruments, such as total return swap. This use of financial derivatives is mainly attributable to two reasons: (i) the fact that in this way UniCredit could gain from eventual increase in Commerzbank's value without losing this opportunity and without gaining voting rights and passing the threshold, and (ii) it demonstrates a commitment in that deal also in purely economic terms, underlying the willingness to pursue the transaction by taking additional risk even without achieving voting rights.

This episode underlines how a deal can show complexity in many aspects and starts and conclude in very different ways following different paths according to the strategy, the tactics, and the intentions of each participant involved in the transaction.

2.3 Preemptive defensive tactics

Takeover defenses can be classified based on timing, being (i) preemptive (or pre-offer) if these tactics are put into place to prevent any kind of unsolicited hostile takeover attempt, or (ii) reactive (or post-offer) if the tactics are put into place to react to a hostile takeover bid. The latter are mainly used when pre-offer defensed are not successful in fending off an unwanted bid or were not put in place in advance. (Kumar & Sharma, 2019)

The best way to tackle hostile takeovers is to avoid being targeted. While it doesn't exist a one-fits-all solution it is important to understand the best strategies in order to mix it and find the best solution in each situation.

Before delving into the different specific tactics an overview of some of the most structural items will be made.

To avoid becoming a target for hostile takeovers, companies must adopt a multifaceted strategy that structurally enhances financial performance, strengthens investor relations, optimizes capital structure, and refines business portfolios. One critical approach is continuous peer and sector review. Companies that exhibit declining valuation metrics, such as falling PE ratios or deteriorating margins compared to industry peers, are often prime targets for hostile acquirers. Missing financial targets amplifies this risk, making it essential for firms to address operational inefficiencies, improve cost structures, and enhance revenue generation. Proactive measures to strengthen both short- and long-term financial performance are key, as passively waiting for sector recovery or macroeconomic improvements is insufficient.

A thorough review of the investor base and trading trend is equally important. Companies should monitor share ownership patterns while maintaining open communication with all shareholders, especially with institutional investors. Engaging with credit rating agencies and tailoring messages to different investor groups enhances transparency and credibility. Building a supportive long-term shareholder base also helps to reduce the likelihood of hostile bids.

Moreover, portfolio optimization ensures a company remains focused on core competencies while maximizing value. Regularly adjusting the business mix by divesting low-growth assets and highlighting high-growth areas enhances operational efficiency and signals a clear strategic direction, making the firm less attractive to opportunistic bidders.

Together with this more “structural” advice, a set of preemptive defensive strategies to put into place in order to strengthen a firms position on the topic are discussed below.

2.3.1 Shark repellents

Shark repellents are anti-takeover amendments that make more difficult or less attractive for an acquirer to gain control of a company. These defenses are typically embedded in the firm’s bylaws and require shareholder approval to be altered, ensuring they remain effective unless explicitly removed. “They predate poison pills as a defense, and their success in slowing down takeovers and making them more expensive has been mixed. […] Their primary role is to make it more difficult to gain control of the board though a proxy fight at an annual or special meeting.” (DePamphilis D. M., 2018)

Staggered Board

By dividing shark repellents into two categories, as suggested by DePamphilis (2018), we can distinguish by objective between (i) strengthening the board's defenses, and (ii) limiting shareholder actions, with staggered board being the main tool to strengthen the board's defenses. It is one of the most effective defenses and involves preventing the full replacement of the board in a single election cycle. By dividing directors into classes, only one class is up for reelection annually, ensuring that an acquirer seeking control must wait multiple years before securing a majority of board seats. For instance, if a 12-member board is divided into 3 classes it will take at least 2 years to gain control of the board because each year is dedicated to the election of one specific class. According to Bebchuk & Cohen (2005), the combination of a staggered board with a poison pill (that we'll be discussed later) empowers the company to practically prevent a hostile bidder from proceeding the takeover. Even though staggered boards were not born purely as an antitakeover strategy, but mainly to facilitate independence of directors and to reduce annual turnover on the board, they are less common in firms where hostile takeovers are more difficult and were less common before the 1980s takeover wave (Bebchuk, IV, & Subramanian, 2002), thus partly highlighting that they're commonly implemented as a preemptive defensive strategy.

Fair Price Provision

A fair price provision mandate that an acquirer compensate all shareholders with a predetermined "fair price", mitigating the risk of disparate treatment for minority shareholders. The objective as a defensive tool is to make the deal more expensive. The fair price may be stated in the form of a certain price or in terms of the company's PE ratio (Gaughan, 2018). A common approach to estimate fair price integrates a weighted average of the target's historical P/E and the relevant industry average, providing a more nuanced and contextually relevant valuation. The efficacy of these provisions is particularly evident in countering two-tier tender offers, which strategically allocate unevenly a high value offer for a controlling stake, followed by a significantly lower offer for remaining shares.

Supermajority provisions

These provisions stipulate a supermajority vote, often ranging from 67% to 95%, thereby significantly impeding hostile takeover attempts by limiting shareholder actions. The efficacy of these provisions is amplified when coupled with substantial management or employee stock ownership, as these groups often exhibit strong alignment with the incumbent board. Moreover, the implementation of tiered supermajority requirements, which escalate the voting threshold based on the acquirer's shareholding percentage, further strengthens their defensive capabilities (Gaughan, 2018). However, they risk entrenching management and causing gridlock leading to a slower and less dynamic environment.

Dual Class Recapitalization

Dual-class recapitalization represents a corporate governance mechanism that deviates from the conventional "one share, one vote" principle, introducing a stratified ownership structure designed to concentrate voting power within a select group of shareholders, typically founders or key executives (Crowe, 2024). This structural alteration is achieved through the creation of different classes of common stocks with different voting rights. Generally, Class B are embedded with superior voting rights with respect to the classic publicly traded Class A shares. By exploiting this tool, it could be possible to allocate greater voting power in the hands of shareholders that are more aligned with management's decisions.

2.3.2 Golden parachute

"In acquisitions, target CEOs face a moral hazard: any personal gain from the deal could be offset by the loss of the future compensation stream associated with their jobs." (Fich, Tran, & Walkling, 2013)

A golden parachute is an agreement between a company and an executive based on a lucrative compensation package offered in the event of their termination following a change in company control, such as a hostile takeover. These agreements serve as a dual-purpose mechanism: they primarily mitigate the personal financial risk faced by executives and, on the other hand, act as a deterrent against hostile acquisitions by increasing the associated costs. This strategy doesn't just make the acquisition more expensive, but it put the basis to complicate the post-merger integration phase. Acquirers may find it necessary to implement a complete management

restructuring to achieve optimal alignment between new ownership and executive team. The inclusion of golden parachute provisions within executive contracts substantially increases the financial burden of a hostile takeover.

2.3.3 Poison pills

Poison pills (or "shareholder rights plan") take their name from the capsules filled with lethal substances carried by military or espionage agents in case of capture (Mohammed, 2019). In corporate governance, poison pills serve as a defensive mechanism designed to prevent hostile takeovers by making the acquisition more expensive or unattractive to potential acquirers. Specifically, in this case, these measures allow existing shareholders, except for the raider, to purchase additional shares at a discount one an acquirer breaches a predetermined ownership threshold.

This strategy could be implemented as a "flip-in" or a "flip-over" provision. The flip-in provision enables current shareholder to buy extra shares, thus diluting the hostile bidder's percentage of ownership, while the flip-over provision permits shareholders to acquire shares in the acquiring company post-merger, further diminishing the acquirer's potential benefit.

As told in the staggered board section, the mix poison pills – staggered board it's one of the preemptive mixes that can virtually bring more success in fighting a hostile takeover.

A real scenario (in this case with some dummy numbers) that exemplifies a flip-in provisions is the case of Elon Musk's acquisition of Twitter (X). The company's board had adopted a poison pill strategy in April 2022 to deter the hostile takeover by any single investor. At that time, Twitter had approximately 800.000.000 shares outstanding, and its poison pill was structured as follows: "Under the Rights Plan, the rights will become exercisable if an entity, person or group acquires beneficial ownership of 15% or more of Twitter's outstanding common stock in a transaction not approved by the board. In the event that the rights become exercisable due to the triggering ownership threshold being crossed, each right will entitle its holder to purchase, at the then-current exercise price, additional shares of common stock having a then-current market value of twice the exercise price of the right". (Twitter, 2022) Each right entitled its holder to purchase one one-thousandth of a share of Series A Participating Preferred Stock at an exercise price of $210.00 per share. Considering the acquisition of more than 15% of the shares (i.e. 120,000,000), this would have triggered the right in all the other shareholders to double their shares. If everyone in the remaining 85% exercises its right this increases the

common shares equivalent for this group from 680,000,000 to 1,360,000,000, thus leading to a total voting shares number of 1,480,000,000. With the raider remaining at 120,000,000 but with a position which had been diluted from 15% (120/800) to 8.11% (120,000,000 / 1,480,000,000).

2.3.4 Poison puts

Poison puts, a less common but strategically significant defensive tactic in hostile takeover scenarios, are debt covenants that grant bondholders the right to demand immediate repayment of the bond in a change-of-control event (Renjie & Xia, 2024). This provision acts as a powerful deterrent by substantially increasing the costs of an acquisition for the potential raider. When a takeover occurs, bondholders, fearing a decline in creditworthiness or a shift in the company's financial strategy, can exercise the put options, forcing the acquirer to immediately repay the outstanding debt. This sudden cash outflow can make the acquisition potentially much more expensive, particularly for LBOs or deals financed primarily with debt.

2.4 Reactive defensive tactics

A reactive defense tactic, as opposed to the previous one, is a way in which a company fights actively against a hostile takeover by adopting tools and tactics if the previous strategies haven't been successful in preventing the takeover.

2.4.1 Corporate restructuring

Corporate restructuring involves a lot of structural consequences, and this makes corporate restructuring defense a very drastic strategy to react to a takeover. It could be done in several ways and the tree main one, being (i) sale of crown jewels, (ii) scorched earth, and (iii) share repurchase, will be described below.

Sale of Crown Jewels

A primary strategy involves the divestiture of "crown jewel" assets, the strategically significant and highly value components of the target's portfolio. By selling these key assets to a third-party, the target aims to diminish the core rationale behind the acquisition becoming less attractive to the bidder, as the bidder's interest may be based on access to specific divisions or technologies. Coupled with the reduced appeal in transaction, this divestiture generates

immediate cash, which can be deployed to strengthen the overall situation and maybe implement other defensive strategies if needed. The timing and valuation of these sales are critical, requiring careful consideration to ensure maximum value realization and avoid fast sales that could undermine the long-term view.

Scorched Earth

Conversely, scorched earth approach involves deliberately acquiring undesirable assets that introduce financial and operational burdens. This strategy aims to deter the bidder by increasing the target's debt load and complexities. By acquiring underperforming or risky assets, the target effectively become less attractive, making it more difficult for a bidder to continue for the acquisition. The implementation of this strategy must be coupled with a meticulous financial due diligence as it may be very risky. Moreover, according to (Mishra, Thenissery, Raj, & R., 2023), from a society standpoint "some strategies, such as scorched earth tactics, can have negative impacts on the broader community by reducing competition or harming the environment".

Share Repurchase

Share repurchases, financed by debt or existing capital effectively decrease the number of outstanding shares and amplify the Debt-to-Equity Ratio. Similarly, leveraged recapitalizations, characterized by debt-funded dividend distributions or share buybacks, fundamentally alter the target's capital structure. These maneuvers are designed to elevate the target's financial risk profile by increasing the leverage to intolerable levels for the bidder.

2.4.2 Anti-greenmail provision

The anti-greenmail provision is a special clause in a company's corporate charter that prevents the board from approving greenmail payments (Liberto, 2021). The term is a combination of "greenback" referred to the US Dollars and "Blackmail", which is self-explanatory.

A Greenmail is a strategy put into place from a hostile bidder to buy enough shares to threaten the target in order to make it repurchase its own shares from the bidder at a premium, in exchange for the bidder's agreement not to make a hostile bid over a given time span.

This practice started to arise during the 1980s in the US and it was disincentivized in 1987 by the introduction of section 5881 of I.R.C. (Internal Revenue Code) about excise tax on

greenmail. “Once the statutory elements of greenmail are met, a 50 percent excise tax is imposed on the “gain” realized by the greenmail recipient. The Technical Corrections Act of 1988 expands this to “gain or *other income realized*” […] The Code imposes the greenmail excise tax in addition to income tax. […] The effective tax rate of combined income and greenmail excise tax will be as high as 78 percent and 84 percent for individuals and corporations, respectively”. (Lustig, 1988)

2.4.3 White knight and white squire

White knight strategy involves the intervention of a third-party friendly acquirer (the “white knight”) to launch a superior bid, in order to overcome the hostile bidder (often referred to as the “black knight” in this particular situation). While the target company doesn’t remain truly independent, the white knight’s offer may present better terms with respect to the black knight’s one and so the management could prefer to move in that direction. “In addition, even if the hostile tender offer eventually succeeds, the use of a white knight might secure a higher offering price for the target corporation’s securities by triggering competitive bidding between the raider and white knight.” (Wash. & Lee L. Rev., 1985)

The *White Squire* defense is very similar to the previous one, but it preserves target’s independence. The white squire in this case is a third-party friendly acquirer that agrees to acquire a minority stake in the target company, providing a powerful ally, effectively creating a greater voting block that can threaten the hostile bidder’s attempt to gain control. Being this strategy less convenient for the friendly acquirer compared to the white knight, it is sometimes coupled with lockup options.

2.4.4 Pac-man

The Pac-man defense, named after the famous 1980s videogame, is one of the most aggressive strategies and it is considered a defense of last resort. Following this strategy, the target company, with a huge effort compared to other defenses, fights the takeover attempts by making a tender offer to acquire the stock of the hostile bidder, thus substantially reversing the fundamental situation.

This is a very risky strategy because the counteroffer should make sense and, indeed, this strategy really only makes sense when the companies are similar in size and an LBO is possible.

It requires a huge financial effort, and it brings different disadvantages, such as the possibility of future losses or financial distress, and for these reasons it should be considered just in situations in which is truly necessary as a strategy of last resort.

2.4.5 Litigation

Litigation is one of the most common defense strategies. According to DePamphilis (2018), "in the early stages of the takeover era (the mid-1970s), it was an effective means of preventing a takeover. However, its power diminished over time". One of the main benefits associated with litigation is that it permits to take time to develop reactive strategies and seek for external help (such as white knight).

