Roundtable: 10 big issues in business valuation

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A substantial percentage of business valuation differences around the world stem from a relatively short list of major issues. These major issues each have a profound influence on value. Some of the issues listed below are typically addressed in advanced course offerings as areas of controversy or concern, but no consensus is offered. The valuer is called upon to make these decisions without a good compass. This round table is designed to identify major issue areas and to increase awareness of the full range of solution adopted for each issue area.

Business valuers use either techniques that comply with the rigors of scientific studies or employ techniques consistently used by peers within the valuation profession. This places the business valuers in a particularly difficult position if there is no consensus among valuers or market participants on key valuation issues or if the common practices of the profession are at odds with recent studies.

The areas that influence value greatly are as follows:
(1) DCF: Prospective Financial Information;
(2) DCF: Terminal value;
(3) DCF discount rate: ERP and risk free rate;
(4) DCF discount rate: Wacc Capital structure;
(5) DCF discount rate: Alpha;
(6) DCF discount rate: size premium;
(7) DCF discount rate and growth rate;
(7) Multiples: multiple of public companies to evaluate private held companies;
(8) Valuation of a minority interest: surplus or reduntant assets;
(9) Differences between Price and Value;
(10) Business model analysis and valuation.

The objectives of this round table are: (i) to identify the range of choices available to the practitioner for addressing each issue area, and (ii) to help practitioners appreciate how substantially these choices influence values.

The participants at this first round-table are five members of the Editorial Board of BV OIV Journal. They represent different geographies around the world with different peers within the valuation profession. The responses are in alphabetic order:
- Tony Aaron [TA] (USA);
- Wolfgang Ballwieser [WB] (Germany);
- Mauro Bini [MB] (Italy);
- Stefano Giuliani [SG] (UK);
- Eric Teo [ET] (Singapore).

1. DCF: Prospective Financial Information (PFI)

The business valuer has to use professional skepticism in considering PFI. What are in your experience the analysis that the business valuers has to do for judging the reasonableness of the PFI?

TA:
I believe that business valuers historically have not, on average, performed enough procedures to come to a conclusion that PFI is reasonable for use in their valuations. I also believe that the level of "stress-testing" of PFI is on the rise among business valuers, which is a positive trend. There are clearly some individuals and firms that truly perform an adequate level of procedures, but many do not. That being said, I believe that the following procedures would be a minimum level of steps that should be followed:

1. review the process by which the entity prepares its PFI and investigate the qualifications of the individuals who actually prepare the PFI and those that review and approve it;

2. consider the purposes for the preparation of the PFI and evaluate whether such purposes might introduce bias into the PFI (e.g. budgeting, financing, capital budgeting, R&D, M&A activities, compensation, etc.);

3. compare PFI to historical performance for the entity;

4. compare PFI to information that can be obtained from industry studies, market studies, government studies and analyst's reports for the industry and/or the entity or its peers;

5. compare prior years' PFI to actual results to ascertain whether the entity tends to systematically miss its projections;

6. if "expected cash flows" can be ascertained, compare those expected cash flows to the PFI prepared by management (in practice, this can be a very difficult step, as sources for "expected cash flow" data may not exist).

WB:
Fortunately, most valuation objects have a history. PFI has to be in line with this history. Expected

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changes have to be explained with convincing reasons. Only possible, but not plausible or – even stronger – probable measures and potential resulting cash flows do not count in the determination of a business value.

Analysis requirements are

i. plausibility of planning, i.e. confirmability, consistency, free of contradictions;

ii. computational consistency and consistency of assumptions, internal consistency (management explanation, historical background and future potentials) and external consistency (markets, competition & regulation);

iii. integrated planning (P&L, Balance Sheet, Cash Flow Statement);

iv. phase model (2 or 3 phases);

v. careful estimation of perpetuity in last phase (terminal value).

MB:

To answer this question it is necessary first of all to define the meaning of professional skepticism in business valuation.

Professional skepticism is an attitude that includes a questioning mind and a critical assessment of the appropriateness and sufficiency of external and internal evidence and is based on three main attributes:

1. *competency*. This attribute refers to the business valuer's degree of knowledge, skills and experience;

2. *professional care*. This attribute refers to the completeness of the information base available to the business valuer to express an informed value judgment;

3. *objectiveness*. This attribute refers to the prospective that the business valuer must adopt in analysing specific facts and circumstances, weighing both corroborating evidence and contrary evidence.

