

# Valuation Guide

## Listing Guides





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# Preface

The Listing Guide regarding company valuation has certain characteristics that distinguish it from other texts on this subject.

This publication does not merely contain a concise description of the principal valuation methods used in the financial community: it is also a practical guide to company valuation: the information about the DCF, multiples and EVA® methods has the primary goal of creating a framework to discuss the choices that can be made by experts and consultants regarding critical areas in the company valuation process, specifically with the objective of a stock exchange listing.

To this end, it is important to point out that this Listing Guide is prevalently based on the analysis of Valuation Documents submitted to Borsa Italiana S.p.A. over the last six years. Therefore, it contains observations resulting from the actual behaviours of valuers. In particular, certain procedures in the valuations are being adopted with greater frequency, and their application involves several grey areas and sensitive aspects. The considerations presented in the first and second chapters will focus on said aspects. In reading the document, the fundamental decisions guiding the authors must be kept in mind. More specifically:

- certain guidelines may appear rigid because they aim to send a “strong” message on the choice of the most sensitive parameters (for example, perpetual growth rate “g” in calculating the terminal value);
- the technical aspects are discussed in a simplified form, due to the emphasis on clarity with respect to in-depth methodological analysis (the document is also intended for entrepreneurs who, due to their very nature, are more interested in the essentials and in focussing on the key problems);


- the examples provided within the text aim at encouraging the reader to reflect on problems, rather than provide general instructions.

Finally, the third section outlines the dialectic process which leads from the initial approximate indication of value to the definition of offer price in the case of an IPO (the “value pyramid”).

This part of the document contains several important messages aimed at companies that intend to become listed and to the professionals assisting them. More specifically:

- speculative attitudes do not pay in the long-run and jeopardise the market image of the companies being listed;
- corporate management must assume a critical attitude regarding preliminary valuations that appear to be out of line with respect to common sense guidelines and should beware of the advisors and intermediaries who make them.

This invitation to use common sense, transparency and honesty with respect to the market is particularly important if we consider that the speculative phenomena occurring in the stock markets have served as a training ground for many securities analysts, as well as a significant number of members of the academic community, who have created techniques aimed at justifying the values expressed by the market rather than clarifying the uncertain aspects of the estimates.



In hindsight, these behaviours cannot be criticised. However, two lessons can be learned from them. The first is that the “irrational frenzy” that influenced markets at the beginning of 2000 often ignored several key principles governing economic valuations: first and foremost, the relationship between uncertainty and value.

The second lesson is the following: in “extreme situations” as, for example, in the case of valuation of start-ups, of companies that use new technologies or that operate in new markets or, more generally, where there is a presence of significant, specific, key risk factors, the quality of a valuation is measured as a function of the clarity of its underlying hypotheses and transparency of the procedure adopted.

This is not meant to reassert the superiority of the more traditional methods, but it highlights the following: attention to the conditions that are at the basis of success for a business; attention to the compatibility of hypotheses adopted in the business plan with respect to the market and to competitor behaviour; in the presence of variable risk and prospects for growth, use of estimate procedures able to provide specific information with regard to the value of the business units comprising a company. On an operating level, the valuation process should encompass the following principles:

- analysis of the business model and its consistency with respect to the competitive context and the availability of intangible resources and management constitutes the crucial step of any valuation;
- the valuation must be calculated as the sum of the value of the principal business units, if this is reasonable and practical;
- the value referring to growth opportunities with respect to the development of new business should be kept separate from the base value, or rather from the value of existing business;
- the value of tax savings related to the deductibility of interest paid should be assessed in relation to the realistic debt profile, according to the cash generation potential of the business and its plans for growth;
- if the reference scenarios are characterised by high uncertainty, the valuation process should conclude with an analysis of the sensitivity of the estimate results in relation to the main hypotheses of the business plan.

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# 1. Main methods of company valuation

This chapter presents some considerations on the company valuation methods most commonly used in financial markets. The comments made do not intend to supplement the already extensive amount of literature on this topic, but they focus on some of the difficulties of these methods in terms of application.

The initial paragraphs aim at highlighting how the valuation is guided by different objectives, depending on the context leading to the need to determine the value of the company's capital. The middle portion of the chapter is dedicated to use of the principal methods, namely the DCF, multiples and EVA<sup>®1</sup> methods.

The final pages, on the other hand, cover the issue of valuing companies that operate with several Strategic Business Units (hereinafter SBU)<sup>2</sup>.

## 1.1 Definition of valuation

The valuation of a company consists of a process aimed at estimating its value by using one or more specific methods.

The topic of company valuation is covered by professional operators, financial institutions, companies and academicians. It is now common knowledge in financial markets that a company can be evaluated on the basis of the cash flows it will produce in the future. In Italy, however, as part of the long-standing debate on the concept of value, different

approaches have been assessed in the past and, for years, a conceptual disdain was maintained for the notion that the value of a company was strictly related to its cash flows. To the contrary, the most preferred methods of valuation were those based on the analytical determination of the value of the company's assets (asset method), methods based on determination of the standardised economic result (income method) and mixed methods (asset-income). The asset method is based on the assumption that the

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<sup>2</sup> In accordance with the provisions of the QMAT (document prepared by the Equity Market Listing office of Borsa Italiana, containing information on the strategy, stakeholders and reference sector of a company being listed), Strategic Business Unit refers to a unit within a company that is responsible for developing the strategy for a specific area of business (SBA).

An SBU generally has:

- strategies that are independent from other business areas of the company;
- different cost structures;
- an independent organisational centre and dedicated management.

The concept of SBU, therefore, is an internal corporate entity, while the SBA refers to the specific segment of the sector, normally identifiable through a unique combination of:

- products/services/brand;
- technology used;
- distribution channels;
- customer type;
- geographic areas of reference.



economic capital of a company corresponds to the adjusted net worth, provided by the sum of the current value of assets less liabilities.

The income method, on the other hand, calculates a standardised, discounted income, using the perpetual yield model, at a rate of return representing the specific business risk. Finally, the mixed method estimates the value of a company by adding goodwill, calculated by discounting the future surplus profits that the

company is able to generate with respect to average sector results, to the adjusted net worth.

The objective of this Guide is not to determine the theoretical and practical validity of all the valuation methods, but to focus on the methods most commonly used in the financial community, which are the Discounted Cash Flow (DCF), the market multiples and the EVA methods.

## 1.2 Objective of a valuation

The objective of a valuation process varies according to why it is necessary to determine the value of a company. The measurement of value takes on particular importance in merger and acquisition (M&A) transactions, stock market listings (IPO) and investment in unlisted companies (private equity and venture capital); in addition, the valuation may be useful for internal purposes (self-diagnosis).

The main aspects characterising the approaches to valuation under the various contexts are discussed below.

### I) Merger and acquisition of a company

In merger and acquisition transactions, the principal methods used are the Discounted Cash Flow method, the market multiples method and the comparable transactions method.

In this context, as part of the initial phase, valuations represent an instrumental tool for the negotiation between potential buyers and sellers. The prices

actually negotiated in the deals, however, are justified by the so-called “strategic value” that a company may have for a specific buyer and the presence of several potential buyers interested in closing the deal.

The strategic (or acquisition) value ideally consists of the stand-alone value of the target company, the value attributed to the synergies expected by the buyer following the corporate consolidation process<sup>3</sup> and by the consequences of direct control.

In fact, once control has been obtained, the investor will be free to actively manage the company and, therefore, the value he is willing to recognise will depend on the strategic interest he attributes to it, on the future plans to be implemented and on the synergies attainable from the integration of various industrial companies. In this case, we refer to the “acquisition premium”, which is the positive difference between the price an industrial investor is willing to pay compared to an investor with a minority interest.

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<sup>3</sup> Assigning value to the synergies is the phase of the process most exposed to the risk of over-valuation, upon which the success of the entire operation depends.

## II) Listing on financial markets

The preliminary valuation for a stock exchange listing, as we will examine more closely in the third chapter, aims to contribute to the pricing process for stocks to be placed with investors. The success of the operation, along with the image of the company being listed towards the financial community and all other stakeholders (creditors, customers, suppliers, etc.), depends on the rationality with which the entire process is conducted. Even in a listing process, the valuation of a company is typically based on the financial method and the market multiples one; however, compared to M&A transactions, it does have several specific characteristics:

- absence of any control premium, since the stock exchange listing process does not generally involve total transfer of the company, but only the entry of new financial partners, in the form of stakeholders, to support a new development cycle;
- absence of potential synergies (it is clearly a financial investment and not an industrial one).

The multiples method is particularly important in the valuation of a company being listed, as it provides a concise and easy-to-follow comparison of companies listed in the same or in different markets. In fact, institutional investors typically base their decisions on whether or not to invest in an IPO on this very comparison of multiples of the company being listed with those of the main comparable companies; the use of multiples is the fastest way to evaluate a company when its business plan is not available.

Application of the valuation methods allows us to

calculate the stand-alone value of the economic capital of the company being listed (the so-called fair value), to which a discount, called the IPO discount, is typically applied. This discount is quantified according to the indications that the banks responsible for placement receive from institutional investors and is justified by the fact that, in its absence, it would be preferable to acquire shares of a company with similar characteristics or an analogous risk profile but which is already present on the market. In fact, an IPO involves offering shares of a company with a new equity story, guided by management that is usually unknown in the financial community, while in the case of a listed company, the gaps in information are reduced, due to the obligations of communication to the market and research activities carried out by financial analysts. The size of the IPO discount is determined not only by the company's capacity to generate future results, by the financial structure, by corporate governance and by management's track record, but also by stock market trends and the specific sector in question, by competition from other issues during the period (scarcity value), by the performance of recently listed stocks, by the size of the free-float (the so-called premium or discount provided), by the general economic situation and by the level of investor confidence.

In general, a conservative valuation can be more profitable, over the long-term, than one made according to particularly favourable market conditions and sector. Taking into consideration the fact that in the long run, the market will properly atone for all expectations, it is important for a valuation to avoid incorporating the effects of a favourable but short-term market condition.



### **III) Private Equity and Venture Capital**

The preliminary analyses of private equity and venture capital transactions are aimed at defining the opportunity and the amount of own capital necessary in order to achieve a certain level of return on the investment over a time period of just a few years (usually between 3 and 5). The focus of the valuation process, therefore, is the estimated break-up value of the asset acquired (exit value) that allows reaching a pre-established rate of return (IRR).

The internal rate of return is generally established at a level that takes into account the expected remuneration that an investor in a private equity or venture capital company expects to attain (the so-called hurdle rate).

### **IV) Self-diagnosis**

A valuation is important not only as part of extraordinary finance transactions but also to support management decisions, and should be carried out by both listed and unlisted companies, using the above-mentioned valuation methods.

In this context, the value estimate is important in terms of strategic planning, to select alternative strategies and to measure the value created. Moreover, for listed companies, the estimate of capital value is useful in order to enable comparison with the market price and plan effective communications, aimed at promoting the value created.

## **1.3 Commentary on the main company valuation methods**

A sound condition to using all methods is the necessity of ensuring rationality and transparency in the entire valuation process, properly supporting the main choices made. In addition, the valuation should be conducted by focusing not only on the financial aspect but also by estimating the industrial value, based on the hypotheses contained in the business plan.

This paragraph analyses the principal valuation methods used in the financial community, briefly discussing certain issues regarding their application.

### 1.3.1. Discounted Cash Flow Method (DCF)

The Discounted Cash Flow method is recognised as the most reliable of the modern corporate theories that correlate the value of a business to its capacity to produce a cash flow stream able to adequately satisfy the remuneration expectations of an investor. According to current practice, the value of a company's equity is calculated as the algebraic sum of the following components:

- the present value of operating cash flows it will be able to generate in the future (the so-called Enterprise Value), discounted at the rate equal to the Weighted Average Cost of Capital or WACC; this calculation usually involves determining the present value of the expected future operating cash flows for a specific period of time and a terminal value, corresponding to the present value of cash flows subsequent to the analytical projection period;
- the consolidated net financial positions, expressed at market values<sup>4</sup>;
- the market value of activities not related to ordinary operations or in any case not considered for the purposes of the projected cash flows (surplus assets).

The value of a company is expressed by the following formula:

$$E = \sum_{t=1}^n \frac{OFCF_t}{(1+WACC)^t} + V_f - D - M + SA$$

where:

- E** = market value of the shareholders' equity;
- OFCF<sub>t</sub>** = operating free cash flow expected for the specific period forecasted;
- WACC** = discounting rate, expressed as the weighted average cost of capital;
- n** = specific number of years forecasted;
- V<sub>f</sub>** = discounted terminal value of the company, corresponding to the present value of the cash flows for the years from n+1 and later;
- D** = net financial position;
- M** = minorities (market value of minority interest);
- SA** = surplus assets.