With this strategy, the target leverages the judicial system to introduce uncertainty in the takeover disrupting the bidder's timeline and potentially making the deal less attractive. The target may initiate legal processes on different grounds, such as violation of antitrust regulations, securities laws, or fiduciary duties. Moreover, the target may strategically appeal to multiple jurisdictions that will create a complex web of legal proceedings that will increase the cost for the bidder. The objective shouldn't be to necessarily win every legal battle, but rather to create sufficient friction and delay to force the bidder to reconsider its approach, negotiate more favorable terms, or exit from the deal. Furthermore, the public nature of litigation can damage the bidder's reputation and, by leveraging communication, that as already highlighted is a key aspect of hostile takeover battles, the target could really deter the bidder from continuing with its approach.

Ch. 3 – Discovering the company value: valuation techniques

"Valuation is more an art than a science"

In any sophisticated M&A framework, understanding and accurately estimating the company's value is fundamental.

Following our exploration of the M&A process, drivers, and the tactical nuances of hostile takeovers in Chapters 1 and 2, this chapter delves into the art of corporate valuation. It is not just something related to strategic transactions, but it serves as a continuous diagnostic tool for internal performance and long-term strategic planning.

This chapter presents a comprehensive treatment of valuation techniques by examining both relative and intrinsic methods. It starts with exploring the concept of the corporate lifecycle and value maximization. Recognizing the stage of the company and why value it helps in determining which valuation methodologies are most appropriate.

The discussion then transitions into relative valuation, a method based on the comparison of a target firm's financial metrics with those of similar companies or historical transactions. Relative valuation, through the use of standardized price multiples, offers a market-driven perspective that can be particularly insightful for benchmarking and peer analysis. Two methods will be analyzed: Comparable Companies Analysis and Precedent Transactions Analysis.

Complementing the relative approach, the chapter also provides a detailed analysis of intrinsic valuation techniques, with a focus on the DCF method. Intrinsic valuation is rooted on some basic principles, such as the Time Value of Money, that will be discussed in the chapter. It also carefully outlines the whole process of a DCF analysis by structuring robust financial forecasts, understanding the importance of Free Cash Flows, and explaining how to estimate the discount rate. Additionally, the role of Terminal Value and input adjustments are discussed to provide tools to enhance the precision and the accuracy of the analysis.

By interpreting the importance of both types of methodologies, this chapter aims to provide a comprehensive toolkit for assessing company value across a range of multiple scenarios to deal with complexities of the real world.

3.1 The lifecycle of a company

Similarly to a person, companies pass through different stages within their lifecycle. According to Damodaran (2024), the corporate life cycle can be divided into 6 main stages as reported by the figure below.

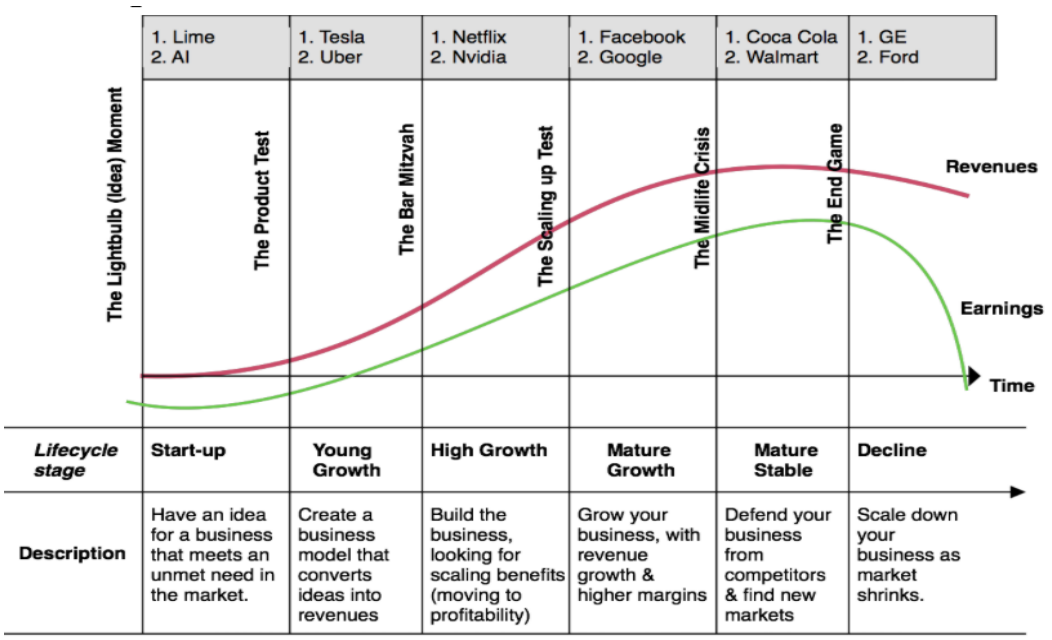

Figure 12- The six stages of the Corporate Life Cycle [Source: (Damodaran, 2024)]

The start-up stage is marked by nascent operations, high growth potential, and substantial uncertainty. Companies in this phase are often characterized by limited historical financial data and high risk. Traditional valuation methodologies are frequently unreliable due to the inherent difficulty in projecting future cash flows with any reasonable degree of confidence. In this context, alternative valuation approaches are more appropriate. At a very first stage only qualitative approaches are possible such as Berkus and Scorecard Method.

As companies transition the young growth stage, where rapid revenue expansion and substantial reinvestment needs are key, the predictability of cash flows improves. This enhanced predictability facilitates the application of more quantitative methods from the "startup world" such as the VC Method, where the value of the target entity is estimated as an *exit value* and then discounted back using an appropriate rate (Žemaitis & Misiūnas, 2021). It is also possible to start using a DCF method but with due precaution on the selection of appropriate inputs such as growth and discount rates that must find their rationale in in-depth analysis. In this phase, scenario planning and sensitivity analysis are crucial because only a limited history is available, and the stability of the firm is not fully known.

The mature growth stage witnesses a deceleration in growth rates, coupled with increased stability and predictability. At this stage, traditional valuation methods become increasingly applicable, especially DCF method.

In the mature stable phase, company typically exhibit consistent cash flows, making them suitable for the application of traditional valuation methods and the emphasis shifts from growth potential to consistent value generation and competitive positioning. It is possible, at this stage, to perform confidently (but avoiding overconfidence) intrinsic valuations because of the stability of the firm and to use relative valuation methods to assess the value by comparing the firm with market multiples.

Finally, the death stage requires a focus on asset liquidation and bankruptcy procedure. The valuation process is centered on determining the distribution of the assets to the different stakeholders.

Maximizing company value stands as a fundamental objective in corporate finance. The importance of value maximization transcends mere profitability, encompassing a broader spectrum of financial health, competitive positioning, and sustainable growth. A company that prioritizes value maximization ensures that financial stability is enhanced but also positions itself for long-term success in the market.

It is important to bear in mind this fundamental concept and the stage that the company is living to understand how to best assess its value. The valuation of a company is not a monolithic exercise but rather a dynamic process intrinsically linked with strategic objectives. According to Borsa Italiana (2004) the objective of a valuation process varies according to why it is necessary to determine the value of a company. Valuation has its particular importance in four main situations:

1. M&A transactions
2. IPO process
3. PE- and VC-backed investment valuation
4. Self-diagnosis

3.2 Relative valuation: multiples

Relative valuation is one of the 2 macro category of valuation containing *comparable transactions* (or "Precedent transactions" or "Compaq" from "Comparable acquisition") and *comparable companies* (or "Trading comps" or simply "comps").

The aim of a relative valuation method is to value an asset comparing its value with the values assessed by the market for similar or comparable assets. "Relative valuation has two components. The first is that to value assets on a relative basis, prices have to be standardized, usually by converting prices into multiples of some common variable. […] The second component is to find similar assets. This is difficult to do, because no two assets are identical" (Damodaran, 2010).

The relative valuation process is as follows:

1. Identify comparable assets and obtain market values for these assets;
2. Convert these market values into standardized values, since the absolute price cannot be compared. This process of standardizing creates price multiples;
3. Compare the standardize value or multiple for the asset being analyzed to the standardized values for comparable asset, controlling for any differences between the firms that might affect the multiple, to judge whether the asset is under or overvalued.

The key advantages of valuation multiples include being (i) useful, because they can be a robust tool to provide key information about relative value, (ii) simple, due to their ease of calculation and wide availability of data that make multiples an appealing method for assessing value, and (iii) relevant, because they're based on key statistics that every investor use.

On the other hand, the key disadvantages are characterized by the fact that they are: (i) simplistic: they combine many value drivers into a point estimate and it's difficult to disaggregate the effect of different value drivers; (ii) static: multiples measure value at a single point in time and do not fully capture the dynamic nature of business and competition; and (iii) difficult to compare: multiples differ for many reasons, not all relating to true differences in value. This can result in misleading "apple-to-oranges" comparison among multiples.

Figure 13 - Key inputs of a multiple [Source: Damodaran's website]

As figure 12 shows, a multiple is composed by a measure of market valuation in the numerator (e.g. EV, Equity Value) and a universal measure of financial performance in the denominator. (e.g. EBITDA, NI).

It is possible to distinguish between Equity multiples and EV multiples. While equity multiples are more relevant to equity valuation and more familiar to investors, EV multiples allow a focus on statistics where accounting policy differences can be minimized, avoid the influence of capital structure, and are easier to apply to proxies of cash flow.

Below an overview of the key multiples used by analysts:

Equity Value Multiples			
Multiple	Definition	Advantages	Disadvantages
Price-to-Earnings (P/E)	Share price / Earnings per Share (EPS = Net Income / Weighted Average N° of Shares in issue)	• Widely used and easy to interpret. • Quick measure of how the market values the firm's future earnings prospects	• Sensitive to accounting choices • Useless if earnings are negative
Price-to-Book (P/B)	Share price / Book value per share	• Useful for financial or asset-intensive firms (e.g. FIG)	• BV for tangible assets can be significantly impacted by accounting policies

Dividend Yield	Annual Dividend per Share / Share price	• Focuses on immediate cash return to shareholders • Can be used as a floor price	• Dependent on distribution policy • Assumes dividend is sustainable
Price-to-Sales (P/S)	Share price / Sales per share	• Easy to compute • Useful if the firm has negative earnings	• Mismatch between nominator and denominator (EV/Sales is more appropriate)

Table 1.2 – Equity Value Multiples key characteristics [Personal elaboration]

Enterprise Value Multiples			
Multiple	Definition	Advantages	Disadvantages
EV/EBITDA	Enterprise Value / Earnings Before Interest, Taxes, Depreciation & Amortization	• Most popular EV multiple • Unaffected by depreciation policy • EBITDA is a proxy for FCF	• Ignores variations in Capex and D&A • Ignores potential value creation through tax management
EV/EBIT	Enterprise Value / Earnings Before Interest and Taxes	• Reflects operating performance by excluding interest and taxes • Allows for differences in capital structure by incorporating maintenance capex	• Influenced by depreciation policies
EV/Sales	Enterprise Value / Net Sales	• Least susceptible to accounting differences • Applicable even when earnings are negative or highly cyclical	• Difficult to compare cross-industry • Sales are rarely a direct value driver

Table 1.3 – Enterprise Value Multiples key characteristics [Personal elaboration]

Some industries can be compared based on specific multiples (Caselli, Gigante, & Tortoroglio, 2021):

- EV/EBITDAR: mainly used in *airline companies*, EBITDAR (Earnings Before Interest, Taxes, Depreciation, Amortization and Rental expenses) represents the gross operating margin before leasing fees for aircraft and allows a uniform representation between the various companies, regardless of the decision regarding the ownership/leasing of their own fleet.

- Net Asset Value (NAV): mainly used in *Real Estate Finance Companies*, requires the identification of a sample of comparable companies and the calculation of the relative average discount compared to the NAV
- Multiple of physical drivers: multiples that place the value in relation to physical variables: for electricity companies, the installed capacity and the quantity of energy produced (EV/MWh) are considered, while to evaluate electricity transmission or gas distribution companies the so-called RAB (Regulatory Asset Base) model is used, which represents the value of the corporate assets defined by the Authority
- Multiple of users/click: mainly used in TMT, it is useful to valuate startups with negative profitability based on the possibility of generating future income based on company's subscribers or metrics based on that.

The two following sections (3.2.1 and 3.2.2) will give a general understanding on how to perform a valuation with two relative methods. Due to the operational similarity between them, one of the two sections will be more detailed and the other will be based on it.

3.2.1 Comparable companies (Comps)

Comparable Companies Analysis is a relative valuation method that estimates the value of a firm by examining the market values of publicly traded companies with similar characteristics. The underlying assumption is that comparable companies should be valued similarly by the market if they share analogous risk and return profiles.

The key steps involved in the Comparable Companies Analysis are:

Step 1. Select the Universe of Comparable Companies
Step 2. Gather Financial Data & Normalize
Step 3. Select Appropriate Valuation Multiples
Step 4. Benchmark the Comparable Companies
Step 5. Determine Valuation

Step 1 – Select the Universe of Comparable Companies

According to Rosembaum & Pearl (2009) the selection of a universe of comparable companies for the target is the foundation for performing trading comps. It is important to have a deep understanding of the company because finding relevant peers could be very challenging otherwise. The key characteristics that should be considered are:

- Business profile:
    - Sector
    - Products/Services
    - Customers and end markets
    - Distribution channels
    - Geography
- Financial profile:
    - Size
    - Profitability
    - Growth profile
    - Return on Investment
    - Credit Profile

When selecting the peers it could be useful to start from a wider range of comps found in an initial screening and then narrow it to get to a list of very similar companies.

Step 2 – Gather Financial Data

After determining the peer group, the next step is to collect historical and forward-looking figures for each company. Typically, key metrics such as Revenue, EBITDA, Net Income among other useful ones are included. Whenever possible, forward consensus estimates are also obtained from equity research reports or financial databases to capture expected future performance.

Step 3 – Select Appropriate Valuation Multiples

Once the necessary financial info has been located, they are entered into an input page. Choosing multiples is *more an art than a science* and they should be based on detailed reasonings in line with what has been discussed in the previous section.

Step 4 – Benchmark the Comparable Companies

According to Rosembaum & Pearl (2009), benchmarking centers on analyzing and comparing each of the comparable companies with one another and the target. The ultimate objective is to determine the target's relative ranking so as to frame valuation accordingly.

It is a 2-stage process: (i) benchmark the financial statistics and ratios to identify the closest comparable and noting potential outliers, and (ii) benchmark the trading multiples to put emphasis on the best comps.

This is done to have different tiers in valuation and to weight it accordingly in order to respect the rationale underlying relative valuation at its best.