The exercise of professional skepticism requires the simultaneous presence of all three attributes. Thus, for example, a highly competent business valuer, with good skills and vast experience but with an inadequate information base, cannot exercise effectively his professional skepticism in the specific context, simply because his knowledge of the facts and circumstances regarding the specific valuation is not adequate.

Competency, professional care and objectiveness become professional skepticism when they turn into action, that is when they define a specific "*modus operandi*" of the business valuer which in the literature is referred to as "fundamental analysis". Fundamental analysis precedes and accompanies the analysis of PFI.

Fundamental analysis must precede the analysis of PFI because in analysing prospective financial information the business valuer needs to have clear in mind: (i) the value drivers that the company undergoing valuation nurtures and manages; (ii) the company's source of competitive advantage; (iii) the company's market positioning, i.e. the void that the business fills.

Fundamental analysis must also accompany the analysis of PFI, as its support is necessary for the latter to be considered adequate.

In my experience, the best approach to the analysis of PFI is founded on a simple logical schema, wherein prospective financial information acts as a "bridge" between two company situations that could be defined as "start" and "end". The start situation (situation "as is") is the result of company's history at the valuation date, in terms of earning power, book value of equity, intangible assets and skills, customer relations etc. The end situation (situation "to be") is instead the target that management intends to achieve through specific strategic and operational actions, leveraging first of all the "start" assets and competencies. Many business plans are simple extrapolation exercises, in that they do not aim to attain and firm up a specific end situation in terms of earning power, competitive positioning, total assets. They merely express the best company-performance forecast, given a consensus macroeconomic and/or industry scenario. To continue the metaphor, in these cases prospective financial information is not a "bridge" but a "stepping stone" suspended in mid-air

The business valuer's *first task* in analysing prospective financial information is precisely to draw a distinction between "bridges" and "stepping stones" for the simple reason that PFI of the latter type cannot constitute a reliable basis to estimate terminal value in DCF valuation.

The business valuer's *second task* is to evaluate the strength of the end situation, which should be: (i) sound, in terms of financial condition, operating performance and cash flows; (ii) realistic and not aspirational; (iii) consistent with the company's competitive context and advantages; (iv) attainable through a well-defined operational roadmap shared with the management lines involved; (v) realistic in terms of timing.

The business valuer's *third task* is the evaluation of the PFI's risk profile. Rarely do firms make plans on the basis of different scenarios. Typically, they make their plans on the basis of the most likely scenario. However, a plan that is well-designed and is based on a well-defined and shared roadmap often provides for corrective solutions in case of adverse scenarios, delays or, more generally, unexpected events. All things being equal, the more a plan provides for alternative and flexible solutions the lower the exposure of such plan to external risks.

The business valuer's *fourth task* concerns the identification of any impediments to the improvement of the plan's performances that might give rise to an asymmetrical risk exposure. For example, a company that plans to operate at full capacity would not be able to meet a higher-than-expected demand and would

underperform in the presence of a weaker-than-expected demand.

SG:

Using the information available in the proper way is a prerequisite of any sound valuation process. Therefore selecting, organizing, elaborating and interpreting all the data is the cornerstone of any fundamental assessment. The main pillars of this process are the following: strategic analysis (macro inputs, sector dynamics, resources and skills), historical examination of accounting, economic and financial data, market inputs (interest rates, returns, growth, betas), balance sheet situation (tangible and intangible assets, financial assets and liabilities), prospective estimates (business plans, budgets, macro analysis, sell side consensus), database on former transactions (for the company or peers), accounting due-diligence and market multiples for similar companies. Any valuation process then cannot avoid a preliminary view of the sector attractiveness (life cycle positioning, regulation, competitive forces, innovation and technology, human resources). Given that the valuation is always based on forward looking estimated results, it's important that any projection will be coherent with the historical, current and estimated inputs available, both quantitatively and qualitatively. A fundamental element of the process is the distinction between the internal value drivers (that the company can affect) and the external ones (taken as a given). In order to build a coherent and sound set of estimates we need a good information basis but also the capacity to translate that in accurate business plans and some degree of conservatism in the probability assigned to the execution. In this respect, the production of secondary information produced by companies (budgets, guidance and business plans) has become an essential tool in order to have a solid starting point for the fundamental analysis. Of course, the valuer cannot rely only on the static data, both historical and prospective, but has to apply her professional skill-set in order to build a coherent and solid process: She has to normalize historical accounting (eg. re-levelling the extraordinary elements, isolating the numbers not afferent to the core business, adjusting the fiscal policies, considering any potential inflation issue), integrate the accounting data with an analysis of intangibles (eg. R&D, marketing, IT), explicit a critical effort on the sustainability of the business plans and perform sensitivities. All that said, in order to define the prospective financial information (PFI) as reasonable, we have to balance different elements: the risks of the forward looking projections (analysis of the dispersion of results), the number of variables considered in the process, the granularity, reliability and completeness of the inputs used and the eventual presence of any external control. In a nutshell, the use of the PFI necessitates prudence, professional scepticism,

a deep knowledge of the matter and a proper distinction between forecasts and projections (if based on a reasonable information basis or on an expected state of the world based on specific assumptions).

ET:

To be able to judge the reasonableness of the PFI, a business valuer must first obtain good insights into the company's business model, its industry and external operating environment, often through site visits, engaging in discussions with the management and performing research.

We adhere closely to IVS [International Valuation Standards] in our work where under IVS 105, Paragraph 50.13, "*regardless of the source of the PFI, a valuer must perform analysis to evaluate the PFI, the assumptions underlying the PFI and their appropriateness for the valuation purpose. The suitability of the PFI and the underlying assumptions will depend upon the purpose of the valuation and the required bases of value. For example, cash flow used to determine market value should reflect PFI that would be anticipated by participants; in contrast, investment value can be measured using cash flow that is based on the reasonable forecasts from the perspective of a particular investor.*"

2. DCF Terminal value

The terminal value calculation is based on expected cash flows beyond the period of the explicit forecasts. Beyond the period over which the PFI preparer is confident of its forecasts. Do you use some prudence in estimating Terminal value to avoid errors?

TA:

I believe that terminal value calculations should reflect a "normalized" or long term stabilized outlook for the entity. Aside from calculational or logic errors, the valuation specialist should be very careful about the main inputs, i.e. stabilized cash flow, discount rates and growth rates.

WB:

Prudence is a concept of financial reporting and cannot avoid errors, since a valuer cannot be a prophet. Business valuation has to be done without prudence. Theoretically, one can discount certainty equivalents of probability distributions of cash flows with a risk-free rate of return or expected values of those probability distributions with risk-adjusted rates of return. Practitioners prefer the second approach. Both approaches require probable cash flows, not prudently determined ones.

MB:

Typically, applying DCF does not entail the adoption of different discount rates for the cash flows expected in the period of the explicit forecast and for the cash flows expected beyond the period of the explicit forecast, assuming implicitly that both sets of cash

flows exhibit the same risk. However, if the business plan covers the entire period over which management is confident about the reliability of its forecasts, it follows that such confidence evaporates or otherwise dwindles beyond this period. This means that the cash flows used to estimate terminal value can show the same risk as the cash flows expected in the explicit forecast period only if the business valuer makes an adjustment (to the downside), to make them consistent in terms of risk profile.

This adjustment is not dictated by prudence (the business valuer does not have to be prudent but objective) but by the consistency between numerator (cash flows or earning streams) and denominator (cost of capital) of the valuation formula.

If no adjustments are made in the estimation of terminal value, and the cash flows of the last year of the explicit forecast period is used as the perpetual annuity to be capitalized, not only will the company be overestimated, but an error is introduced that modifies the result of the estimate in relation to the extension of the plan period. In fact, if the plan calls for a return on invested capital higher than the cost of capital, as the plan's horizon extends the value of the company grows, not only by the amount of the net present value of the investments made but also by the projection in perpetuity of net present value of such investments in the estimation of the company's terminal value.