Specifically, the value of operating capital, or the Enterprise Value, included in the above formula, is calculated as follows:

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

<sup>4</sup> Although it is an approximation, the net financial position resulting from the last set of financial statements is generally used.

The main methodological assumptions inherent in the application of the DCF are outlined below<sup>5</sup>.

### I) Operating free cash flows (OFCF)

The expected cash flows are operative in nature and are thus linked to the ordinary activities of the company. Starting from the consolidated operating income, they are calculated as follows:

#### Operating income (EBIT)

-	income taxes on operating income	
=	net operating income	
+	depreciation/amortisation	
+	provisions and other non-cash items	
+/-	decreases/increases in net working capital	
-	investments in fixed assets (net of divestitures)	
=	Operating free cash flow (OFCF)	

### II) Weighted average cost of capital (WACC)

The rate used to discount the expected cash flows is the weighted average cost of capital, which takes into the account the specific risk of the company, both operating as well as financial. It is calculated with the following formula:

$$WACC = K_d \times (1-T) \times \frac{D}{D+E} + K_e \times \frac{E}{D+E}$$

where:

$K_d \times (1-T)$  = after-tax cost of debt;

$K_e$  = cost of equity;

$D$  = net financial position;

$E$  = market value of shareholders' equity.

The capital structure (or debt ratio) is calculated according to the present value of the company's debt and equity; alternatively, an optimal debt ratio objective can be used (attainable in the medium-term) or a detailed year-by-year estimate.

The cost of debt,  $K_d \times (1-T)$ , is equal to the average medium to long-term cost of debt, after tax.

The cost of equity,  $K_e$ , is equal to the rate of return on risk-free investments, plus a premium for the specific risk, calculated according to the so-called beta coefficient, which measures the systematic risk of a company in relation to its yield volatility compared to the market one. The beta coefficient is estimated on the basis of the same parameter expressed by comparable listed companies and according to considerations regarding the specific company being examined.

The following formula is used for the calculation:

$$K_e = R_f + \text{beta} \times (R_m - R_f)$$

<sup>5</sup> The discounting of operating free cash flows at the weighted average cost of capital requires an implicit valuation of the tax savings related to deductibility of financial charges from taxable income. An alternative approach, known as the Adjusted Present Value (APV), which has significant strengths in terms of clarity in the valuation process, involves estimating the unlevered value of operating capital and specific calculation of the tax benefits. According to this technique, the value consists of the sum of two elements: the unlevered value (without debt) and the present value of the tax benefits. For an analysis of the APV method, see M. MASSARI - L. ZANETTI, *Valutazione finanziaria*, McGraw Italia Libri, Milan, 2003.

where:

**R<sub>f</sub>** = risk-free rate, equal to the yield on risk-free investments and estimated on the basis of the yield guaranteed by medium/ long-term government bonds;

**beta** = coefficient of volatility or systematic risk, taken as the average market beta for a sample of comparable companies;

**(R<sub>m</sub> - R<sub>f</sub>)** = market risk premium, calculated as the additional return required by investors for a stock market investment compared to investment in risk-free activities.

### III) Calculation of terminal value (V<sub>t</sub>)

The terminal value represents the present value of the operating cash flows expected for the period subsequent to the specific period of time projected.

It is calculated based on two main variables: the standardised operating cash flow for the first year following the analytical projection period and the expected perpetual growth rate “g”.

Terminal value is generally calculated via two approaches, each of which uses numerous formulas (for simplicity purposes, we indicate the most common ones):

— the first calculates the value using the perpetual yield formula to discount the cash flow of the nth year (the last year of projection), increasing it by a perpetual growth rate “g”. The value obtained is then discounted to the valuation reference date:

$$V_t = \frac{\text{OFCF}_n \times (1+g)}{\frac{\text{WACC}-g}{(1+\text{WACC})^n}}$$

— the second, which is more empirical in nature, involves multiplying an economic quantity (turnover, cash flow, EBITDA, EBIT, etc.), expected for the n<sup>th</sup> year, by a value obtained by market comparison, replicating the logic underlying the market multiples method. As in the previous case, the value obtained must be discounted back to the reference date of the estimate.

A discussion of how to calculate the last cash flow and the “g” factor used in the first approach (which, in practice, is the most commonly used) will be discussed later.

### IV) Net financial position (D)

The net financial position is calculated as the total financial debts, both long-term and short-term, net of cash and liquid assets other marketable financial assets.

Where possible (for example, in the case of listed bonds), debts should be expressed at market values.

### V) Other value components (surplus assets)

These include the total value of assets held by the company that do not contribute to determining the operating cash flows and, therefore, need to be considered separately.

### 1.3.1. Continued – Application problems

Despite the unquestionable theoretical validity, the cash flow method, however, does present some difficulties in application, as described below.

#### I) Reliability of projected financial data

The quality of results obtained from a DCF depends on the inputs and, therefore, on the capacity to determine reliable future cash flows; the flows of the first years of the projection are based on forecasted data from the business plan of the company, which must be financially coherent, reliable and sustainable<sup>6</sup>.

For subsequent periods, a conservative estimate of the growth rate in sales and the percent of impact of operating margins must be calculated. As we will see, said considerations are consistent with the “life cycle” model of the sector.

For **companies operating in cyclical sectors**, application of the method presents clear limitations related to the uncertainty of the economic cycle, which could be partially resolved by forecasting the financial data for the entire duration of the cycle (defined on the basis of historical trends) and formulating hypotheses on the evolution of the various phases. To this end, a significant example is the paper sector, strongly influenced by performance in the economic cycle by way of its fundamental drivers (changes in the price of cellulose, sales prices, degree of utilisation of production capacity, investment level, etc.). Furthermore, the ability to make reliable forecasts with respect to the economic cycle represents a fundamental element in correctly determining future flows; Figure 1.1 illustrates how several key variables of the paper sector (in Europe and North America), such as productive capacity, degree of utilisation and operating margins, evolve from one phase to another.

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<sup>6</sup> See “Guida al Piano Industriale” (Strategic Plan Guide), published by Borsa Italiana.

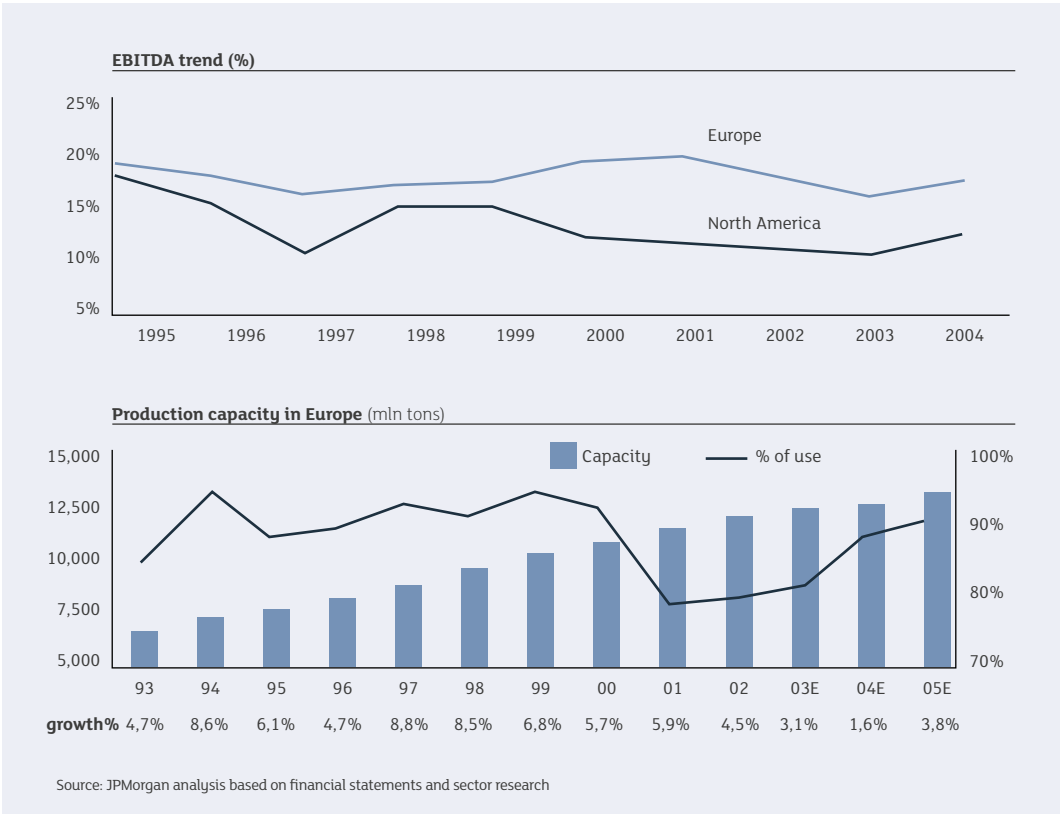
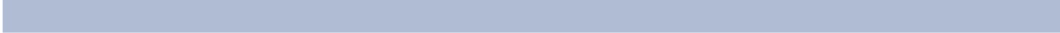


Figure 1.1 Trend in EBITDA and productive capacity in the paper sector

Similar considerations hold for the construction sector, where the length of the cycle is correlated to performance in the economy and public expenditure. Particular attention must be paid to **companies undergoing restructuring processes**, as their turnaround strategies and subsequent investments do not make historical data very useful in interpreting future data, and lead to negative cash flows for the first few years of the forecast. In these companies, there is

also a significant decline in operating margins, associated with the need to sustain extraordinary costs to finance the restructuring process (productive reorganisation, reduction of personnel, etc.). In these situations, it can be difficult to establish the credibility of forecasted data. Therefore, more so than in other cases, a conservative approach must be taken, specifically regarding estimated costs of expected benefits and assumptions in terms of sales growth (new

products, reorganisation of distribution structure, etc.). To this end, it is useful to compare the most significant figures with those of companies working in the same sector that are not undergoing restructuring processes (i.e. benchmarking).

## II) Definition of a consistent beta

Another recurring problem regards the necessity for a significant measurement of risk, essential in order to determine the discount rate; this problem is particularly troublesome for unlisted companies, which do not have a beta coefficient expressed by the market, and the parameter derived from comparable listed companies presents certain limitations related to the

difficulty in finding one or more companies with an analogous risk profile.

In order to define a correct beta coefficient, in addition to the experience of the valuator, one must consider the size of the company (higher coefficient for smaller companies), the competitive position within the reference sector (“leader” companies have lower beta coefficients than “follower” companies) and the degree of financial leverage (a higher level of debts corresponds to a higher beta coefficient).

The table below illustrates average estimated beta for several industries, assuming an average level of financial leverage for the sector and differentiating between leaders and followers.

Sector	Beta	
	Leader	Follower
Energy - oil - gas	0.6	0.8
Food	0.7	0.8
Pharmaceutical & Biotech	0.6/2.0	1.0/2.5
Transportation	1.1	1.3
Media	1.1	1.3
Banking	1.1	1.5
Durable goods (cyclical)	1.2	1.4
Automotive & components	1.3	1.5

Source: JPMorgan M&A Research, december 2003

Table 1.2 Average beta coefficients by sector

It can sometimes be useful to extend the reference information used to determine the beta coefficient to other parameters, such as the beta for different sectors but with similar growth patterns (cyclical sectors versus non-cyclical sectors, luxury sectors versus mass market sectors) or, in general, with comparable competitive situations. Finally, estimating beta becomes complex in case of start-up companies or companies undergoing a turnaround phase, companies with a strong presence in emerging markets and companies with large projects to launch new products, enter new SBAs or new geographical areas. In these cases, valuers should take into account the higher risk inherent in these situations and to choose a significantly higher beta<sup>7</sup> (see point V of the present paragraph as well).

### III) Time horizon

Generally speaking, the specific time horizon should be equal to the CAP, or Competitive Advantage Period; consequently, the last year forecasted should be that in which the company loses its differential benefits, in terms of competitive advantage, and aligns its results to the performance of competitors.

In practice, valuation time horizons generally range from 6 to 10 years, vary according to the reference sector and can be extended under specific circumstances.

One factor that influences the length of the time period is the duration of the economic cycle and the phase which the relevant company is undergoing.

Other cases in which it is possible to extend the time horizon include, for example, when the company sustains significant investments that will produce benefits over a longer time period, or when the business of a company is linked to a license with a long-term duration (for example, the owner of a licence in the highway management business). More extended

time periods are sometimes used by companies in the start-up phase, for which the achievement of economic/financial stability, for the purposes of calculating the terminal value, is expected only after a period that is longer compared to that of companies already operating in the same sector.