At this point it's necessary to display key statistics for each of the selected companies. Useful metrics are, together with mean and median (both always used), 25th percentile, 75th percentile, minimum, and maximum, in order to have a range in which the two key statistics lie.

Step 5 – Determine Valuation

Finally, once the benchmark is done, in the final stage, the target's financial metrics are multiplied by the multiples derived from the comps. This procedure yields a preliminary range of possible valuations that reflect the market standards established by similar firms. These findings should be presented as a valuation range accounting for the variability in the peer group and the uncertainties tied to the target's performance.

3.2.2 Comparable transactions (Compaq)

Precedent Transactions Analysis is another relative valuation method frequently used in M&A, focusing on the pricing implied by actual takeover transactions rather than by stock market trading multiples. Whereas Comps references ongoing market valuations of peer firms, Compaq isolates historical M&A deals in which target companies share similar characteristics with our target firm under consideration.

The process is very similar to the previous one: by examining the multiples previously paid, the aim is to capture how acquirers and target shareholders have agreed on "fair value" in real deal scenarios, considering also the premium paid.

A core distinction from comps arises from the nature of transactions themselves: M&A negotiations typically reflect a premium above the standalone trading value of a target, as discussed in chapter 1. This premium can significantly boost valuations and the final prices in such deals may also integrate considerations beyond pure financial metrics.

A key difference in the process of Precedent Transactions Analysis is the inclusion of private companies in the dataset when such information is available. Unlike comps, which rely on

publicly listed firms, Compaq can incorporate deals involving privately held companies, offering a broader spectrum of potential comps. Another significant distinction is the need to consider not only the traditional financial metrics but also the deal-specific factors that influence transaction pricing. It is crucial to understand how to consider the transaction structure, payment method, strategic rationale, and the economic environment at the time of the deal. Indeed, the temporal aspect is critical in Comparable Acquisitions Analysis. Transactions that occurred during different economic cycles or market conditions may require adjustments or exclusion to ensure their relevance to the current valuation context. This historical perspective makes Compaq more robust than Comps which relies on market fluctuations but brings with it the disadvantage of an extra layer of complexity in valuation.

3.3 Intrinsic valuation: Discounted Cash Flow

Let's start with a brief introduction on Time Value of Money (TMV) in order to explain intrinsic valuation at its best. Time Value of Money is the concept that an amount of money today is worth more than the same amount of money tomorrow. This simple concept is the fundamental basis of intrinsic valuation methods, because "Cash flows are discounted for two simple reasons: because (1) a dollar today is worth more than a dollar tomorrow and (2) a safe dollar is worth more than a risky one. Formulas for PV and NPV are numerical expressions of these ideas". (Brealey, Myers, & Allen, 2017).

According to Damodaran (2024) the main reasons are: (i) individuals prefer present consumption to future consumption, (ii) when there is monetary inflation, the value of currency decreases over time, and (iii) a promised cash flow might not be delivered for a number of reasons (uncertainty / risk).

These reasons are incorporated in the Present Value which is function of the expected future value, interest rate, and time.

Present Value of multiple cash flows is explained as follows:

$$PV = \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \cdots + \frac{C_t}{(1+r)^t} = \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$$

Where,

PV = Present Value

C = Cash Flow

r = Discount Rate

t = Time

n = Number of Periods

While, by subtracting the initial investment we could derive the Net Present Value (NPV) as:

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \cdots + \frac{C_t}{(1+r)^t} = -C_0 + \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$$

Where C_0 = Initial investment (i.e. Capex)

Building upon this premise, the goal of a Discounted Cash Flow (DCF) Analysis is to calculate the present value of an asset by discounting its forecasted future cash flows using a required rate of return that accounts for the asset's risk over a defined period.

3.3.1 Forecasts

A Discounted Cash Flow model starts with the forecast of the main item regarding the company in order to build the future cash flows. Firstly, it is important to set a time horizon that it's neither too short (2-4 years) nor too long (15+ years). According to McKinsey (2005) a good forecast period should be between 10 and 15 years and, to simplify the model and avoid error of false precision, a recommendation is to "split the explicit forecast into two periods:

1. A detailed five- to seven-year forecast, which develops complete balance sheets and income statements with as many links to real variables (e.g., unit volumes, cost per unit) as possible
2. A simplified forecast for the remaining years, focusing on a few important variables, such as revenue growth, margins, and capital turnover".

In this way it is possible to focus on the business' long-term economics and to avoid overcomplicating the model.

On this extent, forecasting in a DCF requires meticulous analysis of historical data, industry trends, and macroeconomic conditions. The quality of a forecast depends significantly on the accuracy of key assumptions, such as sales growth, cost structures, capex, and working capital needs. This is why it is useful, as we'll see in a following section, to perform a sensitivity

analysis to account for variability in assumptions, providing a range of possible outcomes rather than a single static figure.

According to Titman & Martin (2016), is it possible to think of the financial forecast as a four-step process:

1. *Perform an analysis of the firm's most recent financial statements*. A good understanding of how money will be made in the future is enhanced by an understanding of how it has made in the past
2. *Construct pro forma statements for the planned period*
3. *Convert pro forma financial statements forecasts to predictions of the firm's FCFs*
4. *Forecast the value of cash flows after the end of the planning period using a terminal value*

Below a graphical representation of the Titman & Martin's four-step process:

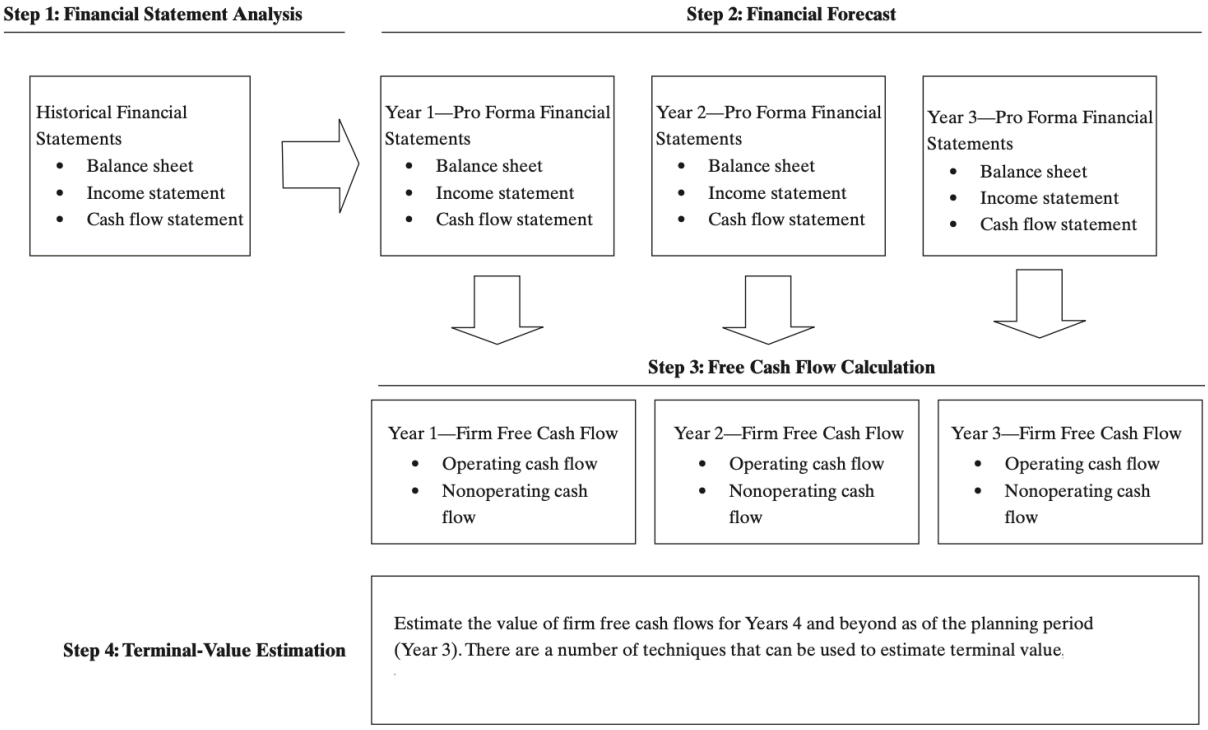

Figure 14 - Forecasting and Valuation 4-step process [Source: (Titman & Martin, 2016)]

Through the analysis of historical financial statements is it possible to identify ratios and trends that will be the basis to assume relationships between key items and the top line. Each assumption of used tools or different rates needs to be justified with sound reasoning and relatable benchmarks.

Revenue Forecasting is one of the key steps and there are generally two ways to do this: (i) top-down and (ii) bottom-up. The first one starts with the analysis of macro- or market-level data, such as Total Addressable Market (TAM) or even the GDP and then goes down by estimating the market share and computing the revenue as a percentage of the TAM. Conversely, the bottom-up approach starts with low-level company data, such as the total number of orders and then goes up by estimating the prices and computing the revenue as the volume of orders times the average net sales prices.

COGS and SG&A can be projected using historical levels and indicating them as a percentage of sales. The starting point could be to project them in a constant manner but to adjust for years in which is possible to have variations for any reason.

For the other items the rationale is very similar, and each item is usually projected in relationship with more robust data already estimated to avoid creating too many estimates and making the model rely on even more assumptions.

Table 1.4 provide examples of key items and the way in which they're projected:

Item	**Projection method**
Revenue	*YoY % change*
COGS or SG&A	*COGS as % of revenue*
D&A	*D&A as % of fixed assets*
Capex	*Capex as % of revenue*
Accounts receivable	*AR as % of revenue*
Inventory	*Inventory as % of COGS*
Accounts Payable	*AP as % of COGS*
Taxes	*Constant or variable tax rate*

Table 1.4 – Relationship between key items in DCF's projections

3.3.2 Free Cash Flow

It is possible to distinguish between two main types of Free Cash Flow (FCF), the Free Cash Flow to Firm (FCFF) and the Free Cash Flow to Equity (FCFE).

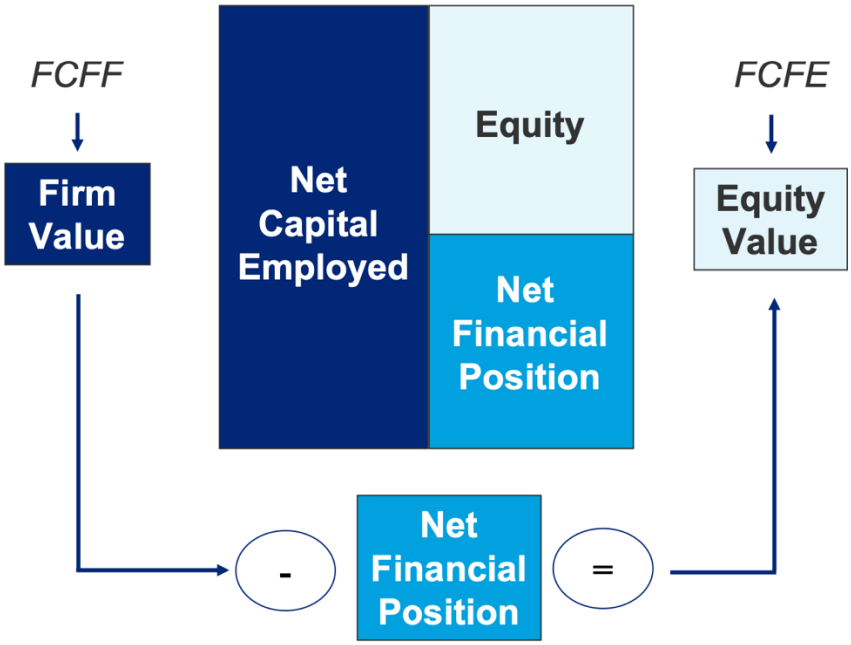

Figure 15 - FCFF vs FCFE [Source: Slides from Business Valuation course]

It's important to be coherent with which methodology is adopted, as the choice between FCFF and FCFE directly influences the valuation process and its outcomes.

According to Damodaran (2015) "the FCFE is the residual cash flow left over after meeting interest and principal payment and providing for reinvestment to maintain existing assets and create new assets for future growth." Consequently, FCFE is particularly pertinent when valuing firms with stable ratios, as it directly reflects the cash available for distribution to common stockholders through dividends, share buybacks, or further reinvestment. The formula is as follows:

$$FCFE = Net\ Income + D\&A - Capex - \Delta NWC + Net\ Borrowing$$

On the other hand, FCFF offers a broader perspective, representing the cash flow available to all capital providers, including both equity and bondholders, regardless of their position in the capital structure. FCFF is computed as:

$$FCFF = EBIT * (1 - tax\ rate) + D\&A - Capex - \Delta NWC$$

Or, deriving from FCFE

$$FCFF = FCFE + Interest * (1 - tax\ rate) - Net\ Borrowing$$

It abstracts from the capital structure, making it preferable in scenarios where leverage is expected to change, as it offers a holistic view of the firm's operational performance independent of financing choices. This approach is essential when deriving the Enterprise Value (EV) by discounting FCFF using the Weighted Average Cost of Capital (WACC) which will be derived in the following section. Adjusting the EV by subtracting the Net Financial Position yields the Equity Value, as it is possible to notice from the figure above.

The choice between FCFF and FCFE is fundamentally driven by the valuation objective: FCFE is ideal when the focus is solely on equity holders, as it is discounted at the cost of equity. In contrast, FCFF is suitable for comprehensive firm valuation, offering flexibility when capital structure adjustments are anticipated.

Ensuring consistency between the chosen cash flow measure and discount rate is of primary importance, as any mismatch could distort the valuation outcome, undermining its reliability.

The following table shows a comparison between FCFF and other cashflow measures according to Damodaran (Investment Valuation: Tools and Techniques for Detemrining the Value of Any Asset, 2012).

Cash flow used	Definition	Use in valuation
FCFF	Free cash Flow to Firm	Discounting free cash flow to the firm at the cost of capital will yield the value of the operating assets of the firm. To this, you would add on the value of non-operating assets to arrive at firm value.
FCFE	FCFF – Interest * (1-t) – Principal repaid + New Debt Issued – Preferred Dividend	Discounting free cash flows to equity at the cost of equity will yield the value of equity in a business
EBITDA	FCFF + EBIT(t) + Capital Expenditures +	If you discount EBITDA at the cost of capital to value an asset, you are assuming that there are no taxes and that the firm will

	Change in working capital	actively disinvest over time. It would be inconsistent to assume a growth rate or an infinite life for this firm.
EBIT (1-t) (NOPLAT is a slightly modified version of this estimated and it removes any non-operating item that might affect the reported EBIT.)	FCFF + Capital Expenditures – Depreciation + Change in working capital	If you discount after-tax operating income at the cost of capital to value a firm, you are assuming no reinvestment. The depreciation is reinvested back into the firm to maintain existing assets. You can assume an infinite life but no growth.