The adjustments to be made in the estimation of the cash flows to be used to calculate terminal value concern once again fundamental analysis. If the plan, as illustrated previously, is a "bridge" between start and end, terminal value must reflect the soundness of the end situation. This assumes a forward-looking analysis of market share, profitability and invested-capital turnover ratios, R&D expenditure and maintenance, etc. to check the consistency of the results with the company's and the industry's historical performance, with the consensus and, more generally, with outside forecast sources. Attention must be paid to the company's performance vis-à-vis the competition and to the volatility of the company's results over time. This analysis is intended to distinguish between recurring and non-recurring profits, based on the assumption that only recurring profits can be projected into perpetuity and, consequently, be used in the estimation of terminal value.

SG:

In a standard DCF, the Terminal value (TV) typically constitutes the majority of the companies' net worth. In order to take a balanced view and minimize errors, I think two solutions are available. In the first one, the valuer can consider an explicit set of coherent inputs and work on an extended time-frame (15-30 years) in order to be "forced" to explicitly estimate the duration and the intensity of the capital advantage period (CAP, where ROE>CoE), before converging to the steady state (ROE = CoE, Capex/D&A = 1). In so doing, the dynamics of the business in terms of growth, margins, capex needs, cash flows, target leverage and so on are adjusted year by year in an explicit manner: the growth rate can fade, the margin level, the capital turnover and the profitability can "smooth" towards a normalized state first (typically the sector average), and towards a steady state later on (no economic value creation). The first 3-4 years of analytical estimates can be built on an informed analysis of the company's business plans and budgets, as well as on sell side analysts' consensus estimates and other available set of data. A second period can move towards a sustainable, normalized behaviour of the business, if the planning period is still far from that situation, and then start to fade to the steady state. The CAP needs of course to be based on an in-depth fundamental analysis of the competitive landscape. In any case, at the end of the fading period, the TV will represent invariably the capital recovery (1x multiple). In a second scenario, the Terminal value is determined after a shorter period of time (typically year 5 to 10). Usually, the approach I have seen in two decades of financial markets experience is quite often based on a simple multiple applied to the last estimated figure of flow (earnings or cash) of the explicit period analysed. In this situation, a lot of inconsistences can emerge. First of all, it's not a given that the last year of the explicit plan has to be the basis of TV calculation, if it is not representative of a "normal" year. Another topical issue relates to the fact that the capitalization of the last flow needs to be coherent with the sustainable reinvestments required to support the perpetuity growth assumptions, (eg. (NOPAT x (1 – g / ROIC)) / (WACC – g)). I find that one of the most common inconsistencies is typically related to the implicit reinvestments in working capital and growth capex embedded in the calculation. Furthermore, I always link the long term growth estimate to the long term risk-free rate available in the market and, related to that, the ERP needs to be linked to those two variables, typically derived from current market prices, if the cost of capital is market consistent. When we are valuing a growth company, this approach can be of course conservative, if TV is estimated in a short time-frame (say, year 5). In this situation a "growth risk premium" can be in any case taken into consideration (the g factor in the Gordon Model can be effectively considered like a "financial summarizer", meaning that every discrete growth path can be transposed in a financially equivalent single growth factor in perpetuity). Looking at the financial gearing, a particular attention needs to be put in the calculation of the net financial position if we are using a cash-flow model rather than an economic approach in va-

luing the asset side (avoiding the risk to double count or to miss cash components of the flow, not reflected in the Net Financial Position we then subtract from the asset value). An important element to take into consideration is the analysis of the cycle for the company we are valuing: in presence of a cyclical business, the TV has to be necessary calculated on an over the cycle basis. Another useful cross-check is determining the implied "exit multiple" and comparing it with the current one, looking both at peers and at similar companies/sectors in terms of growth opportunities, return on capital and other fundamental drivers that can be considered in a "normalized" state of their life cycle.

ET:

Under IVS 105, Paragraph 50.21, the terminal value should consider:

a) whether the asset is deteriorating/finite-lived in nature or indefinite-lived, as this will influence the method used to calculate a terminal value;

b) whether there is future growth potential for the asset beyond the explicit forecast period;

c) whether there is a pre-determined fixed capital amount expected to be received at the end of the explicit forecast period;

d) the expected risk level of the asset at the time the terminal value is calculated;

e) for cyclical assets, the terminal value should consider the cyclical nature of the asset and should not be performed in a way that assumes "peak" or "trough" levels of cash flows in perpetuity; and

f) the tax attributes inherent in the asset at the end of the explicit forecast period (if any) and whether those tax attributes would be expected to continue into perpetuity.