The use of shorter time periods, on the other hand, is rare in valuations.

Nevertheless, a reduced time period can be considered for companies operating in sectors where future trends are difficult to estimate.

### IV) Presence of surplus assets

The problem of surplus assets occurs when a company holds fixed assets that do not produce operating cash flows or, to a lesser degree, in the presence of underutilised assets, whose value in a discounting process could be ignored or simply underestimated. In these cases, the valuation of said assets can be best expressed in their liquidation value and can be included under a specific item. A typical example of this is a company with a substantial real estate portfolio (for example, prestigious buildings), the value of which is not reflected in the DCF. The same holds for companies with non-consolidated investments in listed or unlisted companies.

A further example is provided by industrial companies that have, under their fixed assets, electrical energy production systems that are not fully exploited for self-consumption; in this case, the value of said systems could be included under surplus assets, entering the cost of electrical energy procurements currently self-produced under the cost items in the business plan, thereby avoiding duplication of value.

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<sup>7</sup> This is the same approach used by venture capitalists who, in valuing start-up companies, apply significantly higher beta values compared to companies belonging to the same sector but present on the market for a certain number of years.



## V) Presence of significant growth projects regarding new strategic initiatives

For companies with significant growth projects, related to the launch of new products or entry into new SBAs or geographical areas, a conservative approach is necessary, more so than in other cases, in terms of both the estimate of cash flows as well as use of an adequate level of risk.

In line with what is set forth in the “Strategic Plan Guide”, expected cash flows should be consistent (with the strategic intentions and the Action Plan), reliable and should not incorporate the effects of strategic choices that are not well defined, for which it is not possible to quantify the economics without being exposed to high levels of risk.

When applying the DCF, it is useful to identify the value attributable to new initiatives and its impact on the total value of the company. This requires distinguishing the cash flows related to new strategic projects from those likely to be produced as part of the current base business<sup>8</sup> as well as using different beta coefficients to calculate WACC. To this end, as outlined in point II of this paragraph (“Definition of a consistent beta”), the WACC of new, strategic projects should be calculated using a significantly higher beta. Figure 1.3 shows the growth in total cash flow of a company (dotted line) generated by the base business (solid line) and by new projects (shaded area), showing the relative contribution to total value.

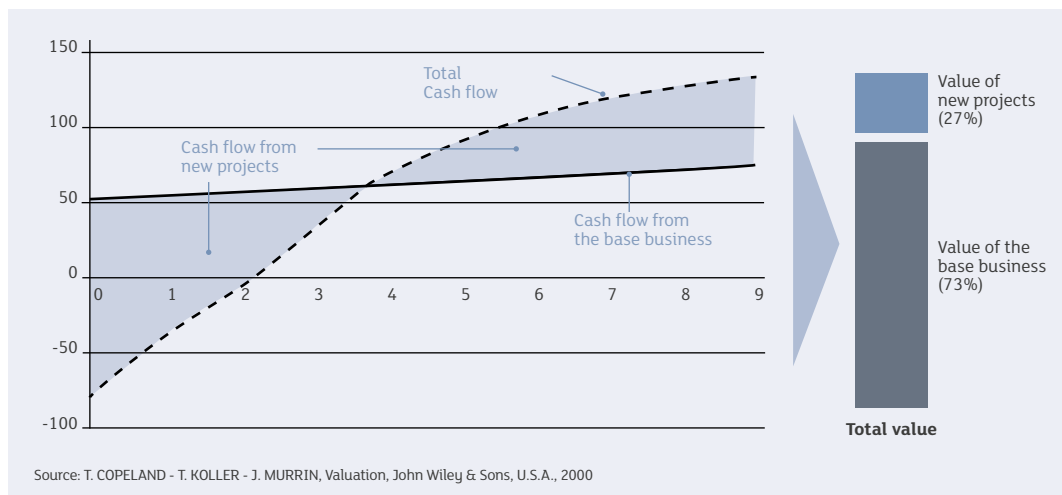


Figure 1.3 Value of the base business and value of new projects

<sup>8</sup> An adequate management control system should, therefore, establish the data and information selection and collection procedures, in order to enable management to carry out prudent and functional decisions for the measurement of value created. For further information, see “Guida al Sistema di controllo di gestione” (Management Control System Guide), published by Borsa Italiana.

## VI) Terminal value

Further examination is required for the calculation of terminal value, given its common impact on the calculation of the Enterprise Value<sup>9</sup> and the difficulties in estimating its components. Specifically, the focus is on determining the cash flow of the last year of the forecast (with specific reference to the assumptions at the basis of sales, operating margins and investments in fixed and working capital) and the perpetual growth rate “g”. The observations made on the single aspects are strictly correlated, and it is therefore important that the various elements be defined in a consistent manner.

The underlying assumption is that it is difficult to indefinitely sustain sales growth in most industrial sectors. It would seem more realistic, after steady growth in the initial years, to expect the market and, consequently, the company to enter a maturity phase over the medium and long-term, with growth rates nearing zero, if not negative. This can be seen both in low technology sectors, where decline is physiological, and in high-tech sectors, where rapid saturation of demand and the introduction of alternative technologies provide the same results.

In addition, competition, which can negatively impact a company’s performance, should not be ignored in the medium and long-term. This aspect regards all competitive contexts in which the competitive advantage enjoyed by a company is progressively eroded by competing companies, incumbent or new entries, which, attracted by considerable profits, fuel competition with aggressive pricing strategies, greater efficiency of processes, incremental innovations, etc.. Lastly, the possibility of a decline in the sector

accelerated by factors related to technological advancement (raw materials, products and processes) or regulatory changes should not be underestimated.

The valuator may encounter companies or sectors that do not fall within the situations described above. In this case, given the particular nature of the situations, it is important to justify the decisions made with the utmost transparency.

The sections below provide suggestions on estimating the terminal value, as well as growth in sales over the medium/long-term, operating margins, investments in the final years of the forecast period and, finally, the assumptions at the basis of perpetual growth rate “g”.

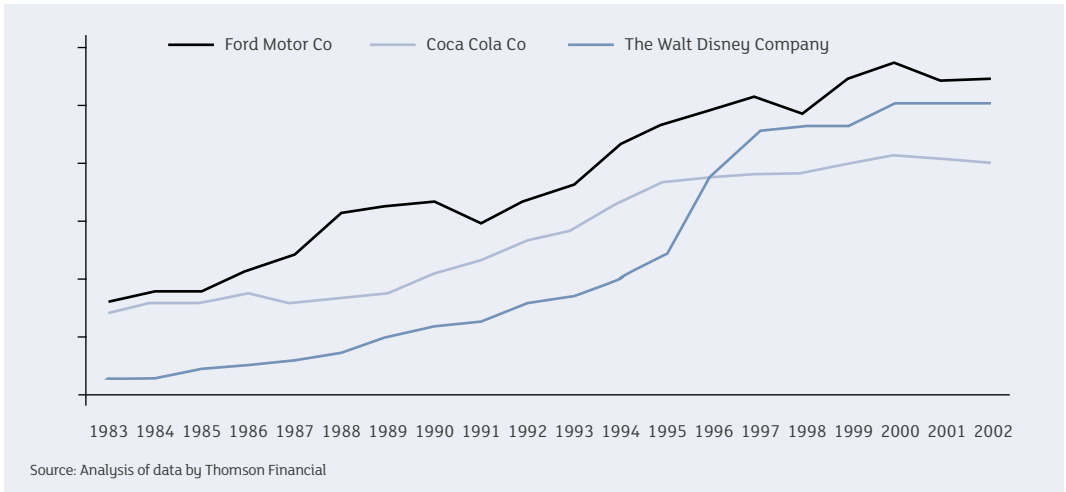
### a) Growth in sales

The above considerations lead one to avoid forecasting positive sales growth rates for the final years of the projection, to avoid generating a distorting effect on the cash flow used to determine the terminal value. Moreover, this decision is compatible with the life cycle of a company and is applicable to most sectors. Generally speaking, while a growth in sales is sustainable under certain circumstances, in the initial years of the analytical forecasted period, we assume this will decline over the medium and long-term, due to saturation of market demand and increased competition. Therefore, sales cannot justifiably increase forever, but it is more correct to assume a progressive slowdown in growth, until reaching rates of near zero.

By way of example, Graph 1.4 shows the trend in sales over the last twenty years for three American companies belonging to different sectors<sup>10</sup>.

<sup>9</sup> The terminal value may represent a very significant portion of the value of the company.

<sup>10</sup> Note that, given the different sizes of the companies in terms of sales, the scales of values are not the same and, therefore, the curves cannot be compared in absolute terms.



Graph 1.4 Sales trends in Ford Motor, Coca Cola and Walt Disney

The aforementioned conclusions may be mitigated in the case of specific companies whose competitive advantage does not diminish during the projection period, or when the cash flow projection period is short (3-5 years).

#### b) Trend in operating margins

Similarly to what was stated for growth in sales, and in line with the theory on decreasing marginal yields, several observations can be made with respect to the trend in operating margins.

In fact, it is difficult to imagine sales margins growing throughout the entire projected period (especially when the time horizon is not short); except for particular cases, this should actually stabilise, or even decrease. Even in this case, competition over the medium and long-term will impact the performance achieved by the company in the initial years.

While it is reasonable to assume growing operating margin percentages at the beginning (for example, due to lower overhead costs, improvement in process

efficiency, achievement of economies of scale in purchases, increase in prices, etc.), competitive advantage will be eliminated in subsequent years and, in all likelihood, competition will focus above all on price, with an inevitable negative effect on margins. Consequently, it is reasonable to assume a stabilisation or contraction of operating margin percentages in the final years of the projection (with the subsequent effect on cash flow for the last year and, therefore, on the terminal value).

#### c) Investment in fixed capital (capex) and working capital

In terms of investment in fixed capital, hypotheses must be consistent with the growth in sales and the impact of operating margins throughout the entire time period.

When the projected time period is not short, an underlying hypothesis of the DCF model states that the company reaches its so-called "steady state" during the last year of the forecast. For this reason, common practice calls for gradually reducing the level of

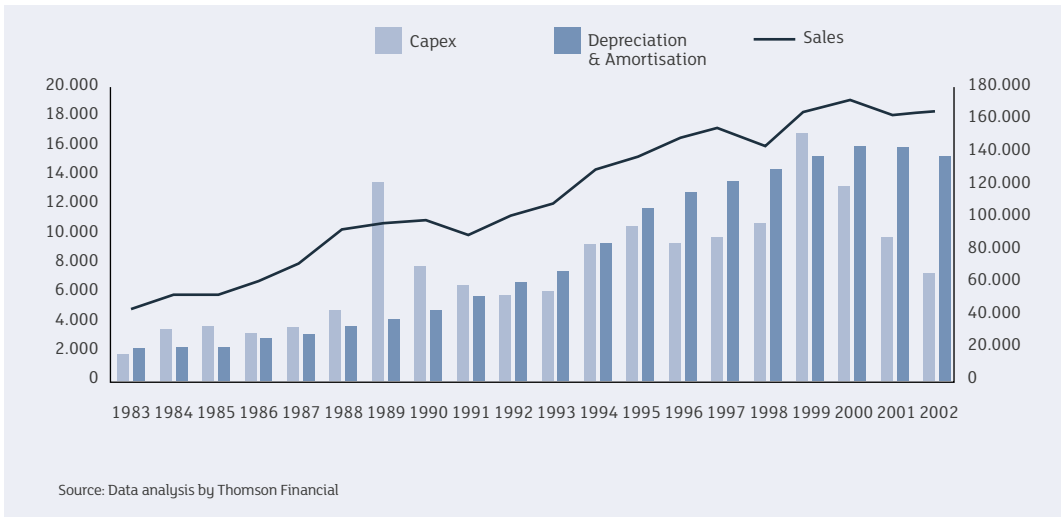
investment, in order to essentially obtain parity with the level of amortisation and depreciation by the  $n^{\text{th}}$  year. This approach implies zero growth in net investments, and therefore cannot be applied in case of infinite sales growth, or with increasing operating margins.

In fact, it is unrealistic to assume that the company can indefinitely maintain its competitive advantage without further investments, increasing its sales and margins. Consequently, maintaining sales growth throughout the entire period and/or assuming

increasing margins (on a percentage basis) requires a level of investment that is greater than that absorbed by amortisation and depreciation.