Table 1.5 – Free Cash Flows to the Firm: Comparison to other measures [Source: (Damodaran, 2012)]

3.3.3 Cost of Capital: WACC

The Weighted Average Cost of Capital (WACC) plays a central role in the DCF because Free Cash Flows are discounted back to this rate. Indeed, WACC represents the average rate of return required by all capital providers (both equity and debt holders) weighted by their respective contributions to the firm's total market value. It serves as the discount rate applied to forecasted cash flows, capturing both the risk and the financing mix of the company. As we saw before, WACC is useful to discount FCFF to compute the Enterprise Value because it is consistent with the idea of accounting for the asset side. The formula of the WACC is:

$$WACC = \frac{E}{V}k_e + \frac{D}{V}k_d(1 - \tau_c)$$

Where,

E = Equity Value

D = Debt Value

V = D + E

k_e = Cost of Equity

k_d = Cost of Debt

τ_c = Corporate Tax Rate

3.3.3.1 Cost of Equity: CAPM

The first component of the WACC is the cost of equity (Ke). It represents the return that investors demand for committing capital to a firm, reflecting the inherent risk of the investment. The more common method for estimating this return is the Capital Asset Pricing Method (CAPM), which relates the expected return on equity to its systematic risk, as measured by the beta coefficient.

The CAPM is articulated as follows:

$$k_e = r_f + \beta(r_m - r_f)$$

Where,

k_e = Cost of Equity

r_f = risk-free rate

ß = Beta

$r_m - r_f$ = Equity Risk Premium

CAPM's theoretical basis is closely linked to Modern Portfolio Theory (MPT), which postulates that in an efficient market, investors can construct optimal portfolios that lie on the Capital Market Line. The CML describes the relationship between the expected return and total risk of efficient portfolios:

$$E(R_p) = r_f + \sigma_p \left(\frac{E(R_m) - r_f}{\sigma_m}\right)$$

Where,

$E(R_p)$ = Expected Return on portfolio p

σ_p = Std dev of portfolio returns

σ_m = Std dev of market portfolio

$\left(\frac{E(R_m) - r_f}{\sigma_m}\right)$ = Market's Sharpe Ratio

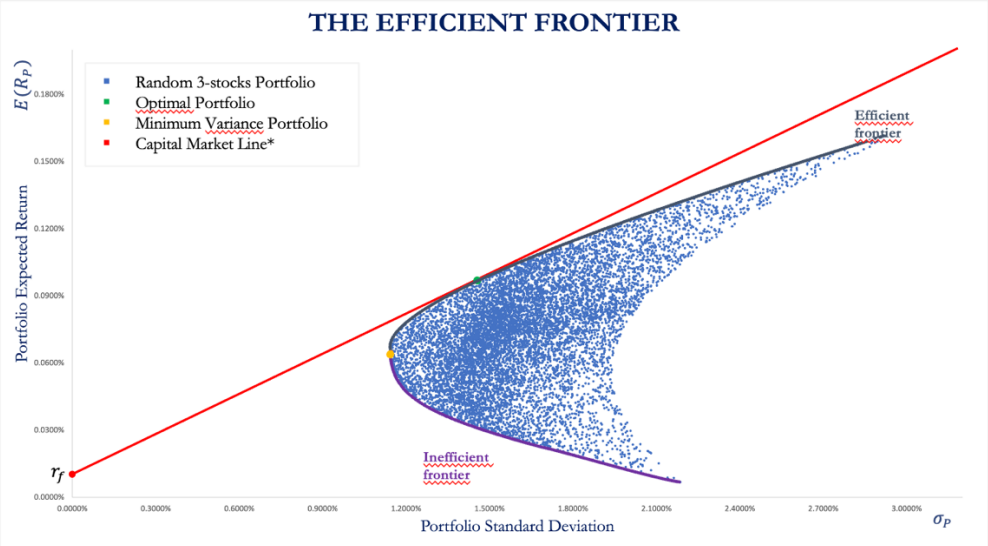

Figure 16 – Graphical representation of a Capital Market Line (technically CAL in this case) [Personal elaboration of 10,000 simulation of a 3-stocks portfolio (AMZN - JPM - BRKB)]

While CML provides the framework for understanding the risk-return trade-off for efficient portfolios, the CAPM applies these principles to individual securities.

It's important to have a clear understanding of all the components of the CAPM.

The *risk-free rate* represents the return on an investment that is considered free of default risk. It is the baseline return that investors expect from a safe asset, typically government securities, which are assumed to have negligible credit risk. In practice, the yield on long-term government bonds is often used as the risk-free rate. A typical choice for practitioners is the use of 10Y US Treasury Bonds or 10Y German Government Bond or other similar measures that are based on the specific market reference or adjusted for that market.

Beta is a measure of the systematic risk of a security compared to the market. The reason why CAPM accounts just for systematic risk is because it assumes that unsystematic risk can be diversified away and so it shouldn't be rewarded.

It is indicated by a number that can be either positive or negative. A beta > 1 indicates that the security will move more than the market, both in the up and down directions, and a beta < 1 indicates the opposite.

The formula of beta is:

$$\beta_i = \frac{Cov(R_i, R_M)}{\sigma^2(R_M)} = \frac{\sigma_{iM}}{\sigma_M^2}$$

Where,

R_i = Return on the individual asset

R_M = Return on the overall market

Below a graphical representation of various levels of beta:

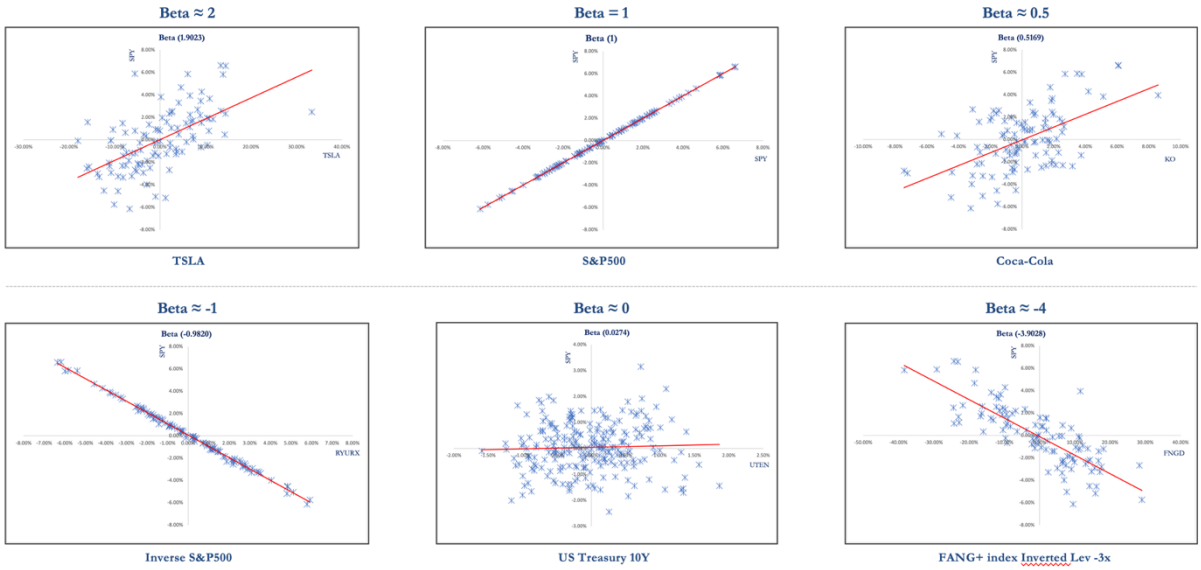

Figure 17 - Graphical representation of different levels of Beta [Personal elaboration]

The last component of the CAPM, and consequently of the cost of equity, is the *Equity Risk Premium (ERP)*.

The ERP is the excess return that investors expect for taking on the higher risk of equity investment over a risk-free asset. It is defined as the difference between the expected return of the market portfolio r_m and the risk-free rate r_f.

According to Damodaran (2022), there are 3 broad approaches used to estimate ERPs: (i) by surveying subsets of investors and managers to get a sense of their expectations about equity returns in the future, (ii) by assessing the returns earned in the past on equities relative to riskless investments, or (iii) attempting to estimate a forward-looking premium based on the market rates or prices on traded assets today (*implied premiums*).

As already discussed already, the cost of equity is also used alone as the discount rate at which the Free Cash Flow to Equity must be discounted:

$$Equity\ Value = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1+k_e)^t}$$

3.3.3.2 Cost of Debt

"A company's cost of debt reflects its credit profile at the target capital structure, which is based on a multitude of factors including size, sector, outlook, cyclicality, credit ratings, credit statistics, cash flow generation, financial policy, and acquisition strategy, among others." (Rosembaum & Pearl, 2009)

It represents the effective interest rate that a company must pay on its long-term debt obligations, while also being the minimum required yield expected by lenders to compensate for the potential loss of capital when lending to a borrower. (WallStreetPrep, 2024)

What we use in the WACC is the after-tax cost of debt:

$$After - tax\ Cost\ of\ Debt = (r_f + Default\ spread) * (1 - \tau_c)$$

Where $(r_f + Default\ spread)$ is defined as k_d. This reflects that the risk-free rate is the baseline return required on a theoretically riskless investment, while the default spread compensates investors for the additional credit risk associated with the firm's debt.

- *Yield-To-Maturity Approach*

For firms that issue bonds, the most robust method to estimate k_d is through the YTM on outstanding bonds. YTM is the overall return the bond investor earns upon buying the bond today at its current price. The YTM reflects the market's perception of the firm's credit risk and current interest rate conditions

The formula for the Yield-to-Maturity is:

$$YTM = \frac{C + \frac{F - P}{t}}{\frac{F + P}{2}}$$

Where:

C = Interest / Coupon payment

F = Face Value

P = Current Price

t = years to maturity

- *Interest Expense to Debt Ratio approach*

When the data to compute YTM are not available, k_d can be estimated as:

$$k_d = \frac{Total\ Interest\ Expense}{Total\ Debt}$$

This approach uses historical financial statements data and could be a good proxy of the cost of debt, but it has some limitations, such as the fact that is backward-looking and current market conditions may not be captured as effectively as with the previous approach.

- *ICR Approach*

Obviously, one of the most effective ways to have a ready-to-use Default Spread to use for the computation of k_d is to use Ratings given by credit rating agencies as a reference.

When these are not available, it could be possible to estimate the Default Spread with the Interest Coverage Ratio approach.

$$Interest\ Coverage\ Ratio = \frac{EBIT}{Interest\ Expense}$$

The value resulting from the computation is then compared to a *synthetic* rating that is similar to the one used by rating agencies.

For large non-financial service firms

If interest coverage ratio is			
>	≤ to	*Rating is*	*Spread is*
-100000	0.199999	D2/D	19.00%
0.2	0.649999	C2/C	15.50%
0.65	0.799999	Ca2/CC	10.10%
0.8	1.249999	Caa/CCC	7.28%
1.25	1.499999	B3/B-	4.42%
1.5	1.749999	B2/B	3.00%
1.75	1.999999	B1/B+	2.61%
2	2.2499999	Ba2/BB	1.83%
2.25	2.49999	Ba1/BB+	1.55%
2.5	2.999999	Baa2/BBB	1.20%
3	4.249999	A3/A-	0.95%
4.25	5.499999	A2/A	0.85%
5.5	6.499999	A1/A+	0.77%
6.5	8.499999	Aa2/AA	0.60%
8.50	100000	Aaa/AAA	0.45%

For financial service firms (default spreads are slighty different)

If long term interest coverage ratio is			
greater than	≤ to	Rating is	Spread is
-100000	0.049999	D2/D	19.00%
0.05	0.099999	C2/C	15.50%
0.1	0.199999	Ca2/CC	10.10%
0.2	0.299999	Caa/CCC	7.28%
0.3	0.399999	B3/B-	4.42%
0.4	0.499999	B2/B	3.00%
0.5	0.599999	B1/B+	2.61%
0.6	0.749999	Ba2/BB	1.83%
0.75	0.899999	Ba1/BB+	1.55%
0.9	1.199999	Baa2/BBB	1.20%
1.2	1.49999	A3/A-	0.95%
1.5	1.99999	A2/A	0.85%
2	2.49999	A1/A+	0.77%
2.5	2.99999	Aa2/AA	0.60%
3	100000	Aaa/AAA	0.45%

For smaller and riskier non-financial service firms

If interest coverage ratio is			
greater than	≤ to	Rating is	Spread is
-100000	0.499999	D2/D	19.00%
0.5	0.799999	C2/C	15.50%
0.8	1.249999	Ca2/CC	10.10%
1.25	1.499999	Caa/CCC	7.28%
1.5	1.999999	B3/B-	4.42%
2	2.499999	B2/B	3.00%
2.5	2.999999	B1/B+	2.61%
3	3.499999	Ba2/BB	1.83%
3.5	3.9999999	Ba1/BB+	1.55%
4	4.499999	Baa2/BBB	1.20%
4.5	5.999999	A3/A-	0.95%
6	7.499999	A2/A	0.85%
7.5	9.499999	A1/A+	0.77%
9.5	12.499999	Aa2/AA	0.60%
12.5	100000	Aaa/AAA	0.45%

Figure 18 - Synthetic ratings from Damodaran's DB (January 2025) [Source: (Damodaran, 2025)]

3.3.4 Terminal Value

The terminal value (TV) captures the value of a company's cash flows beyond the explicit forecast period in which they're being projected. It is a critical component of a DCF analysis, often comprising the majority of a firm's total valuation, especially when the projection horizon is relatively short compared to the entity's potential lifespan (Generally, in practice TV accounts for 50-75% of the total value).

In this sense, the value of a firm should be considered as:

$$EV = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1+WACC)^t} + TV$$

Where TV = Terminal Value.

According to Damodaran (2012), there are three main approaches to determine terminal value: (i) liquidation value, (ii) multiple approach, and (iii) stable growth model.

- *Liquidation Value*

The liquidation value is used when it's necessary to assume that the firm will cease its operations at a certain point in time and sell the assets. It is possible to compute the liquidation value in two ways, the first being based on the book value of assets adjusted for any inflation rate π during the period,

$$Expected\ Liquidation\ Value = BV\ of\ Assets_{term\ y}\ (1+\pi)^{average\ life\ of\ assets}$$

And the second based on the earning power of the assets by discounting expected cash flows from the assets at an appropriate rate *r* with *y* being the number of years after the terminal year in which the asset can generate that cash flows.

$$Expected\ Liquidation\ Value = CF_{assets}\ \frac{\left(1-\frac{1}{(1+r)^y}\right)}{r}$$

- *Multiple Approach*

One of the simplest ways to compute the terminal value is by using an exit multiple. The exit multiple method values the business at the end of the explicit forecast period by applying a valuation multiple (e.g. EV/EBITDA, EV/EBIT when valuing EV or P/E when valuing Equity Value) to a representative financial metric of the terminal year.