In practice, when estimating the DCF Terminal value, one of the key components is the annual growth rate expected into perpetuity. A common way would be to compare this against the growth rate of the industry or country's economic growth.

It is not uncommon to see valuations where the terminal value makes up a large chunk of the estimated value. Hence it is important to perform sensitivity analysis of the impact of a range of growth rates in estimating the DCF Terminal Value.

3. DCF discount rate: ERP and risk free rate

There is a relationship between ERP and risk free rate (RFR). How do you consider it in estimating the market return?

TA:

I believe that there is a definite and inverse relationship between ERP and the RFR. Over the long term (100-200 years of data), while equity returns have varied from year to year, there tends to be a relatively stable average level of nominal returns on equity in the range of 8-9% (at least in the United States). That being said, I view the ERP, in effect, as a "spread" which can vary as the RFR moves up or down. While I believe that the average expected nominal return on equity is relatively stable (i.e. the 8-9% mentioned earlier), the ERP rises as the RFR falls and vice versa. Thus, I view market returns on equity as being relatively stable, on average over time, while the component parts vary inversely to one another.

WB:

If the expected value of the market rate of return is assumed to be constant, a decreasing risk-free rate implies an increasing ERP according to CAPM. It is an empirical question whether a decreasing risk-free rate changes the expected market rate of return. I do not know reliable evidence.

In Germany, the risk-free rate is normally approximated by spot rates of Government bonds at the valuation date which vary over time. At the same moment, the ERP is normally estimated by means of historical data. Therefore, there is a mixture of historical and future directed data which is inconsistent with the CAPM. Implied ERPs could help but have other disadvantages.

MB:

We know that equity market return is more stable that its constituent parts (ERP and RFR). The reason is the negative correlation between risk-free rate and equity risk premium. Risk-free rates show a pro-cyclical pattern (they rise when the economy grows and fall in recessions) while equity risk premiums are counter-cyclical (they fall in a growing economy and increase in recessions). This makes ERP dependant on risk-free rate levels.

When risk-free rate levels are normal so are equity risk premium levels. This makes it possible to identify a number of patterns, the most famous of which is definitely the Fed Model (introduced by Greenspan) whereby in normal condition the P/E of the U.S. stock market should approximate the inverse of the risk-free rate, based on the assumption that the nominal growth rate of the U.S. economy ("g") is nearly equal to the equity risk premium ("ERP"). Against this background, the historical ERP can be taken as a reliable measure of the risk premium in estimating the cost of capital of a specific company.

However, when the situation is far from normal, significant caution is required in the use of historical ERPs. Historical ERPs are (arithmetic and geometric) means of risk premiums derived from secular investment horizons which assume (implicitly) risk-free rate levels in line with the long-term average. Today, in nearly the world over, we are going through a historical phase where risk-free rates have settled at levels that are extraordinarily lower than the long-term average (in many countries ten-year and longer risk-free

rates are negative) also as a result of the quantitative easing policies adopted by the central banks. In this context, the Fed Model cannot work.

Hence, two possible alternative solutions to estimate the cost of capital.

The first involves the normalization of risk-free rates on the assumption that they do not reflect the free interplay between demand and supply but are instead lowered artificially by the purchase of government bonds by central banks. As central banks can only intervene for limited periods of time, risk-free rate levels should normalize at the end of the quantitative easing phase. This solution, which raises the risk-free rate by normalizing it to levels more in line with long-term historical averages, makes it possible to adopt average normal ERPs that generally do not deviate substantially from long-term historical averages.

The second solution involves instead the use of current risk-free rates (including negative ones) and adjusted risk premium rates (generally higher than the historical average).

The choice of either solution is not neutral for the results of the valuation of a specific business. In fact, given the same market return (= risk-free rate + ERP), the greater the ERP the greater the cost of capital for firms with a beta greater than 1 and vice versa. The consequence is that, in case the second solution is adopted (negative risk-free rate and ERP higher than the historical average), the costs of capital for firms with different betas will be much more scattered than the costs of capital calculated by using the first solution. Hence, the need for greater accuracy in estimating the beta of a specific company. In the absence of closely comparable listed companies (thus in case of possible errors in the estimation of the beta coefficient), the first solution might be better.