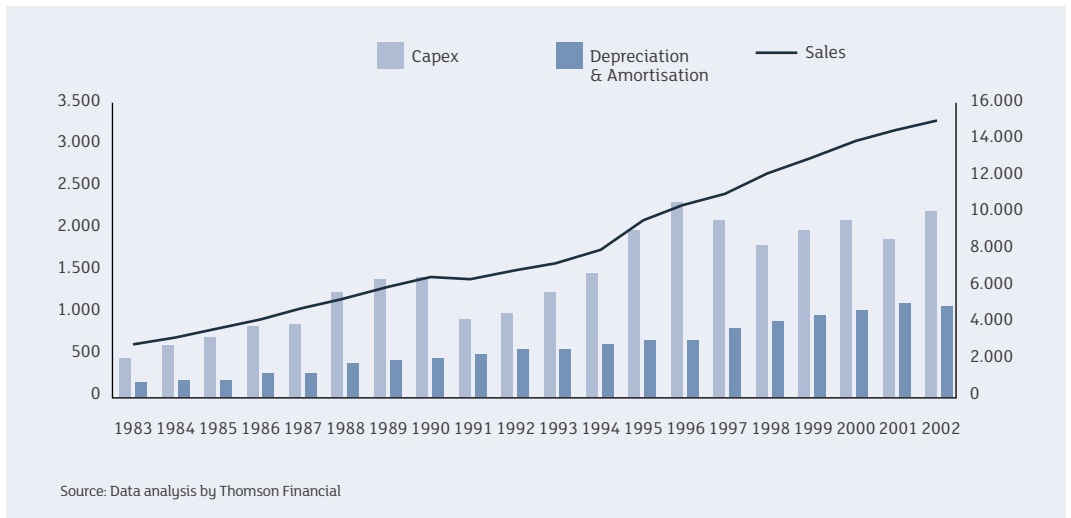
This leads to partial absorption of the operating cash flow during the last year and, therefore, a reduction in the terminal value.

The following graph shows, by way of example, Ford Motor Co. trend in sales (right axis, in millions of \$), capex and amortisation/depreciation (left axis, in millions of \$) over the last twenty years.



Graph 1.5 Ford Motor Co.: trend in sales, capex and amortisation/depreciation

The following graph shows the same variables for McDonald's Corp.



Graph 1.6 McDonald's Corp.: trend in sales, capex and amortisation/depreciation

In terms of working capital, the steady state hypothesis assumes it is kept constant, with zero impact on final year cash flow. The same considerations are valid in this case as well, since growth in sales (with conditions related to customer/supplier payments and inventory turnover days being equal) implies, in most cases, an increase in working capital and absorption of the cash flow generated by operations.

Finally, in order to verify consistency between growth in sales and the amount of capital invested in the medium to long-term, the turnover rate, or rather the ratio of sales to capital employed, should be verified, ensuring it does not reach levels that are too high to be justified by operating efficiency.

#### d) Perpetual growth rate "g"

The comments made with respect to the cash flow for the last year projected suggest a cautious approach in estimating growth rate "g", which should basically be equal to zero. This decision, however, should take into account the sector and the company, and the rate may take on different values in particular cases or when the time horizon is especially short. In any case, adoption of a rate other than zero should always be properly justified.

Although these conclusions may appear to be harsh, over the long-term they represent reasonable choices for a rational approach to estimating the value of a business.

The following table summarises the comments made with respect to the elements that have an impact on the terminal value.

	Alternatives	Application	Impact on $V_t$
a) Growth in sales	= 0	Most companies/sectors	=
	> 0	Special cases or short time periods	↑
b) Growth in operating margins (% sales)	= 0 (< 0)	Most companies/sectors	= (↓)
	> 0	Special cases or short time periods	↑
c) Investments net of amortization and depreciation	= 0	When growth in sales and operating margins equals zero	=
	> 0	When growth in sales and operating margins in greater than zero	↓
d) "g" rate	= 0	Most companies/sectors	=
	> 0	Special cases or short time periods	↑

### 1.3.2. Market multiples method

The market multiples method assumes that the value of a company can be determined by using market information for companies with similar characteristics as the one being valued as a reference.

The method is based on the determination of multiples, calculated as the ratio of stock market values to the economic and financial variables in a selected sample of comparable companies. After making the appropriate adjustments, these multipliers are then applied to the corresponding figures of the company being valued, in order to estimate a range of values, should the company be unlisted, or to verify if they are in line with those expressed by the market, if the company is listed on the stock market. Application of said criteria is carried out according to the phases described below.

## I) Defining the reference sample

Given the nature of this method, the similarity of companies in the reference sample and the company being valued is fundamental (from an industrial and financial point of view). The practical impossibility of identifying companies that are homogeneous under every aspect leads to determination of the most significant elements to be compared and, consequently, a selection of comparable companies with respect to the specific elements selected.

## II) Choosing significant multiples

The most common multiples used in company valuation are the following:

- EV/EBITDA: ratio of Enterprise Value (market capitalisation plus net financial position) to gross operating margin;
- EV/EBIT: ratio of Enterprise Value to operating income;
- Price/earnings (P/E): ratio of share price to net earnings per share;
- EV/FCF: ratio of Enterprise Value to operating free cash flow;
- EV/Sales: ratio of Enterprise Value to company sales.

Multiples calculated by using figures more influenced by accounting and fiscal policies are subject to risk of distortion and may cause misleading results; among these, P/E is the most impacted by said factors (in addition to being influenced by the different level of indebtedness). For this reason, several adjustments and standardisations are carried out in practice or, alternatively, multiples calculated with less discretionary figures are used (for example, EV/EBITDA rather than EV/EBIT). The use of EV/Sales, on the other hand, is increasingly uncommon and is limited to cases of companies with negative margins or in a turnaround phase.

## III) Calculating pre-selected multiples for companies in the sample

Multiples are generally calculated according to financial data of the current year and of the following one. However, different time periods may be selected, according to the specific company and the purpose of the valuation.

## IV) Identifying the multiples value range to apply to the company being valued

Selection of the range to apply is carried out according to qualitative and quantitative considerations regarding the comparability of the companies making up the sample.

## V) Applying multiples

These ratios are applied to the economic and financial figures of the company being valued, in order to determine a range of values.

### 1.3.2. Continued – Application problems

The use of market multiples is considered to be a simple control method by supporters of the DCF. As previously indicated, operators within the financial community are increasingly using the multipliers method to validate the results of financial methods, especially when the objective of the valuation is the determination of a price, and not only of a value.

Even the multiples method has a series of limitations, most of which depend on the difficulty of choosing the sample of comparable companies and the multiple to use. The paragraphs below provide a series of discussions on these aspects.

#### I) Selecting the reference sample

The first and fundamental decision in a valuation by multiples is the selection of comparable companies, required in order to build a sample of companies homogeneous to the one being valued. To this end, a series of significant parameters for the construction of a rational basket of companies is presented, classified according to three levels of comparability:

- national, intra-sector comparison;
- international, intra-sector comparison;
- inter-sector comparison.

The first level, which entails the search for companies within the same sector and belonging to the same stock market, is surely the easiest and most immediate and provides the best results. This means that if this search is able to produce a suitable and accurate sample, extending the analysis to successive levels is not necessary. Unfortunately, the situation described occurs very rarely, especially in the Italian stock market, in which there are often no comparable companies.


The national intra-sector comparison should be carried out along two lines of analysis, based on the study of both quantitative and qualitative elements, and the sample identified consist of companies with similarities to the company being valued along both lines.

The quantitative comparable variables include, first and foremost, the historical and projected economic and financial data. The capacity to create value (RoCE), expressed by the operating results (operating margins as a percentage of sales and their growth rate in the short/medium-term) and by the turnover in capital, undoubtedly takes on an important role for the purposes of comparative analysis. Said indicators must not be considered separately, as a comparison based solely on the operating margin tends to omit factors related to the structure of the business model<sup>11</sup> and to the uses of the capital employed. As an example, think of companies operating in the same sector which have carried out various make-or-buy choices for certain phases of the production process or management of the distribution channels (for example, sales points that are owned, franchised or belong to third parties); in situations such as these, a comparison that does not take into account the impact of capital employed

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<sup>11</sup> Business model refers to the series of functions or processes necessary to create, produce and distribute the product/service of the company to the final customer. The business model varies according to the single business unit, the company and the sector.





provides misleading results, in favour of the company with a lower turnover, which might be less profitable in terms of value creation.

Other quantitative parameters to be considered include size, sales growth and breakdown, asset configuration and financial structure.

In terms of sales, two companies with extremely different sizes, though similar in terms of product portfolio and sales breakdown, are generally not valued in the same way by the market. The larger company is usually given a higher value, as it is not only more liquid, but is perceived as being more solid and less subject to the risk of financial imbalance. These considerations hold true assuming that there are no significant differences in the companies' capacity to create value and growth prospects.

Similarly, even in the presence of comparability in terms of sales, the company with the best prospects for sales growth, likely justified by a sizeable investment plan, generally has higher multiples.


On the issue of comparability of sales, different values may be provided by the market in the case of companies which, although operating in the same competitive arenas, respond to market demands with an effectively different portfolio of activities, corresponding to differences in terms of margins and risk profile (the considerations in terms of creation of value hold true even in this case). An example might be the comparison of two utility companies which, although operating in the same sector, are different in the sense that one provides only distribution whereas the other is also involved in energy production. To conclude the comparison of quantitative parameters, the choice of basket of companies can also be influenced by the composition of assets (in terms of ratio of working and fixed capital) and the financial structure, which has a direct impact on the weighted average cost of capital (WACC).

As far as the comparison based on qualitative elements is concerned, it is important, when selecting comparable companies within the sector, to also take into consideration aspects that regard competitive positioning, the capacity to innovate (measured by track record) and, above all, the entrepreneurial formula (or business model).

As already mentioned, the qualitative criteria should be used in close collaboration with quantitative ones, in order to define a sample that is consistent sample under both profiles.

Without going into detail regarding all the possible qualitative analogies and differences among companies operating in the same sector, for competitive positioning, when the company being valued does not lack significant market share, it is held correct to exclude companies that are leaders in their sector from the sample. The same goes for comparison of business models. In fact, preference must be made for companies that carry out their business according to similar entrepreneurial formulas in the same sector. Comparison of business models is rarely contemplated in the choice of reference sample, but is considered to be a fundamentally important aspect, upon which most of the quantitative and non-quantitative factors that comprise the distinctive features of a company depend, even in terms of risk profile. For this reason, as shown below, comparison of entrepreneurial formula is useful even for companies belonging to different sectors.

Finally, once all the possible elements of comparability have been evaluated, both qualitative and quantitative, a possible approach, rarely used in practice, would be to consider the factors described up to this point in terms of weight to attribute to the individual companies making up the comparison basket.



The second level of the search, which is the international, intra-sector comparison, involves identification of comparable companies from different financial markets; a basket consisting of companies listed in the same market would certainly provide better results (especially for small and medium caps). However, weak comparability on the domestic front or the presence of sectors that can be considered global (telecommunications, automotive, biotechnologies, media, etc.) requires expansion of the sample to include foreign companies.

Attention is generally aimed at European and American companies and all financially evolved markets with substantial liquidity levels: therefore, companies listed in emerging markets or in markets characterised by fundamentally different market multiples and/or investor risk-return profiles are excluded, such as Japan.

In international comparison, the differences in budget and tax policies lead to the use of multiples that remove said components (for example, a multiple such EV/EBITDA reduces the problem of differing taxation and, at the same time, lessens any distortions resulting from different amortisation policies).

The third level of analysis regards inter-sector comparison, which is required when companies belonging to the same sector cannot be compared and, consequently, the elements of similarity to create a significant basket of companies are lacking. Inter-sector comparison assumes that the real possibility of attributing the same risk and return profile to similar companies is at the basis of comparability. Consequently, a comparison with companies operating in essentially different sectors is also possible, as long as the risk-return profile is similar to that of the company being valued. Situations like the one described can occur when two companies, although operating in different sectors, have a similar entrepreneurial formula, with results influenced by the same value drivers. For example, it could be useful to compare companies producing luxury cars with companies operating in the luxury sector (belonging to the luxury boats sector or even the fashion sector) rather than other automakers, since the type of customers, the buying factors and the drivers at the basis of the revenue-producing chain are very similar. Another example is the comparability that exists between airport companies and those managing railway stations or harbours, as well as companies managing trade fair space.

The table below summarises the possible alternatives in choosing comparable companies.