Couple with the simplicity, the advantage of this approach is that it provides a benchmark aligned with how similar companies are valued.

Damodaran doesn't consider this a true approach in intrinsic valuation because this leads to relative valuation that he defines as a "forward relative valuation". However, besides the correct definition of what is relative or intrinsic, it's important to consider the exit multiple as one of the most used approaches to account for the terminal value in practice.

- *Stable Growth Model*

This method assumes that the free cash flows generated in the final forecast year will continue to grow at a constant rate *g* indefinitely. It is typically used for companies expected to maintain stable operations and growth over the long run.

$$Terminal\ Value = \frac{FCFF_{t+1}}{WACC - g}$$

3.3.5 Sensitivity Analysis

One of the key limitations of the Discounted Cash Flow method is that, as we highlighted by decomposing the different steps, it relies on various assumptions that may lead to an under or overestimation of the value. Following Berk & DeMarzo (2017), any financial valuation is only as accurate as the estimates on which it is based, so it is very important to assess the uncertainty of each estimate and to determine their potential impact on the valuation. In this sense it is useful to perform a sensitivity analysis and use it as a tool to systematically alter the different inputs to observe how changes in these factors affect the intrinsic value and to look for the more realistic assumptions.

According to Damodaran (2015) there are some dangers to sensitivity analysis:

1. *Overdoing what if analyses*: there are lots of inputs in each DCF and analyzing too many variables indiscriminately can obscure which ones truly drive value so it's important to understand the relevance of each one without losing robustness by overdoing what if analyses.
2. *Losing sight of the objective*: the analysis should be focused on key variables and the findings should be relevant instead of losing the focus on the objective and generating too many tables and numbers as it was the objective itself.

3. *Not considering how variables move together*: changing one input at a time is simple but can lead to unrealistic results since input variables are often correlated with each other
4. *Double-counting risk*: systematic risk is already embedded in the discount rate, thus meaning that if a sensitivity scenario indicates a sharply lower valuation, it is possible that it could be linked with a double counting of risk both in the discount rates and in the cash flows.

The most important variables to analyze in a sensitivity analysis are revenue growth, margins, discount rate, and terminal value.

A linked tool to assess the uncertainty of estimates is the scenario analysis, which considers the consequences of varying multiple key parameters and allows to consider different scenarios such as the best- and worst-case scenarios, useful for comparisons and to have some boundaries.

Generally, after all the valuation process, the results are presented with a "football field" chart that summarizes a range of values for the business, based on the different valuation methods. This is done to visually show the range of values and to highlight an average valuation that came up from the various methods.

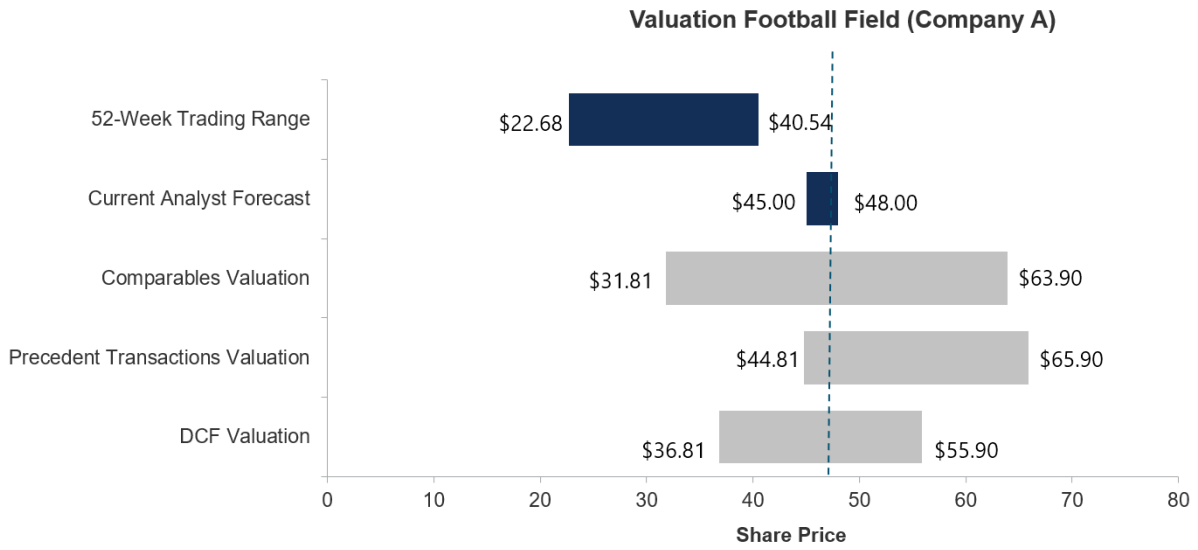

Figure 19 – A typical Football Field template [Source: (Corporate Finance Institute)]

Ch. 4 – Case study: Intel Corporation

Having delved into the complex world of company valuation it is now time to move into a more practical view with a real-world example. This chapter focuses on the valuation of Intel, chosen due to growing emerging market signals that suggest the company may soon become a prime target for acquisitions. This news is coming in an environment of renewed interest in M&A activities in contrast with what the previous two years offered.

According to the latest BCG's M&A Outlook, after a slow 2023 and a turbulent 2024 defined by elections in major economies and shifting in central bank policies, 2025 will see increased M&A activities mainly driven by declining inflation, lower interest rates, and recovering valuations. As is evident from the latest report "*semiconductor industry and M&A update*" published by KPMG (2024), semiconductor industry anticipated the new M&A trend after a challenging year in 2023 with a strong rebound in 2024 that represented a 16.0% percent growth, with volumes that stand at all-time high.

This chapter will be divided into three main parts: (i) general context; (ii) company overview, and (iii) company valuation. In the first section, recent events and market dynamics that have reshaped Intel's competitive landscape are explored. Lately, Intel has navigated challenges while simultaneously capturing attention with strategic partnerships and acquisition rumors. High-profile interests from prominent players have further amplified speculation around Intel's future. These developments signal potential opportunities for big deals within the industry.

The second section provides a detailed company overview, outlining Intel's core business segments, its global operational footprint, and the strategic initiatives it has undertaken to maintain its market leadership. By emphasizing Intel's extensive product portfolio, innovative R&D capabilities, and commitment to operational restructuring, such as the recent decision to spin off its foundry business, the overview sets a solid foundation for understanding the company's current position and future potential.

The valuation section is the focal point in which all the previous discussions become assumptions to assess the value of the company. The valuation analysis employs multiple methodologies, including Comparable Companies Analysis, Comparable Transactions Analysis, and Discounted Cash Flow model, to derive an intrinsic value for Intel. This multifaceted approach incorporates a range of market and financial benchmarks and contextualizes Intel's valuation within the broader dynamics of the rapidly evolving industry landscape.

4.1 The context: The biggest chip deal ever?

It is truly crucial to understand the context in which Intel's situation lies in this historical period. Starting from recent events, the 13th and 14th generation chips produced in 2023 had oxidation problems and end consumers began to complain but until Intel's admission, in July 2024, that it had this kind of instability problem in the product there was an unclear communication that distinguished Intel and that continued to contribute to losing trust in a segment of consumers, especially considering NVIDIA's unprecedent escalation in 2023. On August 1st, 2024, Intel's share price dropped approximately 30% in just one day as a consequence of the release of the Q2 2024 earnings report in which unstable situations were coming to light coupled with the news of the decision to stop paying dividends and to lay off 15% of the workforce to reduce costs and which the market interpreted as a last-ditch effort that was too excessive, even though part of a broader strategy. An initial upswing occurred when, on September 16th, it was announced that Intel had strengthened its strategic partnership with Amazon (AWS) (Amazon - Press Center, 2024). After that, a series of events of varying significance brought to today's situation. First, on September 30th, it was announced that Qualcomm declared its intention to acquire Intel through a bear hug-like approach. Obviously, in a strategic sector such as semiconductors one it is not easy to pursue a transaction of that magnitude without having to deal with antitrust at a certain level, and in fact Qualcomm stalled until November to wait for the U.S. elections and better understand how to move. In late November it declared that its interest had faded out. On December 2nd Intel announced the retirement of CEO Pat Gelsinger after taking over in 2021 and witnessing really complex times such as coming out of the pandemic, supply chain restructuring, and the hype around the semiconductor world with NVIDIA leading the way that led to an Intel's poor performance overall. The new year, which has only just begun, has already brought several surprises. Notably, mid-January saw significant interest from Elon Musk in acquiring Intel, although no further developments have been reported at this time. This potential scenario is particularly intriguing for three main reasons: (i) Musk is renowned for his aggressive acquisition strategy, as evidenced by his takeover of Twitter, and he also expose its interest for OpenAI through a $100 billion dollar proposal to Sam Altman lately; (ii) he currently maintains a very close relationship with US political circles, and (iii) he could integrate Intel's operations synergistically with those of his other companies, rather than pursuing this as a purely financial investment. Furthermore, interest in Intel has notably increased among various strategic buyer, with Broadcom focusing on the "Products" segment and TSMC on the "Foundry" BU. Coupled with this, also financial players, such as

APOLLO, announced to be interested in Intel. Approval of the strategic transactions would be challenging due to the substantial size of these players. In this case of TSMC, there additional concerns: it could raise issues regarding its monopolistic position and, more importantly, generate fears of future tensions arising from the current geopolitical environment, particularly given its status as a global key player headquartered in Taiwan.

Figure 20 - Semiconductors deal activity overview [Source: (KPMG, 2024)]

Figure 20 highlights a surge in deal activities related to semiconductor industry mainly driven from mega-deals and buyer demand for AI-powered tools, and high-performance, power efficient, & low-cost wireless and discrete offerings (KPMG, 2024).

Intel's current situation, combined with a rapidly growing M&A market, especially within its industry, necessitates close monitoring of the company's strategic moves to assess the potential for what could be "the biggest chip deal ever". To further reinforce the possibility that Intel could become an acquisition target, the M&A Target Model provided by Refinitiv Workspace is presented below. This model provides a relative 1-100 ranking of public companies based on a higher probability acquired within the next twelve months.

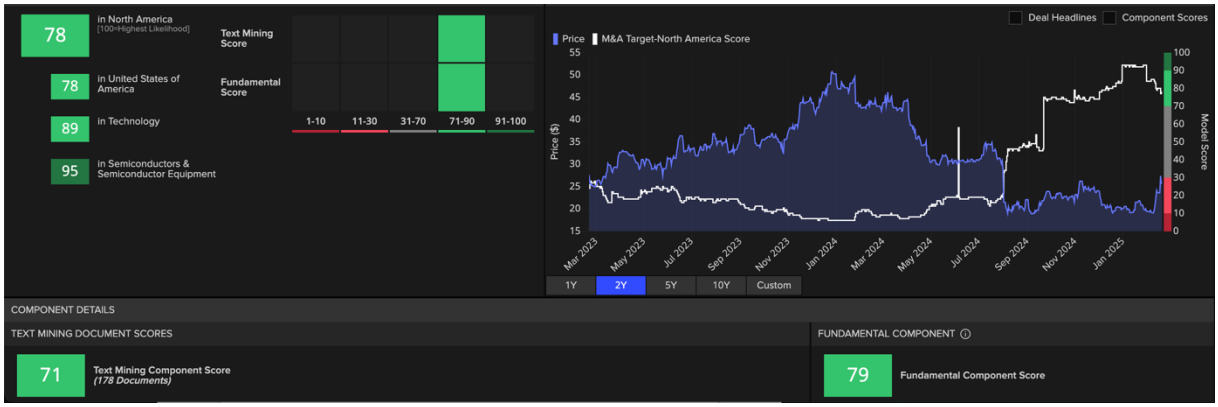

Figure 21 - Intel's M&A Target Model [Source: Refinitiv Workspace]

4.2 Company Overview

Founded in 1968 and headquartered in Santa Clara, CA, Intel Corporation is a global designer and manufacturer of semiconductor products. The company operates through three segments: Intel Products, Intel Foundry, and All Other. Its Intel Products segment includes *Client Computing Group* (CCG), *Data Center and AI* (DCAI), *Network and Edge* (NEX). CCG focuses on CPUs and related technologies to enable PC experiences. DCAI delivers workload-optimized solutions to cloud service providers and enterprises. NEX develops solutions for networking, telecommunications, and edge computing, addressing the growing demand for connectivity and IoT applications. The Intel Foundry segment comprises technology development, manufacturing and foundry services especially for external clients. Intel's strategy is to maintain a unique positioning to capitalize as the entire world becomes always more digital with its high-performance technologies and products. (Refinitiv Workspace & company website)

Intel operates globally and, from a market perspective, it benefits from a strong brand reputation and its broad product and solutions portfolio has allowed the company to mitigate some of the risks associated with a concentrated customer base and high-technology development. Recent fiscal data indicate challenges in Intel's performance. For instance, during last 5 years Intel's revenue declined by 31.8% from $ 77,867M to $53,101M.

Notwithstanding, Intel continues to reinforce its leadership across key segments through a series of strategic product launches and partnership. As stated on Intel's website, there were different highlights in 2024. In its ***CCG***, the company is on track to ship over 100 million AI-enabled PCs by the end of 2025, leveraging collaborations with more than 200 independent software vendors to optimize applications on Intel silicon. Recent announcements at CES (*Consumer Electronic Show*, one of the key events in the electronic segment), including the introduction of Intel® Core™ Ultra 200V, 200H, and HX series mobile processors, with integrated Intel vPro® technology, underscore its commitment to delivering enhanced performance, efficiency, and reduced power consumption. Additionally, Intel anticipates enhancing its client roadmap with the forthcoming launch of Panther Lake on the Intel 18A process technology in the latter half of 2025. Within its ***DCAI*** segment, Intel has demonstrated strong collaborative efforts, partnering with Dell Technologies to develop the Dell PowerEdge XE7740 server, which integrates dual Intel® Xeon® 6 processors and up to eight double-wide accelerators, including Intel® Gaudi® 3 AI accelerators. The introduction of MRDIMMs memory technology in its Xeon® 6 data center processors has also resulted in a significant bandwidth boost. In the ***NEX***

domain, Intel unveiled a new line of Intel® Core™ Ultra processors at CES, designed specifically for scalable and high-performance edge computing applications. The company's ongoing engagement with the x86 Ecosystem Advisory Group, alongside counterpart AMD, reflects its commitment to enhancing cross-platform compatibility and simplifying the software development process. Completing these advancements, ***Intel Foundry*** has achieved a full tape-out for an Intel 16-based design and is advancing towards volume production in Europe. Additionally, process tool installations in Arizona are supporting the growth of Intel 18A production. A definitive agreement under the U.S. CHIPS Act has further reinforced Intel's strategic role by securing substantial funding for its advanced semiconductor R&D and manufacturing initiatives. (Intel Corporation - Press Releases, 2025)

Intel holds the leading position in the Semiconductor Devices market with a 9.3% market share, closely followed by NVIDIA with a share of 8.8% (Previous year 3.89% highlighting an unprecedent growth). In the Semiconductor Production market, and especially in the Foundry Services, Intel accounts for 0.8% of the market, which is predominantly dominated by TSMC who holds a 57.8% stake. Intel has expressed its ambition to become the second-largest producer globally, aiming to surpass Samsung Electronics who holds a 14.3% market share.