Often, use is made of intermediate solutions. Instead of adjusting risk-free rates to levels considered normal in the long run, use is made of average 12- or 18- or 24-month rates and then measures of prospective ERP consensus are adopted (from surveys or stock analyst reports).

Whatever the solution adopted, it should still be considered that in the current market context, the breakdown of market return into its two constituent parts (time value of money and risk premium) is largely uncertain. A cursory review of the reports of equity analysts reveals the broad dispersion between risk-free rates and ERPs, with such dispersion narrowing when the focus shifts to the sum of the two constituents (risk-free rate + ERP). The consequence is that this uncertainty tends to be magnified in the estimation of the cost of capital of specific companies in relation to the beta of such companies.

That is why it would be appropriate also to check the reasonableness of the cost of capital on the basis of synthetic estimation criteria, such as the implied cost of capital.

SG:

I think consistency is paramount in choosing the right approach. If I run a market valuation, I tend to use the current market risk free rate (RFR), a similar long term growth assumption and a market implied ERP. The risk free rate is effectively a reflection of what the investors estimate to be the economic growth path in the future, basically the expected real growth plus the inflation expectations. In a low interest rate environment, therefore, the expected growth should be relatively subdued. Another way to look at RFR, is related to the role it plays when the fear factor rises, as happens in a flight to quality environment. In this situation, that decrease of RFR affects also the risk premiums of all other asset classes: credit default spreads, cap rates on real estate and, of course, the equity risk premium. If we look at the market implied cost of capital in recent years, we have witnessed a shift in the relative weight between RFR and ERP in its composition. If we calculate risk free rates and market implied ERP for the last 20 years in the US, for instance, we can see that, while RFR decreased from 6% to 2%, the ERP grew almost symmetrically, with a relatively limited impact on the overall cost of equity capital (that has been a break compared to pre-crises periods). Partly related to that, we have to consider that the sensible reduction of credit spreads provided a clear incentive for corporates to follow a de-equitization path (debt-to-equity swap), in order to reduce WACC. Using this dynamic approach, where RFR, ERP and long term growth expectations are market consistent and time-varying, presents nonetheless some issues that need to be taken into account. First of all, it can be volatile, while the intrinsic value is typically more stable. Secondly the impact of market variables is asymmetrical versus higher risk/high growth companies, compared to lower risk/low growth ones. So another possible approach is to pursue a normalized valuation: here we can replace current inputs with normal – average – data (eg long term growth estimates, long term historical ERP and normalized fundamental drivers). This kind of approach implicitly assumes that the past and the future tend to be relatively similar on an over the cycle basis and that mean reversion will continue to work. In this case, the valuation can be much more stable, but the distance from some market prices can be huge, also for not trivial time-frames. What I don't do, in any case, is to use inconsistent inputs (like market RFR and long term average historical ERP, for instance). Needless to say, the RFR and ERP need to be calculated on a homogeneous basis in terms of reference markets, countries, currencies, real or nominal values, duration. A related argument that nowadays is overly present in

the market on this topic is the role of monetary policies and the related market behaviour in pricing risks that we are seeing after the advent of the crises of 2000 and, even more, of 2008. A decent amount of literature is starting to emerge, analysing the impact of unconventional monetary policies on financial asset prices and on the risk premiums of different asset classes. The typical argument relates to the historical analysis of credit fuelled bubbles (1929, 2000, 2008) where the herd behaviour in asset market booms drove the subsequent crashes. In other words, does the role a price insensitive global buyer of last resort (major central banks) is having on both RFR and risk premiums on different asset classes, affect the function of "price discovery machine" that the financial market always had? I think that's a pretty relevant question when analysing input valuation parameters, above all if we consider the structural lack of safe assets available in the market nowadays. That situation can be tricky for equity valuation, if market rates are no longer fully representative of the monetary cycle, and liquidity can tighten without interest rates rising. In that situation, we probably need to become more used to operate in a quantity, as well as a price, world and to take into account more complex liquidity indicators in the inputs used in our valuation models.