Comparison	Listing market	Quantitative parameters	Qualitative parameters
Intra-Sector	National	<ul style="list-style-type: none"> <li>– RoCE, level and growth of operating margins, turnover</li> <li>– Sales (size, growth and composition)</li> <li>– Assets (size and composition)</li> <li>– Financial structure</li> </ul>	<ul style="list-style-type: none"> <li>– Posizionamento competitivo</li> <li>– Track record innovazioni</li> <li>– Business model</li> </ul>
	International	<ul style="list-style-type: none"> <li>– Parameters for national comparison</li> <li>– Necessity to filter data of the effects resulting from different accounting and tax policies</li> </ul>	
Inter-Sector	National and International	<ul style="list-style-type: none"> <li>– Business model</li> <li>– Value driver</li> </ul>	

## II) Choosing significant multiples

The second fundamental decision to make in applying the multiples method regards definition of the multiplier to be used in valuing the target company. The assumption behind the multiples method is that the value of a company can be measured against a significant variable and the resulting relationship is also valid for comparable companies: the subject variable can be selected from a wide range of alternatives, as long as it is able to encapsulate the value of the target company and its capacity to create value.

In most cases, more than one multiple can be used for the valuation of a company, each presenting its own application advantages and disadvantages; nevertheless, a single multiplier is almost always chosen, and it is usually the one that provides the best trade-off. Each time an analysis by multiples is carried out, we must be aware of the reasons leading to the selection of a specific multiplier, avoiding the dogmatic use of coefficients that, in the case under examination, may no longer be appropriate or may need to be coupled with those that are more appropriate for the specific context. This means that we must not consider

exclusively those ratios most used in practice, but look for, where necessary, other indicators that best represent the value of a company and of its capacity to create value.

An example of this are the industrial sectors in which competitors are differentiated by make-or-buy strategies, thus presenting different margin levels (due to the mark-up provided to contractors) and turnover (due to elimination of certain phases of the production process and the corresponding investment in fixed capital); in these cases, although the EV/EBITDA multiple is one of the major ratios considered, it could also be useful to take into account the EV/CE (Enterprise Value/Capital Employed), which compares the value of the company to the capital invested.

In valuation practice, coefficients that focus on the growth potential of companies are sometimes used. For example, P/E and EV/EBITDA are supported, respectively, by PEG (P/E divided by the growth rate in profits over the next 3-5 years) and EV/EBITDAG (EV/EBITDA divided by the growth rate in EBITDA over the next 3-5 years). As a result, the analysis is enhanced with considerations regarding growth prospects,



fundamental for the creation of value.

In addition to the most commonly used multiples, a company may also be evaluated, in some sectors, with multipliers that refer to non-accounting items, which are strongly related to the value drivers (the so-called business multiples).

A significant example of this is companies that manage airport spaces, whose turnover (but also margins) depends to a significant degree on the number of passengers transiting through the structure; this variable may be used to construct the multiple EV/passenger, which sometimes accompanies traditional multipliers. Another example is provided by Asset Gatherer companies, whose growth prospects depend on the size and efficiency of distribution network, and which are thus valued also according to a multiple of the number of financial advisors. Finally, the paper and cement sectors are worthy of mention. In these sectors, in addition to the EV/EBITDA and P/E ratios, multiples of the productive capacity can also be taken into consideration (for example, EV/Tonnes of capacity installed), a crucial factor for medium and long-term success. In fact, the extremely cyclic nature of these sectors leads to a highly variable EBITDA, which sometimes does not “capture” earnings potential associated with recent investments and the quality of current systems.

It is important to underline that indiscriminate use of this last approach may lead to subjective and irrational

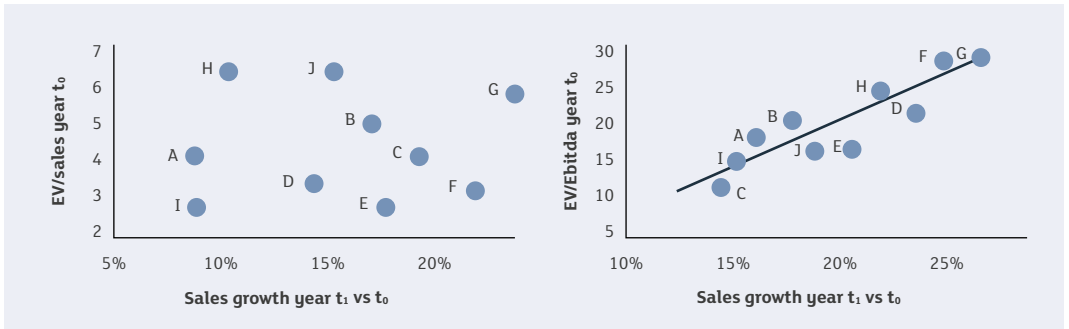
valuations, which in the past have fuelled speculative bubbles<sup>12</sup>. For this reason, non-accounting items, while useful in certain contexts, must always be used with extreme caution, and only in the presence of an effective and direct relationship between the non-accounting variable and the company’s ability to create value (in general, these multipliers are used merely to support traditional multiples).

Finally, in the search for the most suitable multiples, it may be useful to identify empirical confirmation that shows their capacity to “explain” the value of the target company; in fact, determining whether the market implicitly attributes to an indicator suitability in estimating the price of a company is possible by carrying out, on a sample of comparables, an analysis of correlation between the multiple itself and the reference variable. The greater the correlation, the better the multiple is able to summarise the price expressed by the market<sup>13</sup>. Graph 1.7 shows that, for companies belonging to the luxury sector, there is a good correlation between the multiple EV/EBITDA and growth in EBITDA, while there is no correlation between EV/Sales and the respective underlying variable: this implies that the factor used by the market in defining the price of luxury companies is the gross operating margin and, as a result, the multiple EV/EBITDA is considered more significant.

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<sup>12</sup> See also paragraph 2.6., related to the valuation of TMT companies.

<sup>13</sup> It is important to underline that for said analyses to enhance application of the multiples method, they must be carried out on a sample consisting of an adequate number of companies and subjected to tests of statistic significance.



Graph 1.7 Correlation analysis for the luxury sector

In conclusion, when carrying out a valuation with multiples, we reiterate the necessity of making rational decision, avoiding the application of said method in a mechanical manner, without taking advantage of its nuances and implications.

This holds true both for the choice of comparable companies as well as for the selection of multiples, where it is essential to be aware of the advantages and disadvantages of every indicator, support the choice with a correlation analysis and, above all, if significant, expand the spectrum of multiples with those that are most related to the capacity to create value.

### 1.3.3. EVA® - Economic Value Added

A particularly interesting valuation method, which offers a different representation of value with respect to the DCF, is the EVA (Economic Value Added) method. EVA is a method of determining the performance of a company correlated with the objective of maximising shareholders value; it is used to measure the value created, or the “residual profit after deducting the cost of capital employed used to generate that profit”<sup>14</sup>. The necessity of developing a method of measuring the value created derives from the assumption that estimating the performance of a company merely by examining accounting results has numerous implicit

limitations. These are mainly due to the conservative nature and the incompleteness of the accounting system, which does not represent the true performance of operations.

The Economic Value Added is based on the assumption that a company creates value where profits are greater than the total cost of sources of financing.

Measurement of the value generated or destroyed by the company annually is calculated as the operating profit, net of taxes, less an imputed cost expressing remuneration from the capital invested. The formula is the following:

$$EVA = NOPAT - (WACC \times CE)^{15}$$

<sup>14</sup> As defined in J. M. STERN - J. S. SHIELY, The EVA Challenge, John Wiley & Sons, New York, 2001.

<sup>15</sup> Adjustments can be made to the components of the EVA in order to calculate NOPAT and CE figures related exclusively to operating activities, without the impact of items not related to ordinary operations.

where:

**NOPAT** = Net Operating Profit After Tax;

**WACC** = weighted average cost of capital;

**CE (Capital Employed)** = net capital invested, as per the last financial statements.

Similarly, the EVA can be obtained by representing it in a way that expresses the difference between yield and cost of capital invested (the so-called value spread formula):

$$EVA = \left( \frac{NOPAT}{CE} - WACC \right) \times CE$$

The versatility of use of the EVA also depends on its relationship with three important areas of managerial decision-making:

- operating decisions (in which SBAs to operate, efficiency, pricing, etc.);
- investment decisions;
- financing decisions (leverage, type of financial instruments, interest rates, etc.).

The three managerial levels indicated have a direct impact on the creation of value and, therefore, on the EVA.

Due to this sensitive correlation between value of the company and the managerial decision-making areas, the EVA is used for a series of management purposes, in addition to the valuation of companies, which include the following:

- structuring of a rewarding system based on the creation of value;

— valuation of extraordinary finance transactions (determining pricing in M&A transactions, IPO, restructuring, etc.);

— communication with investors.

Determination of the annual EVA leads to calculation of the company value using an intermediate figure called MVA (Market Value Added), which is mathematically equivalent to the present value of all future EVAs. The relationship between market value of the company (EV) and MVA is illustrated by the following formula:

$$EV = CE + \sum_{t=1}^{\infty} \frac{EVA_t}{(1+WACC)^t}$$
$$EV = CE + MVA$$

MVA is a figure that acts as a link between share price and EVA, and it is useful to calculate it ex ante (for a company being listed), in order to estimate a fair value of the company to propose to the market, or ex post (when the company is already listed), as the difference between EV and CE. In the second case, the MVA should be interpreted as the goodwill attributed to the company by the market, in relation to its prospects for future earnings.

The figure below clarifies the relationship between EVA, MVA and market prices, and allows appreciation of the validity of EVA both as a valuation tool as well as a benchmark comparison with the value expressed by the market, or the price.

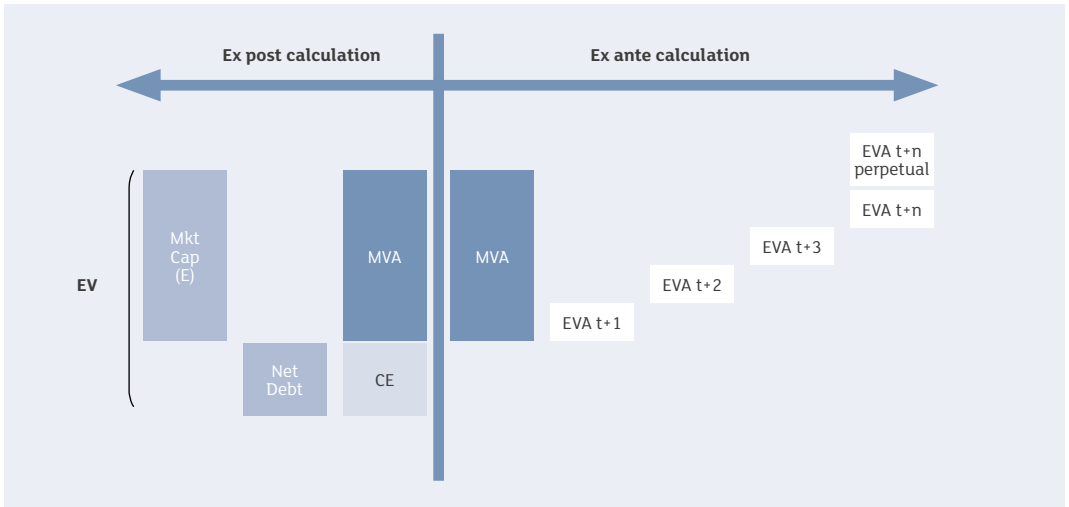


Figure 1.8 Relationship between EVA, MVA and market price

Another way of representing the value provided by EVA breaks down the Enterprise Value into two components, directly related to the management of operations:

- Current Operations Value (COV);
- Future Growth Value (FGV).

COV measures the value of a company under the hypothesis that the result of the last historical year remains constant over time. The actual calculation involved adding Capital Employed and the value of performance, in terms of EVA for the last period ended, using the perpetual yield formula.

FGV, on the other hand, expresses the increased or decreased creation of future value expected from a specific company. It stems from expectations of improvement in the starting EVA, both in the medium-term (typically included in the business plan of companies) as well as in the long-term and is calculated as the present value of future increased EVA values with respect to the EVA in the last available financial statement. The usefulness of said component is clear if it is viewed as a summary of the improvement (or deterioration), in terms of creation of value, with respect to the current situation (Figure 1.9).