At the end of 2024, Intel announced a strategic shift taking the decision to spin off its foundry business. Intel's objective to make each BU independent lies on the leaner decisions that the company could take making it more dynamic and ready to an operational restructuring in order to meet its strategic objectives. Splitting Intel's design and foundry operations seems the most logical approach. Two key issues undermine the former CEO's proposal: (i) many of TSMC's major customers directly compete with Intel's design business, and second, these customers are unlikely to risk switching their foundry partners even if Intel could offer a modest advantage. According to Morningstar's latest analyst notes, for an independent Intel foundry to succeed, three conditions are necessary: (i) it must operate separately from Intel design, (ii) secure a partnership with TSMC to avoid disrupting existing supply chains, and (iii) receive government support through subsidies or tariffs that favor domestic manufacturing. Moreover, significant antitrust concerns remain which could complicate global approvals. Notably, a joint venture between TSMC and Intel might further cement TSMC's monopoly rather than enhance competition, underscoring the winner-takes-most dynamics that currently define the advanced foundry market.

4.3 Valuation

As described in Chapter 3, there are several valuation methods, each with its own advantages and disadvantages. In determining Intel's value, the methods outlined in the previous chapter are employed to demonstrate their practicality and real-world applicability. The processes are detailed, along with the rationale behind the key assumptions. Finally, the results, based on the average of the different valuations combined with additional benchmarks, will be presented and discussed to conclude the assessment of Intel's value.

4.3.1 CCA – Comparable Companies Analysis

In order to conduct the analysis, 10 companies have been selected. A breakdown of each is provided below before the valuation discussion.

- *NVIDIA Corporation*

NVIDIA Corporation is a full-stack computing infrastructure company focused on accelerated computing to address complex computational challenges. The company operates across two main segments:

1. Compute & Networking: this segment covers data center accelerated computing platforms, AI solutions and software, networking, automotive platforms (including autonomous and EV solutions), robotics and embedded platforms, and DGX Cloud computing services
2. Graphics: this encompasses GeForce GPUs for gaming and PC use, the GeForce NOW game streaming service, enterprise workstation GPUs (Quadro/RTX), Virtual GPU software for cloud-based visual computing, automotive infotainment platforms, and Omniverse Enterprise software for developing and operating 3D internet applications.

As stated in the previous section, NVIDIA is a market leader in GPUs, and it is playing a pivotal role in driving innovation in AI and high-performance computing.

- *Broadcom Inc.*

Broadcom Inc. is a global tech firm that provides both semiconductor products and enterprise software solutions. It operates in two segments, (i) semiconductor solutions (RF devices and wireless components) and (ii) infrastructure software (cloud, application delivery, and

cybersecurity). It provides a portfolio of software solutions that enable customers to plan, develop, automate, manage and secure applications across mainframe, distributed, mobile and cloud platforms.

- *Qualcomm Inc.*

Qualcomm Incorporated is a leading developer of foundational wireless technologies, driving innovations in 3G, 4G, and 5G connectivity, as well as high-performance, low-power computing and on-device AI. The company primarily operates through its Qualcomm CDMA Technologies (QCT) segment, which develops integrated circuits and system software for mobile, automotive, and IoT applications, and its Qualcomm Technology Licensing (QTL) segment, which licenses critical IP. Even though nothing already happened, during Q3 2024 Qualcomm announced that it was interested in acquiring Intel.

- *Advanced Micro Devices Inc.*

Advanced Micro Devices Inc. (AMD) is a global semiconductor company that specializes in high-performance computing, graphics, and visualization technologies. It operates across four segments (Data Center, Client, Gaming, and Embedded segment) offering a comprehensive portfolio that includes AI accelerators, CPUs, GPUs, APUs, and SoC solutions for a variety of applications. Notable products such as AMD EPYC and AMD Ryzen highlight its innovative approach in delivering performance and efficiency in products and its competitive positioning in the market.

- *Texas Instruments Inc.*

Texas Instruments Inc. is a global semiconductor company. The company designs, manufactures, tests, and sells analog and embedded processing chips for markets, such as industrial, automotive, personal electronics, communications equipment, and enterprise systems. The two main segments are: (i) Analog, which includes power management products for electronic systems and signal chain products, which process real-world signals for control, and (ii) Embedded Processing, which offers microcontrollers, digital signal processors (DSPs), and applications processors, along with DLP products, calculators, and custom ASICs.

- *Analog Devices Inc.*

It is a global semiconductor company specializing in analog, mixed-signal, and digital signal processing solutions. It offers both general purpose and application-specific integrated circuits for data conversion, amplification, power management, and RF processing.

- *Marvell Technology Inc.*

Marvell technology Inc. is a supplier of data infrastructure semiconductor solutions. The company designs, develops, and sells integrated circuits and custom SoCs for diverse end markets including data centers, enterprise networking, career infrastructure, consumer, and automotive/industrial sectors. Its portfolio contains ASICs, Ethernet solutions, fiber channel adapters, processors, storage controllers, and advanced electro-optical products.

- *Microchip Technology Inc.*

It is a global provider of smart, connected, and secure embedded control solutions. Serving approximately 123,000 customers across industrial, automotive, consumer, aerospace & defense, communications, and computing markets, the company focuses on designing, developing, manufacturing, and marketing mixed-signal microcontrollers, connectivity devices, and memory products. It also offers user-friendly, low-cost application development tools.

- *Lattice Semiconductor Corporation*

This company provides low-power programmable solutions, including FPGA devices, system solutions, and design services, along with IP licensing. It focuses on markets from the edge to the cloud providing products characterized by low power, compact size, and ease of use. Its continuous innovation in product development positions it as an interesting comparable for Intel.

- *Rambus Inc.*

Rambus Inc. is a provider of chips, silicon intellectual property (IP) and innovations that accelerate data and enables critical performance improvements for data center and other growing markets. It offers diverse portfolio of solutions across chips, silicon IP and patent licensing. Its Rambus Double Data Rate (DDR) memory interface chips for server memory modules enable increased bandwidth and expanded capacity in enterprise and cloud servers. Its portfolio includes DDR5, which includes the Registering Clock Driver (RCD), Serial Presence Detect Hubs (SPD Hub) and Temperature Sensors (TS), and DDR4 memory interface chipsets. It sells memory interface chips directly and indirectly to memory module manufacturers and original equipment manufacturers (OEMs).

Each company was selected though an initial screening using Refinitiv Workspace to identify comparable companies, followed by a detailed analysis to accept/reject the software's recommendation.

This valuation approach involves a peer group of 10 companies, including semiconductor powerhouses and hardware designers with business models comparable to Intel. Each selected company operates within the semiconductor market and is sufficiently aligned in the supply chain relative to Intel, which is why the group remains focused on these 10 firms without extending too much outside of it.

Name	Market Cap	EV	EV/EBIT	EV/Sales	P/E
NVIDIA Corp	3,410,000	3,390,000	26.5x	*17.0x*	31.4x
Broadcom Inc	1,070,000	1,130,000	28.9x	*18.5x*	36.2x
QUALCOMM Inc	192,050	192,320	13.0x	4.4x	14.8x
Advanced Micro Devices Inc	185,190	182,260	22.2x	5.7x	24.6x
Texas Instruments Inc	169,740	176,540	29.5x	10.3x	33.6x
Analog Devices Inc	109,250	114,860	27.1x	11.4x	31.3x
Marvell Technology Inc	92,840	96,310	34.9x	*11.9x*	38.6x
Microchip Technology Inc	31,120	37,320	34.6x	8.5x	44.7x
Lattice Semiconductor Corp	9,270	9,150	58.8x	*17.5x*	64.2x
Rambus Inc	7,310	6,860	21.7x	9.9x	27.9x
High	3,410,000	3,390,000	58.8x	18.5x	64.2x
3rd quartile	190,335	189,805	33.3x	15.7x	38.0x
Mean	527,677	533,562	29.7x	11.5x	34.7x
Median	139,495	145,700	28.0x	10.9x	32.5x
1st quartile	46,550	52,068	23.3x	8.9x	28.8x
Low	7,310	6,860	13.0x	4.4x	14.8x
Intel Corp	118,600	152,546			
Equity Vaue			173,782	233,644	157,495
EV			207,728	233,644	191,441

Mean EV	210,938
Mean EqV	188,307
N° outstanding shares	4,330
Implied Share price	**$ 43.49**

Figure 22 – Intel's Comparable Companies Analysis [Source: Personal elaboration - Data as of February 2025 from Bloomberg Terminal]

To account for eventual risks or overestimations due to high multiples in the tech market in this historical period, different approaches have been used as adjustments. For instance, the values resulting from EV/EBIT and P/E use the median of the multiples (28.0x and 32.5x) while the value computed from EV/Sales uses the lowest possible multiple (4.4x) to remain more conservative on this side. A more conservative case is created using the lowest multiples (13.0x, 4.4x, and 14.8x) for all the values and it results in an implied share price of $28.32 and it will be used as a baseline for the valuation range of CCA.

4.3.2 CTA – Comparable Transactions Analysis

To assess the value through the Compaq method several transactions were analyzed in order to come up with a selected set of deals that could have reflected relatable scenario. These transactions involved Intel's main competitors, and span over the 2019-2024 period with a single outlier identified in 2015 and included for two main reasons: (i) because of the value and (ii) because it directly involved Intel as a participant in the Deal. Another deal is listed for this second reason (SK Hynix Inc. acquires Memory-chip unit of Intel Corp), but no data were found about the multiples, so it's presented just for informative purposes.

Date	Target	Acquirer	Value	EqV/Sales	EqV/EBIT	EqV/EBITDA	TV/EBIT
2024	Micropac industries Inc	Teledyne Technologies Inc	56	1.7x	92.8x	34.5x	100.4x
2024	Jinglong Technology Suzhou Co	Multiple acquirers	674				
2024	Turiya Bhd	Multiple acquirers	17	3.3x	12.0x	11.0x	15.8x
2023	RoodMicrotec Netherlands BV	Microtest Inc	28	1.6x	10.7x	6.7x	10.4x
2023	TSI Semiconductors Inc	Robert Bosch Stiftung GmbH	1,500				
2022	O2Micro International Ltd	Forebright Capital Management	98	1.4x	12.3x	8.1x	8.3x
2021	Dialog Semiconductor Ltd	Renesas Electronics Corp	5,593	4.3x	48.4x	26.9x	46.3x
2020	Xilinx Inc	Advanced Micro Devices Inc	34,092	11.8x	48.9x	38.4x	47.5x
2020	Memory-chip unit/Intel Corp	SK Hynix Inc	7,000				
2020	Maxim Integrated Products Inc	Analog Devices Inc	19,762	9.3x	29.7x	25.3x	28.8x
2019	Cypress Semiconductor Corp	Infineon Technologies AG	9,334	3.6x	54.3x	19.5x	58.2x
2015	Altera Corp	Intel Corp	14,355	8.6x	31.8x	28.2x	28.1x

High	34,092	11.8x	92.8x	38.4x	100.4x
3rd quartile	10,589	8.6x	48.9x	28.2x	47.5x
Mean	7,709	5.1x	37.9x	22.1x	38.2x
Median	3,547	3.6x	31.8x	25.3x	28.8x
1st quartile	87	1.7x	12.3x	11.0x	15.8x
Low	17	1.4x	10.7x	6.7x	8.3x

Intel Corp	118,600	189,571	236,216	225,484	213,588
Equity Vaue		189,571	236,216	225,484	250,839
EV		223,517	270,162	259,430	284,785

Mean EV	271,459
Mean EqV	237,513
N° outstanding shares	4330
Implied Share price	**$ 54.85**

Figure 23 – Intel's Comparable Transactions Analysis [Source: Personal elaboration – Data as of February 2025 from Bloomberg Terminal]

The case at hand will be used as the highest range of the CTA evaluation and the multiples implied in the computations are based on the median.

A second more conservative case has been performed in order to have a lower range to rely on and it was fully based on the 1st quartile as a benchmark for multiples.

4.3.3 DCF – Discounted Cash Flow

In order to be more relevant, the DCF analysis is based on 6 years projecting items through 2030, as most of Intel's strategies and plans are targeted for that period, supported by reliable internal and external sources.

To have relevant data on which to structure the assumptions, financial data were gathered from Refinitiv Workspace for the period 2018-2024, thus covering different external scenarios.

Given the continuous decline in revenues, rather than simply translating historical growth rates or averaging figures, a more thorough analysis was undertaken. Financial data from the various Business Units were collected, and assumptions were made for each BU using different growth rates derived from a segment analysis, supported by internal press releases outlining Intel's strategic objectives. A prime example is for Intel's Foundry, where it is heavily investing with the ambition of making it independent and growing it to become the market's second-largest player by 2030. Other key items were then projected with careful attention to consistency. For instance, while Intel's statements suggest that different impacting items may be reduced, Capex estimates were not drastically lowered given the expectation of ongoing expenditure to support future investments aligned with its strategic plans.

The colors in the model are used in the following way: green is used for values linked to a different sheet; black for formulas; blue is for hardcoded item. Red was used just for taxes as it indicates something to keep an eye on, and scale of grey is for different metrics on items.