ET:

ERP is estimated based on market studies and consensus views from fellow practitioners. We acknowledge that there is a relationship between ERP and risk-free rate. However, we take a long-term view on ERP and obtains the risk-free rate as at the respective valuation dates.

4. DCF discount rate: Wacc Capital Structure

Wacc is a function of Capital structure. In calculating wacc do you use the average capital structure of the peers, the specific capital structure of the firm that you are valuing o some other benchmark? Do you use different capital structure if you are valuing a control interest or a minority interest in the firm?

TA:

Typically, I have used an average capital structure for industry peers when valuing a controlling interest. For a minority interest, I believe there are circumstances where the specific capital structure in place may need to be utilized, as the minority shareholder may not have the ability to influence the capital structure decision and is left with having to accept the capital structure that management/controlling shareholders have implemented.

WB:

When using the FCF approach I take the specific capital structure of the firm according to a plausible planning. Capital structures of peers only might influ-

ence the result of the plausibility test. I do not use different capital structures for valuing a control interest or a minority interest.

MB:

It should be said right from the start that wacc (Weighted average cost of capital) cannot be applied to all companies. Use of wacc assumes implicitly the validity of the assumptions underlying the Modigliani-Miller (MM) theorem, in particular that the debt of the company (or its peers') is risk free. Consequently, the MM model should be applied only to companies with an investment grade rating (for which the risk of default is objectively negligible). When the probability of default is no longer negligible, the discount rate should reflect also expected distress costs. In fact, if there is a significant probability that following a default the company should be liquidated, it is necessary either: to consider expressly in the valuation also the gone-concern scenario, in addition to the going-concern one, or to discount the benefit streams on a going concern basis but at a rate higher than wacc.

This introductory note was necessary because use of the peers' average financial structure might not make sense when the entire industry in which the valuation subject operates is experiencing a crisis. In these cases the book value of the debt of comparable companies hardly reflects market value. In addition, in these cases the tax shield of interest expense is not certain (since the debt is risky). For a company operating in a sector experiencing a crisis, the discount rate of the levered cash flows stream can be lower than the unlevered cost of capital (which excludes the benefit of the debt tax shield)

Use of the average financial structure for the industry might not make sense also when the companies engaged in it adopt business models that differ substantially from one another due to totally diverse risk profiles and asset bases. In fact, it should be considered that the wacc should ideally correspond to the wara (weighted average return on assets). The wara in turn depends on the normal returns on the individual assets while returns are a function of the Loan-to-Value ratio (LTV) of the specific assets.

With that in mind, the normal financial structure of a firm should be the weighted average of the LTVs of the individual assets.

If as a result of the different business model the companies operating in the same industry use assets with varying LTVs, their wara too (and consequently their wacc) will vary.

The correspondence between wara and wacc throws a light on the relationship between asset structure and financial structure of a firm. If the company to be valued has an asset structure different from that of its peers, it will also have a normal financial structure different from that of its peers. This circumstance is

put in sharp relief in sectors where, for example, competing companies are characterized by widely varying sets of intangibles or where companies engaged solely in trading compete with vertically integrated companies, etc.

In these cases, instead of using industry average financial structures, typically it is better to calculate the maximum leverage that can be associated with a BBB (investment grade) rating and then use this leverage ratio to calculate the wacc. To calculate the maximum leverage that can be associated with a BBB rating, normally use is made of synthetic-rating estimates, deriving from the ratings of companies in the same industry the financial statement ratios that explain rating dispersion through regression analysis.

In theory, the financial structure so identified should not be significantly different from the financial structure that the valuation subject can achieve over the plan's horizon. For this reason, the analysis of the synthetic rating can be usefully applied also to the plan years, to check whether the starting financial structure has approached the target financial structure.

When minority interests are valued, the wacc estimation can refer to the company's current financial structure. This however is predicated on the notion that control over the company is not contestable and that since the minority shareholder cannot change the company's financial structure, such minority shareholder is penalized by the lack of tax benefits (in case the financial structure shows a level of indebtedness lower than the industry average) or, by converse, by greater expenses (in the form of distress costs for firms with a financial structure featuring a level of debt higher than the industry average). In these cases, it is always better to use APV (thus the unlevered discount rate to estimate the unlevered enterprise value, to which the effective debt tax shield is added to arrive at the equity value).