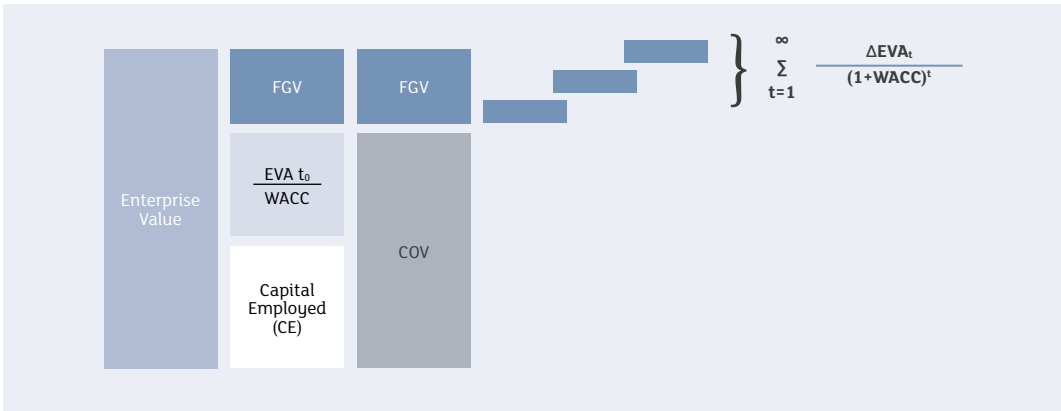


Figure 1.9 Breakdown of a company's value

In fact, although it provides similar results, this breakdown provides a different representation of the company's value compared to traditional methods, such as DCF. The discounted cash flow method, as mentioned above, is based exclusively on future results, and the terminal value is a significant part of the company value. EVA, on the other hand, evaluates a substantial portion of the company value on performance achieved until now and on growth expectations over the medium term, calculated in accordance with the business plan. Using this formula, the area outside the control of management, in terms of company valuation, is significantly reduced, and the value expresses not only the result the company will be able to achieve in the future but also the results achieved so far.

## 1.4. Valuation of multi-business companies

If the company to be valued is a multi-business one, measuring the company value of each individual SBU is considered to be more correct, building a total value by the "sum of the parts"<sup>16</sup> (Figure 1.10); the necessity to value each business unit is particularly strong in cases where these SBUs have different risk-return profiles.

<sup>16</sup> The same approach is used for the valuation of holding companies.



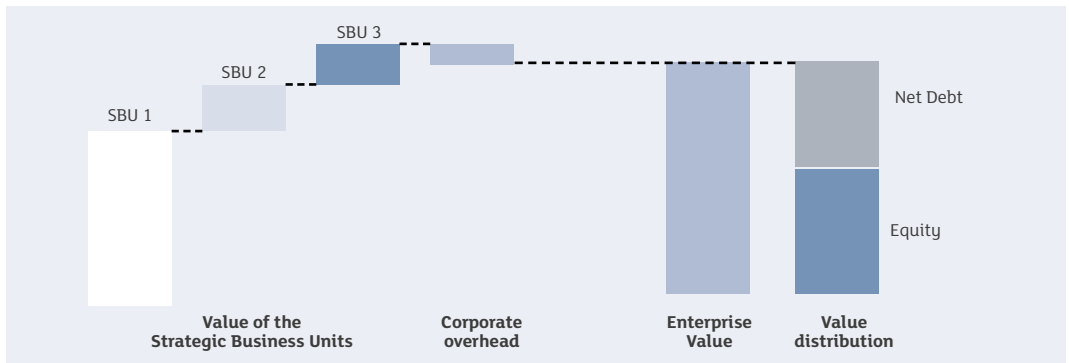


Figure 1.10 Value of a multi-business company

In applying the DCF, the EV of each SBU must be estimated, discounting the respective operating cash flows at a cost of capital that reflects the specific risk. For the cost of equity, this requires an ad hoc estimate of beta for each area of business and, for the cost of debt, use of a corporate rate<sup>17</sup>. The Equity of a company is obtained by subtracting the present value of corporate overhead and the consolidated net financial position from the Enterprise Value of each SBU. Only in particular situations (project financing, utilities, etc.), in which not only the operating results and capital invested, but also the level of debt, are attributable to each area of business, is it possible to calculate, in addition to the value of operating activities (EV), also the Equity Value for each SBU.

Regarding the multiple method, it is useful to define a sample of comparable companies for each SBU and choose the most appropriate multipliers. Similarly to what occurs for the DCF, total EV is obtained from the sum of the EV of each areas of business, from which it is possible to calculate the Equity by subtracting the corporate net financial position.

In general, use of a valuation by “sum of the parts” is

facilitated by the availability of information present in the business plan. Otherwise, professional investors, lacking a complete disclosure of data necessary for development of a DCF per area of business (not only economic data, but also financial and income data), will find it easier to use multiples, calculated on the basis of forecasted economic data typically disclosed to the market (for example, sales or gross operating margin). An alternative in order to obtain a valuation per single business area is to estimate the value of each SBU regardless of all the hypotheses on the debt level and discount the relative flows at the unlevered cost of capital (calculated using an unlevered beta). This approach, known as the APV (Adjusted Present Value), allows the value of each SBU to be calculated as if it were entirely financed by equity (see note 5). Consequently, the Enterprise Value of the company is equal to the sum of the NPV (Net Present Value) of operating flows of each SBU and the current value of the tax shield associated with the overall debt of the company. The net worth is in turn represented by the algebraic sum of the EV, net financial position and surplus assets, if any.

<sup>17</sup> To calculate WACC, the corporate debt ratio (D/D+E) is typically used.

# 2. Valuation of companies operating in specific sectors

This paragraph deals with the valuation of companies operating in sectors where traditional methods cannot easily be applied, or where their use involves specific aspects that require further explanation. The sectors analysed below do not encompass all cases where it is possible to value a company with non-traditional approaches, nor do the methods proposed represent the only possible alternatives.

## 2.1 Banks

The valuation of banking companies is typically carried out according to two approaches, described below.

### I) Dividend discount model

According to this version of the financial methods (Dividend Discount Model, or DDM), the value of a bank is equal to the present value of the future cash flows available for stakeholders, hypothesised to be equal to the flow of distributable dividends maintaining an adequate equity structure (based on regulations in force) and considering the need to sustain expected future development. The formula is as follows:

$$V_e = \sum_{t=1}^n \frac{D_t}{(1+K_e)^t} + V_f$$

where:

$V_e$  = economic value of the bank;

$D_t$  = maximum annual dividend distributable by the bank;

$V_f$  = terminal value of the bank  $\left[ \frac{D_n \times (1+g)}{K_e - g} \right] \div (1 + K_e)^n$

$n$  = number of years of analytical projection;

$K_e$  = dividend discounting rate, expressing the company's cost of equity;

$g$  = perpetual growth rate of the distributable dividend starting from year  $n+1$ .

### II) Regression approach

The regression principle consists of analysing the relationship between profitability (Return on Average Equity, or RoAE) and the ratio of market capitalisation to value of shareholders' equity (Price/Book Value) of a bank, with reference to a large sample of comparable listed banks. This approach allows the positioning and value of each bank to be evaluated on the basis of the respective present and future profitability characteristics.

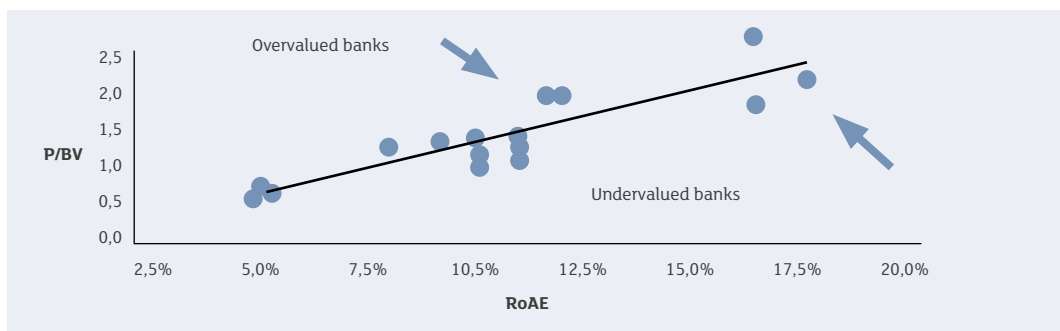
In particular, the relationship between the two variables can be illustrated by a regression line plotted on a Cartesian graph, with RoAE on the x-axis and Price/Book Value on the y-axis: if there is a high correlation, it is possible to calculate the implicit market value of the bank under examination.

Application of the regression method is carried out in the following phases:

- determination of a sample of banks on which to perform the regression analysis;

- determination of the reference time period for the RoAE;
- calculation of the RoAE and the Price/Book Value ratio for the companies included in the sample;
- selection of the type of statistical regression to apply;
- determination of the RoAE and net worth of the bank being valued;
- application, if statistically significant, of the regression parameters to determine the theoretical market value of the bank being analysed.

The following graph shows an example of a regression analysis which traces the so-called Value Map of the banking sector.



Graph 2.1 Value Map of the banking sector

## 2.2 Insurance companies

Determining the value of insurance companies first requires identification of the present value of the income flow from the portfolio of outstanding policies.

The Embedded Value, defined as the sum of said income flow and the adjusted net worth of the company at market values, represents the “closed portfolio” value of the company, meaning the value assuming no new policies are activated.

Valuation procedures in the insurance sector also involve estimating the Appraisal Value, defined as the sum of Embedded Value and goodwill, where the last component, which expresses the company’s ability to sell new policies, is usually estimated as equal to “n” times the value of new production in one year (usually, the last one).

## 2.3 Airlines

Air transport companies are mainly valued with the market multiples methods, using a specific indicator, EV/EBITDAR, which is able to represent specific characteristics of the industry. EBITDAR represents the gross operating margin before aircraft leasing fees and enables a homogeneous comparison of companies, regardless of the decision to own/lease the fleet ("R" stands for leasing costs).

In fact, for companies that own the aircraft, the debt repayment amounts and interest expense are not included in the gross margin (EBITDA) and, therefore, a comparison with market players that have leasing contracts is not possible.

To calculate this multiple, the EV of the companies in the sample must be determined using the net financial position, which includes both financial statement values and the present value of the capital portion of leasing fees, if any (the same logic must be used to estimate the net financial position of the company being valued).

When applied to airline companies, the cash flow method is impacted by the cyclical nature of the business (and, therefore, of cash flows), which, as described above, represents a limitation in projecting future cash flows.

In addition, if the company owns the aircraft or uses the "financial" method to record leasing contracts, the allocation timing of the investments relative to new aircrafts could lead to distortions in the cash flow estimate.

## 2.4 Real estate companies

Determining the value of a real estate company can be carried out using various approaches: the Net Asset Value (NAV), the DCF and the market multiples method. The NAV method first requires the market value of the real estate portfolio to be defined, usually based on the characteristics and conditions of the buildings, location, destination of use and current lease contracts. To this end, the comparative or market method, income method and cash flow method are used:

— the comparative or market method is based on the comparison between the subject property and other similar ones recently involved in sale and purchase transactions or currently available in the same market or in comparable markets;

— the income method is based on the present value of the potential future results of a property, obtained by capitalising the income at a market rate and representative of the flow characteristics and income expectations of investors (the uncertainty is attributed to the expected income from the building, its location and its designated use);

— the cash flow method is the best method to use when valuing buildings to be transformed or restructure for better use.

The market value of assets determined this way, representing a major component of the assets of a real estate company, is the basis for evaluation of the company overall. In particular, the other assets and liabilities are algebraically added to the estimate of this value and the net financial indebtedness is subtracted; this determines the value of the company in the event of liquidation of the property portfolio, without needing to determine a goodwill value. NAV is usually gross of tax effects and may be adjusted based on the tax regulations to which the company is subjected.

The following methods can be used as alternatives to the NAV method:

- the market multiples method (the most commonly used by analysts), which requires identification of a sample of comparable companies - in terms of real estate activities carried out, characteristics of the portfolio owned or managed, financial and tax profile - and calculation of the relative average discount with respect to NAV. The latter is used to determine the discount to be applied to the NAV of the target company;
- the discounted cash flows method, which is based on the estimate of operating cash flows net of taxes, and also provides a calculation of the company's goodwill value.

## 2.5 Power and Energy companies

The traditional methods, such as DCF, EVA and multiples, are applied to Power and Energy companies, as well as other criteria providing important benchmark values.

To understand these alternative criteria, the value chain of the electrical industry and the energy industry (oil & gas) should be divided into different phases (generation/extraction, transmission/distribution and sale), each of which requires a specific valuation approach, in addition to the main method.


To value companies operating in the electrical energy generation or gas & oil extraction phases, multiples that compare the value to physical variables are often used<sup>18</sup>. For example, for the electrical industry, the capacity installed and the quantity of energy produced

(measured, respectively, in MW, MWh or KW) and, for the oil extraction industry, the size of reserves and the production (measures, respectively, in boe – barrels of oil or equivalent - and in b/d – barrels per day -).