(USD Millions)

Income Statement	2018A	2019A	2020A	2021A	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E	2030E
Revenue	70,848	71,965	77,867	79,024	63,054	54,228	53,101	57,228	61,618	66,293	71,745	77,637	84,015
% growth		*1.58%*	*8.20%*	*1.49%*	*(20.21%)*	*(14.00%)*	*(2.08%)*	*7.77%*	*7.67%*	*7.59%*	*8.22%*	*8.21%*	*8.21%*
EBIT	23,244	23,752	23,876	20,713	3,263	(122)	(4,708)	7,419	11,062	14,979	19,661	24,772	30,356
% of sales	*32.81%*	*33.00%*	*30.66%*	*26.21%*	*5.17%*	*(0.22%)*	*(8.87%)*	*12.96%*	*17.95%*	*22.59%*	*27.40%*	*31.91%*	*36.13%*
Taxes	2,564	3,010	4,179	1,835	(249)	(913)	8,023	890	1,327	1,797	2,359	2,973	3,643
Tax rate	*11.00%*	*12.51%*	*16.66%*	*8.46%*	*(3.21%)*	*(119.82%)*	*(71.57%)*	*12.00%*	*12.00%*	*12.00%*	*12.00%*	*12.00%*	*12.00%*

Cash Flow Items	2018A	2019A	2020A	2021A	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E	2030E
CapEx	15,181	16,213	14,453	20,329	25,050	25,750	23,944	20,030	21,566	19,888	21,524	15,527	16,803
% of sales	*21.43%*	*22.53%*	*18.56%*	*25.73%*	*39.73%*	*47.48%*	*45.09%*	*35.00%*	*35.00%*	*30.00%*	*30.00%*	*20.00%*	*20.00%*
D&A	9,085	10,826	12,239	11,792	13,035	9,602	13,631	11,891	12,788	11,581	11,720	8,376	9,110
% of sales	*12.82%*	*15.04%*	*15.72%*	*14.92%*	*20.67%*	*17.71%*	*25.67%*	*20.78%*	*20.75%*	*17.47%*	*16.34%*	*10.79%*	*10.84%*
% of Capex	*59.84%*	*66.77%*	*84.68%*	*58.01%*	*52.04%*	*37.29%*	*56.93%*	*59.37%*	*59.30%*	*58.23%*	*54.45%*	*53.94%*	*54.21%*
Δ NWC	421	(1,148)	(2,179)	5,408	4,508	2,569	(1,103)	2,711	2,919	3,141	3,399	3,678	3,980
% of sales	*0.59%*	*(1.60%)*	*(2.80%)*	*6.84%*	*7.15%*	*4.74%*	*(2.08%)*	*4.74%*	*4.74%*	*4.74%*	*4.74%*	*4.74%*	*4.74%*

Figure 24 - Intel's key items 2018-2030 [Source: Personal elaboration]

Below the Free Cash Flow to the Firm for the period 2024-2030 ("*A*" stands for *Actual* and "*E*" for *Expected*):

DCF	2024A	2025E	2026E	2027E	2028E	2029E	2030E
Revenue	53,101	57,228	61,618	66,293	71,745	77,637	84,015
% growth	*(2%)*	*8%*	*8%*	*8%*	*8%*	*8%*	*8%*
EBIT	(4,708)	7,419	11,062	14,979	19,661	24,772	30,356
% of sales	*(9%)*	*13%*	*18%*	*23%*	*27%*	*32%*	*36%*
Taxes	8,023	890	1,327	1,797	2,359	2,973	3,643
Tax rate	*(72%)*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*
NOPAT		6,529	9,734	13,181	17,302	21,799	26,714
D&A	13,631	11,891	12,788	11,581	11,720	8,376	9,110
% of Capex	*57%*	*59%*	*59%*	*58%*	*54%*	*54%*	*54%*
CapEx	23,944	20,030	21,566	19,888	21,524	15,527	16,803
% of sales	*45%*	*35%*	*35%*	*30%*	*30%*	*20%*	*20%*
Δ NWC	(1,103)	2,711	2,919	3,141	3,399	3,678	3,980
% of sales	*(2%)*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*
FCFF	**(9,210)**	**(4,322)**	**(1,963)**	**1,733**	**4,099**	**10,970**	**15,040**

Figure 25 - Intel's FCFFs [Source: Personal elaboration]

At this point, to determine the value of the discounted cash flows, the proper discount rate is needed. In order to get the WACC it is crucial to determine in a proper manner both the Cost of Equity and the Cost of Debt.

The Cost of Equity was estimated using the CAPM:

- rf: The yield of a US 10Y T Bond was considered as the rf rate and stands at 4.55%;
- ERP: The ERP for US is 4.33% according to Damodaran's Database;
- Beta: a beta of 1.07 was used, according to Yahoo!Finance

Through the CAPM formula,

$$k_e = 4.55\% + (1.07 * 4.33\%)$$

Thus, resulting in a Cost of Equity $k_e = 9.18\%$.

Risk free rate	**4.55%**
Equity Risk Premium	**4.33%**
Beta	**1.07**
Cost of Equity	**9.18%**

Figure 26 - Intel's Cost of Equity [Source: Personal elaboration]

For the Cost of Debt various alternatives have been explored but the ultimate methodology was based on the YTM of 10Y Bond issued by Intel. In this case $k_d = 5.67\%$ and, considering an effective corporate tax rate of 12%, it results in $after - tax\ k_d = 4.99\%$.

Weighting these two items for the capital structure,

$$WACC = (9.18\% * 74.43\%) + (4.99\% * 25.57\%)$$

It results in: WACC = 8.11%.

WACC	
Risk free rate	**4.55%**
Equity Risk Premium	**4.33%**
Beta	**1.07**
Cost of Equity	**9.18%**
After-tax cost of debt	**4.99%**
WACC	**8.11%**

Figure 27 - Intel's WACC [Source: Personal elaboration]

By computing the WACC, it is now possible to proceed with the discounting of the FCFFs estimated before. An assumption was made on the growth rate (g) standing at 2.00% according to growth expectations in US.

DCF	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	7,419	11,062	14,979	19,661	24,772	30,356
NOPAT	6,529	9,734	13,181	17,302	21,799	26,714
D&A	11,891	12,788	11,581	11,720	8,376	9,110
CapEx	20,030	21,566	19,888	21,524	15,527	16,803
Δ NWC	2,711	2,919	3,141	3,399	3,678	3,980
FCFF	**(4,322)**	**(1,963)**	**1,733**	**4,099**	**10,970**	**15,040**
PV of FCFF	(3,997)	(1,679)	1,372	3,001	7,428	9,420

Terminal Value	251,052
PV of Terminal Value	**157,235**

Enterprise Value	**172,778**

Figure 28 - Intel's DCF [Source: Personal elaboration]

A red flag in this model is that the TV represents approximately 91% of the total Enterprise Value and it could be since growth assumptions different from the one embedded in the TV are projected for just 6 years and then it is all attributable to a stable growth. In a sense, this could be reviewed to adjust TV based on new assumptions but, on the other hand, reflects the mature stage in which Intel lives.

After having computed the Enterprise Value, in order to find the Equity value to reach the implied share price for the sake of easier comparison, an EV-to-Equity Bridge was considered adjusting the EV by adding cash and subtracting debt and Non-Controlling Interests.

Enterprise Value	**172,778**
(+) cash	22,062
(-) debt	50,246
(-) NCI	5,762
Equity Value	**138,832**

Shares outstanding		4,330
Implied share price	**$**	**32.06**

Figure 29 - EV to Equity Bridge and Implied Share Price [Source: Personal elaboration]

Due to the reliance on two strong assumptions as the WACC and the growth rate, a sensitivity analysis was performed to account for different levels in both rates.

		WACC				
		7.11%	7.61%	8.11%	8.61%	9.11%
g	1.50%	$ 37.59	$ 33.02	$ 29.15	$ 25.85	$ 23.00
	1.75%	$ 39.64	$ 34.70	$ 30.55	$ 27.03	$ 24.00
	2.00%	$ 41.89	$ 36.53	**$ 32.06**	$ 28.30	$ 25.07
	2.25%	$ 44.37	$ 38.53	$ 33.70	$ 29.66	$ 26.22
	2.50%	$ 47.12	$ 40.73	$ 35.49	$ 31.14	$ 27.46

Figure 30 - Sensitivity Analysis to account for different combination of WACC and growth rate [Personal elaboration]

According to the DCF, the intrinsic share price of Intel is $32.06 with boundaries at $27.03 and $38.53.

4.3.4 Other benchmarks

The objective of using other benchmarks is to reduce the risk of overly relying on assumptions made during the performance of other models. It is good practice that the results obtained from the different valuation methods are compared with what the market has done in the last year and what experts think. These benchmarks were taken into consideration to come up with a more robust analysis.

The values are given by (i) the 52-week range and (ii) the analysts' forecasts.

Below the 52-Week range:

52 week high	$	46.63
52 week low	$	18.51

Figure 31 - Intel's 52-Week range [Source: Personal elaboration on Yahoo!Finance data]

The range is very wide, and this variance could be attributed to different events happened during the year that caused various drops in Intel's share price as it is possible to see from the following figure.

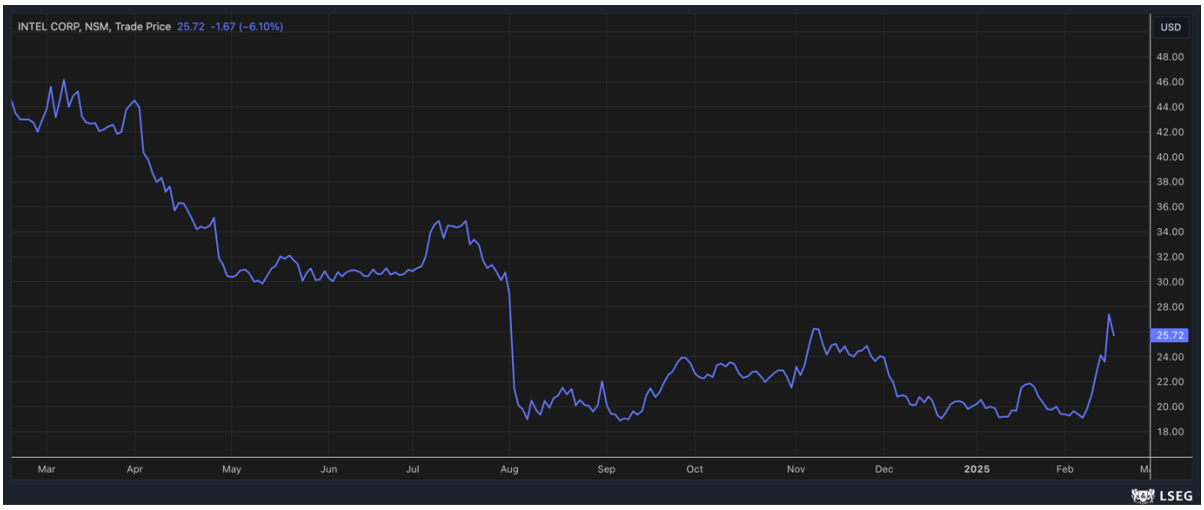

Figure 32 - Intel's 1Y Share Performance [Source: Refinitiv Workspace]

Beyond the market performance and its range, the second benchmark helps in providing another benchmark based on statistics on what analysts from leading investment firms declared in the latest period about their expectations on the share price.

Data	Analyst	Target Price
18/02/25	Morgan Stanley	$ 25.00
18/02/25	Bernstein	$ 25.00
18/02/25	Citi	$ 25.00
18/02/25	Northland securities	$ 28.00
18/02/25	Evercore ISI	$ 27.00
18/02/25	Cantor Fitzgerald	$ 29.00
18/02/25	Morningstar	$ 21.00
17/02/25	Wells Fargo	$ 25.00
16/02/25	CITIC Secutiries Co Ltd	$ 24.00
14/02/25	Huatai Research	$ 31.00
	High	$ 31.00
	Mean	**$ 26.00**
	Median	$ 25.00
	Low	$ 21.00

Figure 33 - Analysts' estimates on Intel's Share Price [Personal elaboration on data gathered on Bloomberg Terminal]

These two methodologies are particularly useful when constructing a football field to present the results of the valuation because they provide a further way to construct a range in which the average value should lie.

4.3.5 Results

Intel's declining figures in recent years have been representing a dangerous condition for its internal stability. However, Intel's new strategy set to redefine its position in the industry may be of great help in Intel's overall recovery. With this dual situation in mind, assumptions were based on a positive outlook but with a conservative approach to account for the riskiness of a failure in new plans. The macroeconomic and geopolitical environment is also highly relevant in such an industry, and it may happen to over- or underestimate its effects in the long run. Coupled with the previously discussed company-specific reasons, this is why the projection in this case are not set for a longer period. This method leads to a high weight of the TV on the final Enterprise Value, and a different approach could be adopted, such as estimating more precisely different growth rates for longer period and not just hypothesizing a stable growth after just 6 projected years, but this find its underlying on the maturity phase which Intel is in.

Different valuation methods conducted to different ranges of values with the most conservative overall being the Discounted Cash Flow, accounting for all the specific reason discussed above. The wider range is achieved by Comparable Transactions Analysis, highlighting a huge variance in precedent acquisitions.

Overall results:

Methodology	Low	High
Current Analyst Forecasts	$ 21.00	$ 31.00
52-Week Trading Range	$ 18.51	$ 46.63
Comparable Transaction Analysis	$ 25.13	$ 54.85
Comparable Companies Analysis	$ 28.32	$ 43.49
Discounted Cash Flow	$ 27.03	$ 38.53

Table 1.6 – Valuation range by methodology employed

Figure 34 – Valuation Recap – Football Field Chart [Source: Personal elaboration]

The results displayed in table 1.6 are graphically reported through the representation of a football field chart which shows the different ranges in valuation, and where current and implied share prices lie. Represented by the blue line, the Current Share Price considered is **$27.39** as it is the closing price of Intel's shares on February 18th, 2025 (~30% growth compared to just 7 days before).

The average between the resulting ranges was computed to consider both the valuation methods and the benchmarks used during the whole Intel's valuation exercise to ensure consistency in the results and to account for various aspects, ranging from the volatility in the market reflected in the 52-week trading range to the possibility of using wrong assumptions while performing the Discounted Cash Flow method.

The red line represents the level of the Intel's final Implied Share Price, standing at **$33.45**. This indicates that Intel's shares are undervalued, and its share price should be **22%** higher than the current trading price, according to the valuation analysis performed in this chapter.

Conclusion

This thesis has provided a comprehensive analysis of M&A, with a specific emphasis on hostile takeovers and corporate valuation. By integrating theoretical frameworks with empirical analysis, it has examined the strategic, financial, and regulatory complexities that define M&A transactions. The research highlights how hostile takeovers, despite being perceived as aggressive maneuvers, are sophisticated processes requiring a delicate interplay of financial incentives, corporate governance structure, and defensive tactics.