To value electrical energy transmission companies or gas distribution companies, it is necessary to consider the significant regulatory impact said activities have undergone over the last few years and the consequent impact on the valuation methods adopted. To this end, the so-called RAB (Regulatory Asset Base) method, which represents the value of company assets as defined by the Authority (in this case, the value of the gas distribution pipelines or the electrical network for energy transmission) has been often used. It is seen as a sort of mixed method, which takes into account

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<sup>18</sup> To this end, see Chapter 1, paragraph 1.3.2, regarding the choice of significant multiples.



equity elements as well as income flows, and uses the recognised RAB value, adjusted by a correction factor, as the indicative figure for the Enterprise Value of the company. The correction factor reflects both the capacity of the company to generate a level of income that is greater or lesser than the remuneration recognised by the Regulator on the capital invested, as well as indicators of efficiency in cost control.

Finally, to value companies carrying out sales activities, especially in Countries with highly deregulated markets, the multiples used take into consideration the number of customers that comprise the final catchment area.

## 2.6 TMT companies

The valuation of telecommunications companies has undergone profound changes over the course of the last few years, especially after the speculative bubble linked to new technologies, to the propagation of mobile telephony and to Internet.

Traditionally, telecommunications companies were considered utilities.

However, at the end of the last decade, deregulation and the advent of new technologies not only modified the prospects of companies already on the market, but also resulted in the creation of new competitors with a significantly different economic-financial profile than the existing ones. As a result, the financial community modified its valuation techniques.

The discounted cash flow method has always constituted the theoretical foundation to determine the economic value of TMT companies. However, during the period of New Economy expansion, financial analysts used alternative criteria, not based on the financial performance of companies but on operational performance. Multiples calculated on the number of mobile telephony customers, users or pages visited on an Internet site, on kilometres of fibre optics installed and on other so-called proxies became points of reference in the portfolio choices of investors interested in the TMT sector.

Many high-tech companies that had obtained financing through venture capital and debt markets at extremely high valuation levels, justifiable only (by) the application of “non-traditional” methods, backed by forecasts which were not then actually achieved, have recently been resized or even closed. However, greater aversion to risk by investors has brought the attention back to the capacity to generate profits and has moved the valuation time horizon from long-term to short-term. As a result, multiples based on proxies and revenues are now considered to be not very significant and DCF valuation is often used just as a means of checking. There has also been a simultaneous advancement in valuation techniques, which today support multiples like EV/EBITDA with increasingly complex estimates and calculations, often with a superior information value, such as multiples of free cash flow for the company (Operating FCF) and free cash flow for stakeholders (Equity FCF).

## 2.7 Biotechnology companies

Biotechnology companies represent a particular type of company to value, as a series of characteristics typical of the sector and of the business model make it difficult to apply traditional methods. These companies exhibit a high uncertainty of results and an equally high absorption of resources focused on research and development. The required reference period before seeing positive results, from the initial phases of development to the launch of a new product, may even be decades long, and occurs through a series of related phases that result in revenues in the form of milestones or royalties when completed.

Due to their industrial and risk profile, biotech companies experience losses and negative cash flows for a significant number of years.

Based on the above, application of methods such as DCF and EVA is not feasible, nor is recourse to the multiples method.

The key factors for success that significantly impact value, normally considered for a biotech company are:

- the product portfolio pipeline and the relative phases of development;
- the intangible assets, including quality of research, professionalism of human resources, standing and experience of management, intellectual property rights, etc.;
- R&D and commercial partnerships with other players in the sector.

In the 1980's, an attempt to define the characteristics mentioned and attribute a value to biotech companies was made and became widespread in the United States. This method is called the "technological value" method: the Enterprise Value of the company is derived from a comparison with the EV of similar companies in terms of therapeutic area, technologies used and product portfolio.

# 3. Valuation process for the admission to listing on the stock exchange

This chapter describes the most important aspects regarding the valuation process and setting the price<sup>19</sup> of a company to be listed in the stock exchange, along with the roles of all the parties involved.

A fundamental assumption is that the valuation must be considered an integral part of the entire due diligence process and carried out by the sponsor or global coordinator after an in-depth analysis of the business model, of the positioning and competitive advantages, of the financial data of the company being listed and of the management systems (including the Management Control System).

Finally, the chapter ends with a proposal regarding the structure of the document supporting the valuation, set forth by the Instructions accompanying the Rules for Borsa Italiana and Nuovo Mercato, for the purposes of the IPO (hereinafter, the Valuation Document).

## 3.1 Valuation of a company involved in an IPO

A valuation process should not be confronted in a mechanical manner in any context, and requires a suitable information base, mainly represented by historical accounting data, forecasted data, information on operations and data on the competitive system.

The valuation of a company as part of a stock market listing, in particular, is the result of a continuous process of analysis and verification, which starts from the preliminary estimate of value conducted when the valuator does not yet possess all data regarding the company (the so-called pitch) to determination of the price at which the shares will effectively be sold to investors.

The valuation process progressively increases in substance and content during the preparatory phases before the listing, when the company provides detailed data and information on its activities and on its future prospects. The valuation is, therefore, an integral part of the due diligence activity and should be conducted keeping in mind the industrial nature and the search for a business value. For these reasons, the business

plan is the main instrument to launch the entire process.

Starting from the estimate of a fair value, the valuation should progressively take into consideration the instructions provided by investors during the pre-marketing activity (a sort of survey carried out before launching the offer), the trend in stock markets, the size of the offer and the potential liquidity of the stock. These last considerations generally lead to the definition of an IPO discount, which maximises the level of demand and increases the probabilities of achieving a good return on the investment for those who decide to invest in the company during the placement.

This leads to the definition of an indicative price range and a “maximum price”, with the latter published by the day before the beginning of the public offer<sup>20</sup>.

Finally, the “offer price” is determined based on the results of the institutional offer.

The phases that typically comprise a valuation process and the main parties involved are described below.

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<sup>19</sup> To this end, note the document published in May 2003 by “NYSE/NASD Advisory Committee”, nominated upon request by the U.S. Securities and Exchange Commission, containing a series of recommendations for the entire IPO placement process, with particular focus on setting the final price and allocating the shares. Said recommendations should help avoid a series of fraudulent behaviours that have occurred in the US market, especially during the so-called “IPO bubble”.



### 3.1.1. Phases of the process

The value determination process for a company being listed is broken down into various phases which, as indicated previously, involve closer examination and successive updates until arriving at the offer price or the price at which the shares will be placed, starting from a wide range. The graph below illustrates the phases that generally comprise a valuation aimed at a stock exchange listing (Figure 3.1).

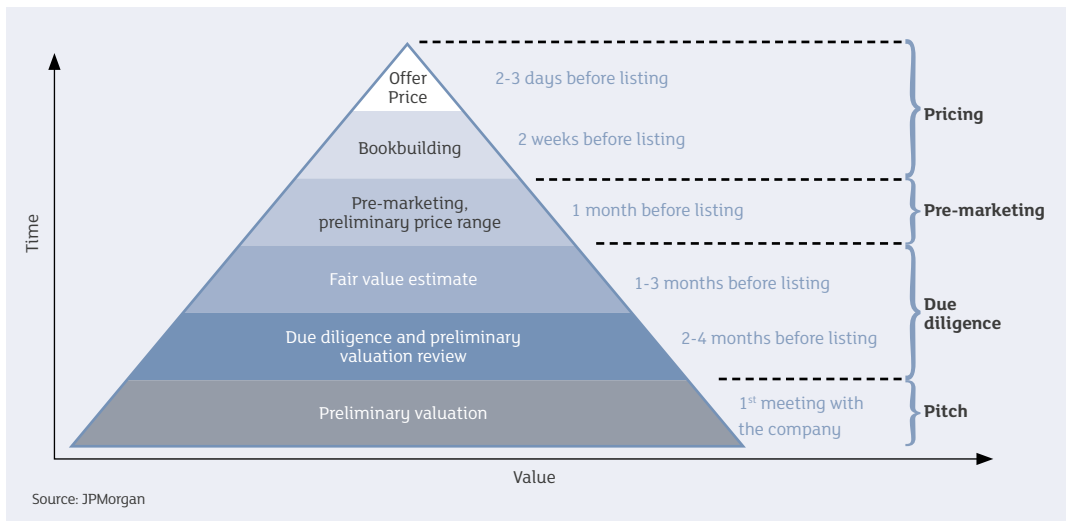


Figure 3.1 The value pyramid

This process is not necessarily continuous. As demonstrated by the graph, it is broken down into four stages, which cover the entire valuation procedure, from a wider range of values defined in the early phases to a more limited range that is obtained progressively as the reference parameters become more visible.

The main phases of the process are outlined below:

- valuation carried out during the pitch phase by the bank;
- valuation carried out during the due diligence phase;
- pre-marketing and definition of the indicative price range;
- pricing.

<sup>20</sup> In most cases, the prospectus includes an indicative price range or does not provide any specific indication of price, postponing definition of the range and of the maximum price to subsequent public notices; alternatively, the prospectus may contain a “binding” price.

## I) Pitch

The pitch is the phase during which the company selects the intermediary to support it during the listing. In this phase, the investment banks present a proposal for the instruction to act as sponsor/global coordinator, which generally includes a preliminary valuation of the company being quoted. Said valuation is usually presented four or five months before the end of the process and represents the less accurate value of all those to be calculated successively.

In fact, it does not include detailed knowledge of the business plan and the results of the due diligence carried out by the bank once the instruction has been received.

In choosing the sponsor/global coordinator, the company should place greater importance on the quality of the intermediary, rather than base the decision exclusively on value proposed, which is not very meaningful before due diligence and, above all, a comparison with the market.

## II) Due diligence

During the due diligence phase, after analysing the business plan, the bank generally offers the company an initial hypothesis of fair value (usually a range of values). This figure is an estimate of the value of the economic capital of the company being listed, which fails to take into account the IPO discount and information from pre-marketing activities.

The due diligence allows the valuator to understand the company's business in detail and, above all, to carry out an in-depth analysis of the business plan. This last document, as previously mentioned, enables evaluation of the issuer's future prospects both in terms of consistency with the strategic-organisational layout and trends in the reference market as well as in terms of sustainability and soundness of the main underlying hypotheses.

The Valuation Document is usually prepared during this phase, and constitutes an integral part of the listing application to be submitted to Borsa Italiana.

## III) Pre-marketing

During the pre-marketing phase, the investment bank carries out a survey of institutional investors, which leads to the definition of an indicative price range. The latter is also impacted by the preliminary independent valuations<sup>21</sup> contained in research published by the banks of the institutional consortium and by the market conditions at that moment.

Only at this point can the bank, equipped with the feedback on the price that institutional investors are willing to pay, meet with the issuing company and selling stakeholders, if any, to define the indicative range and the "maximum price". This price is the reference for the next phase, which is the collection of orders by institutional investors (known as bookbuilding) and retail investors.

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<sup>21</sup> Said valuations are considered independent since the analysts (including those in the research department of the global coordinator) do not have access to forecasted data contained in the business plan.

## IV) Pricing

The true marketing activity (after publication of the prospectus), which for institutional investors means a road show in the major financial markets and for the general public a promotional campaign, provides fundamental information for determination of the final price.

During this phase, institutional investors send out declarations of interest to buy, at a price which not only takes into consideration the fundamentals of the company, but also the soft elements: corporate governance, dealings with related parties (described in the prospectus), management systems (MCS, compensation, planning), etc.

The offer price is determined by considering both the number of shares requested and the price that institutional investors are willing to pay, as well as by analysing the quality of demand from institutional investors (measured by investor characteristics in terms of portfolio management and investment policy, portfolio size, markets and sectors of interest, etc.). Generally speaking, the final price is determined in such a way as to effectively allocate the number of shares to institutional and retail investors (according to priorities established by the company and by the investment bank), leaving a part of the demand unsatisfied, in order to fuel interest to buy and support the stock's performance in the secondary market.

### 3.1.2. Parties involved

The valuation process in an IPO essentially involves the sponsor/global coordinator and the company being listed.

The contribution of the intermediary is normally broken down into various activities that report to different areas of responsibility within the bank:

- the corporate finance department, which provides the valuation activity in the strict sense of the word, through the application of methods and construction of financial models. In addition, it collaborates in preparing all support documentation for the valuation, including the business plan;
- the capital market department, which is responsible for including market comments in the valuation, as well as information resulting from pre-marketing and bookbuilding. In general, the closer you get to placement, the more important the role of capital market becomes;
- the research department, which provides independent information regarding prospects within the reference market, positioning of the company and its development strategies, and prepares independent estimates of the future trend of the company<sup>22</sup>.

The company being listed interacts with the bank throughout the entire valuation process. In addition to top management, which is involved in all key stages of the valuation process, the planning department plays an important role (as regards preparation of the business plan), along with the finance department.

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<sup>22</sup> On 25 September 2003, IOSCO (International organisation comprising 168 Securities Regulators), issued a series of principles to guide national Authorities on the issue of conflict of interest by financial analysts (sell-side analysts).

## 3.2 Structure of the Valuation Document

In the listing process, the “Instructions accompanying the Rules for Markets Organised and Managed by Borsa Italiana S.p.A.” and the “Instructions accompanying the Rules for the Nuovo Mercato Organised and Managed by Borsa Italiana S.p.A.” (hereinafter, the Instructions) require the Valuation Document to accompany the application for listing<sup>23</sup>.

The Valuation Document summarises the valuation procedure carried out and the main results obtained, and provides information regarding the range in which the offer price will be positioned<sup>24</sup>.

A certain period of time lapses between the moment in which the listing application is submitted and the date of the Acceptance of Application; consequently, the Document is inevitably subject to updates or changes, especially with respect to the price range.

Taking into account the contents required by the Instructions, the following is a hypothesis for the structure of the Valuation Document, subdivided into the following sections:

- I.** Executive summary
- II.** Preliminary remarks
- III.** Reference market
- IV.** Equity story
- V.** Considerations on the Valuation
  - Market multiples method
  - DCF method
  - Sensitivity
- VI.** Conclusions

It is important to underline that the proposed structure is purely indicative and the Document should always be prepared taking into consideration the specific characteristics of the company and of the sector in which it operates, and may take on an alternative format, albeit maintaining the same degree of consistency and soundness. In any case, the minimum contents required by the Instructions must be respected.

### **I) Executive summary**

The first section of the Valuation Document should be dedicated to the premise and objectives, defining its use within the specific context of the listing. Considering the necessity to supplement the Document after listing, the preliminary nature of the document itself is usually mentioned, along with the probable timing for an update of the valuation. In the Executive Summary, it can also be useful to provide the value range where the offer price will be positioned (pre-money and pre-IPO discount).

This range is neither binding for the company, nor represents a commitment for the bank, since, as highlighted in paragraph 3.1.1., the valuation and pricing process ends with the pre-marketing and bookbuilding phases.

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<sup>23</sup> Note that the Valuation Document submitted to Borsa Italiana should not include any price discounts nor any IPO proceeds (pre-money valuation).

In this way, the leverage during the future forecasted years is conservatively overestimated, since all the initiatives included in the business plan are considered to be financed by debt capital and self-financing.

<sup>24</sup> This interval can also be significantly different from the range defined in the pitch phase.

## II) Preliminary remarks

In the Valuation Document, it is important to outline the major principles guiding the valuation approach, in addition to the reference date and all sources of information used (past financial statements, business plan, management estimates, public information, etc.). Presentation of the valuation methods used is significant, especially as regards the attribution of more or less importance with respect to the context and to the specific company being valued. A discussion of the advantages and disadvantages of one method with respect to the others, in relation to the specific company to be valued, is also recommended.

## III) Reference market

In some cases, it may be interesting to include a section dedicated to the reference market, summarising the main characteristics of the sector, in order to illustrate the growth and profitability expectations of the company; to this end, some information contained in the QMAT may be used, in order to provide a summary of the main characteristics in terms of:

- size and expectations for growth in market demand;
- key success factors;
- competitive scenario;
- characteristics and positioning of main competitors.


## IV) Equity story

This section generally summarises the main qualitative aspects (specific characteristics and distinctive features, competitive positioning, key success factors, etc.) and quantitative aspects (financial data, growth and profitability forecasts, track records, etc.) that determine the attractiveness of the company for a potential investor; it involves the same messages that should be communicated to the market during the analyst presentation and roadshow phase.

The history of the company and the value proposed should be consistent, as investors derive their first indications of value from the equity story.

In general terms, the paragraph on the equity story can be prepared by covering the main aspects analysed during the due diligence phase, which represents not only a moment for comprehension of the business, but also for screening and refinement of the valuation defined in the preliminary phases. As mentioned above, the business plan and its strategic objectives constitute the most significant elements in determining the value of the company and, as a last resort, the price at which shares could be sold in the market. In fact, the entire valuation process is based on analysis of the company's business, of its positioning, of the main strategic options for growth and development project, of improvement and expansion of the product line, of diversification into new businesses, of penetration into new market segments and/or geographical areas and of changes to the cost structure, as well as on analysis of the economic and financial conditions, both current and future. As a result, in this section, the business plan is usually summarised by the main income statement and balance sheet items, in addition to the most significant ratios. Where applicable, projections can be presented for the individual SBUs, in order to later determine the value of each business area (see Chapter 1, paragraph 1.4 on this topic).

As specified in the "Strategic Plan Guide", these projections are normally presented as hypotheses for



pre-money scenarios, or rather before the contribution of financial resources from an increase in capital from the placement (and without considering listing costs). Finally, it could be useful to summarise the competitive positioning and prospects of the company with a SWOT analysis, which analyses the Strengths, Weaknesses, Opportunities and Threats that impact a company's development.

This should describe the major critical factors, as well as the specific initiatives implemented by management to deal with them with a particular focus on the risks to which the company is subjected.

Similarly, the strengths of the equity story should be clearly identified in order to justify the price proposed.

## **V) Considerations on the Valuation**

This is the most important section of the Valuation Document, as it describes the hypotheses made for each method and the main results of the analyses. The methods adopted should reflect the best valuation procedure with respect to the sector and the specific characteristics of the company.

To this end, the Instructions expressly require discussion of the market multiples method and the discounted cash flow method.

Regarding the market multiples method, the Instructions provide some guidelines on its application, stating that "the sample of comparable companies must include at least Italian and European companies, where present, and must be appropriately subdivided into groups of homogeneous companies. In addition, the criteria used to evaluation comparability must be specified, along with the multiples deemed suitable for the comparison and the reference year. Regarding comparable companies, the main final and forecasted economic-financial data must be provided, together with a description of the sector and the entrepreneurial formula (business model), highlighting the analogies and differences with respect to the issuer".

As mentioned in Chapter 1, application of the market multiples model requires a series of choices on several aspects, such as the composition of the sample and identification of the most suitable indicators, which should be described in the Document.

For the choice of reference sample, this means analysing their differences and similarities with respect to the company being valued, while for the multiples, it means outlining the advantages and disadvantages of using one indicator with respect to another.

The table below provides an example of a summary schedule illustrating application of the market multiples method.

Company	EV/EBITDA		EV/EBIT		P/E		EV/OCF		EV/Sales	
	Estimate		Estimate		Estimate		Estimate		Estimate	
	t+1	t+2	t+1	t+2	t+1	t+2	t+1	t+2	t+1	t+2
A	7.7x	7.2x	11.2x	10.3x	16.1x	15.3x	13.2x	9.6x	0.73x	0.66x
B	10.4x	9.6x	13.8x	12.5x	16.5x	15.7x	21.3x	13.1x	0.90x	0.85x
C	7.6x	7.0x	11.2x	10.1x	10.6x	9.6x	13.6x	12.7x	0.60x	0.57x
D	7.5x	7.2x	10.0x	9.5x	16.8x	15.5x	16.0x	17.3x	0.43x	0.45x
Minimum	7.5x	7.0x	10.0x	9.5x	10.6x	9.6x	13.2x	9.6x	0.43x	0.45x
Average	8.3x	7.7x	11.5x	10.6	15.0x	14.0x	16.0x	13.2x	0.66	0.63x
Median	7.7x	7.2x	11.2x	10.2x	16.3x	15.4x	14.8x	12.9x	0.66x	0.62x
Maximum	10.4x	9.6x	13.8x	12.5x	16.8x	15.7x	21.3x	17.3x	0.90x	0.85x

Regarding the **discounted cash flow method**, it is equally important that the hypotheses underlying the development of the operating cash flows of the company be highlighted in the Valuation Document. These include sales growth, operating margin trend, level of investment and amortisation and change in net working capital, as well as the hypotheses and calculation methods for components comprising the average weighted cost of capital and perpetual growth rate “g”.

The sample table below highlights the methods of calculating operating cash flows.

Data in € mln	Year									
	t+1	t+2	t+3	t+4	t+5	t+6	t+7	t+8	t+9	t+10
Cash Flows										
Operating Income	100	120	130	140	142	145	147	149	149	149
Taxes	(49)	(55)	(59)	(63)	(64)	(65)	(67)	(69)	(69)	(69)
D&A	86	95	106	115	120	125	123	120	120	120
Investment	(140)	(145)	(140)	(130)	(128)	(126)	(124)	(121)	(120)	(120)
Change in NWC	(38)	(28)	(30)	(27)	(10)	(5)	(2)	(1)	(1)	(1)
Cash Flow	(41)	(13)	8	35	60	74	77	78	79	79
g%										0%
WACC	7,5%									

Further steps are necessary in order to progress from the calculation of cash flows to an estimate of the value of capital, as illustrated in the following table.

	(€ mln)	% of EV
Present Value of Cash Flows	242	32%
Terminal value	1.053	
Implied multiple EBITDA t+10	3,9x	
Present value of terminal value	511	68%
Enterprise Value (EV)	753	100%
Implied multiple EBITDA t+1	4,0x	
Net Financial Position	(254)	
Equity (E)	499	
Number of Shares (mln)	100	
Value per Share (€)	4,99	

In conclusion, this section should be accompanied by a sensitivity analysis, which is typically done on DCF results, using the weighted average cost of capital and the perpetual growth rate as variables. In order to provide greater significance to the analysis, it would be useful to indicate the hypotheses supporting the variation in rate “g” and the cost of capital, upon which the value range of the company depends. In addition, calculation of the sensitivity based on the main value drivers, such as sales growth rate, operating margin,

the level of investment and any other variable with a significant impact on the value of the company could be appropriate (to restrict the field of application and simplify the calculation, the sensitivity analysis could be conducted on the terminal value, as this represents the highest percentage of the total value and is also more easily modifiable with the variation of only one underlying variable).

The following table shows an example of sensitivity analysis based on two value drivers.





Value of the company (€ mln)						
		Value driver 1				
		-7%	-2%	+0%	+5%	+10%
Value driver 2	10%	86	76	67	59	52
	12%	101	88	77	68	60
	15%	123	106	91	79	69
	16%	158	132	112	95	82
	19%	221	176	144	120	101

As mentioned previously, it is important to clearly express the hypotheses at the basis of the variables used for the sensitivity analysis.

A final consideration regards the possibility to extend the sensitivity analysis to the multiples method as well. Consequently, as in the case of DCF, even the value of the company, calculated with the assistance of market indicators, can be subject to variation based on oscillation of one or more of the underlying variables. To this end, it could be useful to forecast scenarios that involve different levels of sales, EBITDA, EBIT or other variables, depending on a change in specific conditions. Even in this case, the variation in fundamentals may be attributed to a modification of the underlying value drivers with respect to the most probable situation.

## VI) Conclusions

Lastly, the results obtained and hypotheses defined should be summarised in a closing section which, in addition to providing a range of values determined for each method and the range taken into consideration, allows for immediate comparison with the market, in order to examine the soundness of the values determined. To this end, a “valuation matrix” could be built, which is a table that calculates the main implicit multiples of the company, with respect to the pre-selected price interval and, therefore, to the variation in price during the IPO, in order to allow an immediate comparison with the corresponding multiples of comparable companies on the market. The following table provides an example of a “valuation matrix”.

Price per Share (€)	5,3	5,6	5,9	6,3	6,7	7,0	7,4	7,8	8,3	8,7	9,1
Equity (€ mln)	210	224	237	252	266	282	297	313	330	347	365
Net Financial Position (€ mln)	240	240	240	240	240	240	240	240	240	240	240
Enterprise Value (€ mln)	450	464	477	492	506	522	537	553	570	587	605
				Implied multiples							
Estimated EBITDA t+1 62,3											
EV/EBITDA	7,2x	7,4x	7,7x	7,9x	8,1x	8,4	8,6x	8,9x	9,2x	9,4x	9,7x
Estimated EBIT t+1 46,4											
EV/EBIT	9,7x	10,0x	10,3x	10,6x	10,9x	11,2x	11,6x	11,9x	12,3x	12,7x	13,0x
Estimated profit t+1 13,5											
P/E	15,6x	16,6x	17,6x	18,6x	19,7x	20,9x	22,0x	23,2x	24,4x	25,7x	27,0x

The principles indicated in this document represent a guide aiding the listing process, mainly addressing the issuers, the brokers who assist them, as well as the independent auditing firms and outside consultants who take part in the stock market listing process.

The objectives of the guide are the definition of principles in line with the best practices, the adoption of conduct recognized and approved by the financial community and the spreading of a consistent language between the parties.

The use of the guide may therefore contribute towards the improvement and the simplification of the listing procedures, at the same time raising the quality of the market and its growth prospects.

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