The study of offensive and defensive strategies in Chapter 2 underscores that the outcome of such transactions is difficult to predict both on the financial positioning and on the ability of management to respond effectively to takeover threats within the constraints of legal and regulatory frameworks.

A key takeaway from Chapter 3 is the critical role of valuation in shaping M&A outcomes. The analysis of relative and intrinsic valuation methods demonstrated the complexities involved in assessing company value. Forecasting challenges and the importance of consider different scenarios were explored to illustrate how valuation outcomes can vary significantly depending on underlying assumptions. The chapter emphasized that valuation is not merely a computational exercise but a strategic tool that directly influences deal negotiations, pricing, and external confidence.

Chapter 4 applied these valuation principles in a real-world case study of Intel Corporation, a company currently at the center of strategic M&A discussions in the semiconductor industry. Intel's valuation analysis, incorporating Comparable Companies Analysis, Comparable Transactions Analysis, Discounted Cash Flow and external benchmarks, revealed significant discrepancies between Intel's market price and its intrinsic valuation. The DCF model estimated an intrinsic share price of ***$32.06***, with sensitivity analysis suggesting a valuation range between *$27.03* and *$38.53*, reinforcing the importance of input assumptions such as discount rate and terminal growth rate. Comparable Transactions Analysis indicated an even higher valuation range, with a peak valuation of ***$54.85***, significantly above the current share price of **$27.39**. At the end, averaging the different valuation methods, the implied share price was **$33.45**, suggesting that Intel may be substantially undervalued and so, under the financial aspect of the deal, it could be a good target for a potential acquisition.

Intel's case study also underscored key strategic implications. Intel's ongoing restructuring, particularly its decision to spin off its Foundry Business Unit, signals a move towards a more

focused operational model, aligning with industry trends where semiconductor firms are optimizing their key strategies. This restructuring makes the company a more attractive target for acquirers seeking either vertical integration or access to Intel's technological capabilities. Moreover, Intel's declining performance, evidenced by a 31.8% revenue drop over five years, has weakened its market position, further increasing its vulnerability to takeover attempts. The study highlighted that for potential acquirers, such as Broadcom, TSMC, or PE investors, Intel's discounted value could be leveraged to initiate an acquisition process.

Additionally, the case study illustrated the role of external factors in shaping M&A feasibility. Given the industry's strategic importance, any acquisition involving a non-U.S. buyer would likely face heightened regulatory barriers, particularly from antitrust authorities and national security regulators. The potential involvement of TSMC, for instance, could raise concerns regarding monopolistic market power and US-China trade tensions, adding further complexity to any proposed deal and highlighting how a deep analysis is always needed when dealing with the M&A world.

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Appendix

VALUATION INTEL CORP. - DISCOUNTED CASH FLOW

(USD Millions)

Income Statement	2018A	2019A	2020A	2021A	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E	2030E
Revenue	70,848	71,965	77,867	79,024	63,054	54,228	53,101	57,228	61,618	66,293	71,745	77,637	84,015
% growth		*1.58%*	*8.20%*	*1.49%*	*(20.21%)*	*(14.00%)*	*(2.08%)*	*7.77%*	*7.67%*	*7.59%*	*8.22%*	*8.21%*	*8.21%*
EBIT	23,244	23,752	23,876	20,713	3,263	(122)	(4,708)	7,419	11,062	14,979	19,661	24,772	30,356
% of sales	*32.81%*	*33.00%*	*30.66%*	*26.21%*	*5.17%*	*(0.22%)*	*(8.87%)*	*12.96%*	*17.95%*	*22.59%*	*27.40%*	*31.91%*	*36.13%*
Taxes	2,564	3,010	4,179	1,835	(249)	(913)	8,023	890	1,327	1,797	2,359	2,973	3,643
Tax rate	*11.00%*	*12.51%*	*16.66%*	*8.46%*	*(3.21%)*	*(119.82%)*	*(71.57%)*	*12.00%*	*12.00%*	*12.00%*	*12.00%*	*12.00%*	*12.00%*

Cash Flow Items	2018A	2019A	2020A	2021A	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E	2030E
CapEx	15,181	16,213	14,453	20,329	25,050	25,750	23,944	20,030	21,566	19,888	21,524	15,527	16,803
% of sales	*21.43%*	*22.53%*	*18.56%*	*25.73%*	*39.73%*	*47.48%*	*45.09%*	*35.00%*	*35.00%*	*30.00%*	*30.00%*	*20.00%*	*20.00%*
D&A	9,085	10,826	12,239	11,792	13,035	9,602	13,631	11,891	12,788	11,581	11,720	8,376	9,110
% of sales	*12.82%*	*15.04%*	*15.72%*	*14.92%*	*20.67%*	*17.71%*	*25.67%*	*20.78%*	*20.75%*	*17.47%*	*16.34%*	*10.79%*	*10.84%*
% of Capex	*59.84%*	*66.77%*	*84.68%*	*58.01%*	*52.04%*	*37.29%*	*56.93%*	*59.37%*	*59.30%*	*58.23%*	*54.45%*	*53.94%*	*54.21%*
Δ NWC	421	(1,148)	(2,179)	5,408	4,508	2,569	(1,103)	2,711	2,919	3,141	3,399	3,678	3,980
% of sales	*0.59%*	*(1.60%)*	*(2.80%)*	*6.84%*	*7.15%*	*4.74%*	*(2.08%)*	*4.74%*	*4.74%*	*4.74%*	*4.74%*	*4.74%*	*4.74%*
Discount period								1	2	3	4	5	6

DCF	2018A	2019A	2020A	2021A	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E	2030E
Revenue	70,848	71,965	77,867	79,024	63,054	54,228	53,101	57,228	61,618	66,293	71,745	77,637	84,015
% growth	*0%*	*2%*	*8%*	*1%*	*(20%)*	*(14%)*	*(2%)*	*8%*	*8%*	*8%*	*8%*	*8%*	*8%*
EBIT	23,244	23,752	23,876	20,713	3,263	(122)	(4,708)	7,419	11,062	14,979	19,661	24,772	30,356
% of sales	*33%*	*33%*	*31%*	*26%*	*5%*	*(0%)*	*(9%)*	*13%*	*18%*	*23%*	*27%*	*32%*	*36%*
Taxes	2,564	3,010	4,179	1,835	(249)	(913)	8,023	890	1,327	1,797	2,359	2,973	3,643
Tax rate	*11%*	*13%*	*17%*	*8%*	*(3%)*	*(120%)*	*(72%)*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*
NOPAT								6,529	9,734	13,181	17,302	21,799	26,714
D&A	9,085	10,826	12,239	11,792	13,035	9,602	13,631	11,891	12,788	11,581	11,720	8,376	9,110
% of Capex	*60%*	*67%*	*85%*	*58%*	*52%*	*37%*	*57%*	*59%*	*59%*	*58%*	*54%*	*54%*	*54%*
CapEx	15,181	16,213	14,453	20,329	25,050	25,750	23,944	20,030	21,566	19,888	21,524	15,527	16,803
% of sales	*21%*	*23%*	*19%*	*26%*	*40%*	*47%*	*45%*	*35%*	*35%*	*30%*	*30%*	*20%*	*20%*
Δ NWC	421	(1,148)	(2,179)	5,408	4,508	2,569	(1,103)	2,711	2,919	3,141	3,399	3,678	3,980
% of sales	*1%*	*(2%)*	*(3%)*	*7%*	*7%*	*5%*	*(2%)*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*
FCFF	**(6,517)**	**(4,239)**	**(35)**	**(13,945)**	**(16,523)**	**(18,717)**	**(9,210)**	**(4,322)**	**(1,963)**	**1,733**	**4,099**	**10,970**	**15,040**
PV of FCFF								(3,997)	(1,679)	1,372	3,001	7,428	9,420

Terminal Value	251,052
PV of Terminal Value	**157,235**

Enterprise Value	**172,778**
(+) cash	22,062
(-) debt	50,246
(-) NCI	5,762
Equity Value	**138,832**

Shares outstanding	4,330
Implied share price	$ 32.06

VALUATION INTEL CORP. - COMPARABLE COMPANIES ANALYSIS

(USD Millions)

Name	Market Cap	EV	EV/EBIT	EV/Sales	P/E
NVIDIA Corp	3,410,000	3,390,000	26.5x	*17.0x*	31.4x
Broadcom Inc	1,070,000	1,130,000	28.9x	*18.5x*	36.2x
QUALCOMM I	192,050	192,320	13.0x	4.4x	14.8x
Advanced Mic	185,190	182,260	22.2x	5.7x	24.6x
Texas Instrum	169,740	176,540	29.5x	10.3x	33.6x
Analog Device	109,250	114,860	27.1x	11.4x	31.3x
Marvell Techn	92,840	96,310	34.9x	*11.9x*	38.6x
Microchip Tec	31,120	37,320	34.6x	8.5x	44.7x
Lattice Semicc	9,270	9,150	58.8x	*17.5x*	64.2x
Rambus Inc	7,310	6,860	21.7x	9.9x	27.9x
High	3,410,000	3,390,000	58.8x	18.5x	64.2x
3rd quartile	190,335	189,805	33.3x	15.7x	38.0x
Mean	527,677	533,562	29.7x	11.5x	34.7x
Median	139,495	145,700	28.0x	10.9x	32.5x
1st quartile	46,550	52,068	23.3x	8.9x	28.8x
Low	7,310	6,860	13.0x	4.4x	14.8x

Intel Corp	118,600	152,546			
Equity Vaue			173,782	233,644	157,495
EV			207,728	233,644	191,441

Mean EV	210,938
Mean EqV	188,307

N° outstandin	4,330

Implied Share	**$**	**43.49**

Intel Corp	118,600	118,600			
Equity Vaue			62,499	233,644	71,721
EV			96,445	233,644	105,667

Intel Corp	118,600	118,600			
Equity Vaue			173,782	576,146	157,495
EV			207,728	576,146	191,441

VALUATION INTEL CORP. - COMPARABLE TRANSACTIONS ANALYSIS

(USD Millions)

Date	Target	Acquirer	Value	EqV/Sales	EqV/EBIT	EqV/EBITDA	TV/EBIT
2024	Micropac industries Inc	Teledyne Technologies Inc	56	1.7x	92.8x	34.5x	100.4x
2024	Jinglong Technology Suzhou Co	Multiple acquirers	674				
2024	Turiya Bhd	Multiple acquirers	17	3.3x	12.0x	11.0x	15.8x
2023	RoodMicrotec Netherlands BV	Microtest Inc	28	1.6x	10.7x	6.7x	10.4x
2023	TSI Semiconductors Inc	Robert Bosch Stiftung GmbH	1,500				
2022	O2Micro International Ltd	Forebright Capital Management	98	1.4x	12.3x	8.1x	8.3x
2021	Dialog Semiconductor Ltd	Renesas Electronics Corp	5,593	4.3x	48.4x	26.9x	46.3x
2020	Xilinx Inc	Advanced Micro Devices Inc	34,092	11.8x	48.9x	38.4x	47.5x
2020	Memory-chip unit/Intel Corp	SK Hynix Inc	7,000				
2020	Maxim Integrated Products Inc	Analog Devices Inc	19,762	9.3x	29.7x	25.3x	28.8x
2019	Cypress Semiconductor Corp	Infineon Technologies AG	9,334	3.6x	54.3x	19.5x	58.2x
2015	Altera Corp	Intel Corp	14,355	8.6x	31.8x	28.2x	28.1x

High	34,092	11.8x	92.8x	38.4x	100.4x
3rd quartile	10,589	8.6x	48.9x	28.2x	47.5x
Mean	7,709	5.1x	37.9x	22.1x	38.2x
Median	3,547	3.6x	31.8x	25.3x	28.8x
1st quartile	87	1.7x	12.3x	11.0x	15.8x
Low	17	1.4x	10.7x	6.7x	8.3x

Intel Corp	118,600	189,571	236,216	225,484	213,588
Equity Vaue		189,571	236,216	225,484	250,839
EV		223,517	270,162	259,430	284,785

Mean EV	271,459
Mean EqV	237,513
N° outstanding shares	4330
Implied Share price	**$ 54.85**

Intel Corp	118,600	89,210	91,178	98,331	117,366
Equity Vaue		89,210	91,178	98,331	156,488
EV		123,156	125,124	132,277	156,488

VALUATION INTEL CORP. - CURRENT ANALYST FORECASTS

Data	Analyst	Target Price
18/02/25	Morgan Stanley	$ 25.00
18/02/25	Bernstein	$ 25.00
18/02/25	Citi	$ 25.00
18/02/25	Northland securities	$ 28.00
18/02/25	Evercore ISI	$ 27.00
18/02/25	Cantor Fitzgerald	$ 29.00
18/02/25	Morningstar	$ 21.00
17/02/25	Wells Fargo	$ 25.00
16/02/25	CITIC Secutiries Co Ltd	$ 24.00
14/02/25	Huatai Research	$ 31.00
	High	$ 31.00
	Mean	**$ 26.00**
	Median	$ 25.00
	Low	$ 21.00

VALUATION INTEL CORP. - 52-WEEK RANGE

52 week high	$ 46.63
52 week low	$ 18.51

VALUATION INTEL CORP. - FOOTBALL FIELD

VALUATION INTEL CORP. - WACC

WACC	
Risk free rate	4.55%
Equity Risk Premium	4.33%
Beta	1.07
Cost of Equity	9.18%
After-tax cost of debt	4.99%
WACC	**8.11%**
g	**2.00%**

VALUATION INTEL CORP. - SENSITIVITY ANALYSIS

		WACC				
		7.11%	7.61%	8.11%	8.61%	9.11%
g	1.50%	196,730	176,928	160,173	145,885	133,516
	1.75%	205,600	184,205	166,228	150,986	137,857
	2.00%	215,338	192,132	**172,778**	156,472	142,503
	2.25%	226,078	200,797	179,887	162,390	147,488
	2.50%	237,982	210,311	187,630	168,793	152,851

		WACC				
		7.11%	7.61%	8.11%	8.61%	9.11%
g	1.50%	$ 37.59	$ 33.02	$ 29.15	$ 25.85	$ 23.00
	1.75%	$ 39.64	$ 34.70	$ 30.55	$ 27.03	$ 24.00
	2.00%	$ 41.89	$ 36.53	**$ 32.06**	$ 28.30	$ 25.07
	2.25%	$ 44.37	$ 38.53	$ 33.70	$ 29.66	$ 26.22
	2.50%	$ 47.12	$ 40.73	$ 35.49	$ 31.14	$ 27.46