SG:

In the WACC calculation, I typically use the target debt structure of the company (cross-checked with the sector average of comparable firms), differently from the calculation of the cost of equity, where I use the effective current capital structure. The reason is one of coherence with relative flows: when we discount net flows, we are considering the actual leverage (interest costs are part of the flows discounted), while in discounting operating flows, they are gross of interest costs. So, when using the target structure in calculating the WACC we take into account all the possible taxshields, while in discounting on a net basis the tax shields are only the ones the company is currently using. Therefore a cost of equity estimate using the target financial structure wouldn't be coherent. This approach is of course predicated on a valuation based on an investment grade level of risk. When I have to

analyse a situation of financial distress, an explicit analysis of bankruptcy costs (BC) is deserved. I usually take into consideration the credit spread and the asset risk (unlevered k): BC = - (D*spread)/uk, where D is the net financial position. In this situation bankruptcy costs are a direct function of the debt level, so WACC varies during the explicit valuation period and we need to adjust it time-by-time until the target structure is reached. In terms of the nature of interest I'm valuing, I usually apply the target capital structure for a control interest or for a highly liquid public company, while I tend to use the current capital structure for a minority interest, especially if we are in a situation of sub-optimal management of the balance sheet, effectively applying a discount for a lower probability of re-adjustment opportunities.

ET:

If the objective of the management is to maximise the company value in the long run, the target weight can be a consideration for the capital structure

- Average capital structure of the company

If the subject of valuation does not have a targeted capital structure or valuers do not agree that it is an optimal capital structure, the average capital structure of well-performing comparable companies may be used. However, it would be important to understand how the industry-average capital structure is derived and whether or not it is reasonable to expect the subject company to achieve it, given (a) current conditions of the company itself and (b) current financial market conditions.

No difference for minority interests as they are not in a position to influence the capital structure decision and hence, adopt the capital structure that controlling interest utilised.

5. DCF discount rate: alpha

Do you adjust the cost of capital estimated with CAPM or other scientific models adding an alpha factor? When, why and how do you estimate it? Is it the adjustment consistent with CAPM or the other model you use?

TA:

I have typically used an "Adjusted CAPM" for the cost of equity, which may include premiums for size, country or idiosyncratic company risk. I have utilized size premium studies for size premiums, differences in country default risk or other sources for country premiums and either qualitative assessment or quantitative analysis (i.e. solving for discount rate differentials between management prepared PFI and "Expected Value" PFI) to estimate a company specific risk premium.

WB:

No, there is no adjustment with alpha.

MB:

By way of introduction, it should be noted that the

cost of capital is applied to expected cash flows. The business valuer that uses the most likely cash flows (except for the cases where the expected cash flows take a normal distribution shape) cannot use the cost of capital. In these cases, the business valuer must add a premium to the cost of capital for the additional risk (alpha factor).

In my experience it is always better to use – whenever possible – expected cash flows, thus avoiding arbitrary adjustments to the cost of capital. The weakness of this solution is that if the PFI does not express expected cash flows, it is up to the business valuer to adjust the expected cash flows, but this:

a) exposes the business valuer to undue risk. If responsibility for Prospective Financial Information lies with management, any change entails a potential liability for the business valuer;

b) requires in-depth fundamental analysis.

In many jurisdictions business valuers do not adjust PFI, to ensure that responsibility for the prospective information rests with management; as such, they incorporate the PFI risk in the discount rate. This solution is flawed in that the adjustment to the discount rate (the size of the alpha factor) is due to the wish to avoid the responsibilities that the adjustment of the expected cash flows would otherwise entail, and does not mean that the adjustment to the discount rate is theoretically better than discounting expected cash flows at the cost of capital in business valuation. Evidence to this is that the adjustment to the discount rate is used much more frequently in common law countries than in civil law countries.

Even though in mathematical terms raising the cost of capital by an alpha factor or otherwise reducing expected cash flows can lead to the same results, both solutions are not the same in terms of transparency of the valuation process. In fact, while the downside adjustment of the cash flows is obtained analytically thanks to an in-depth review of the plan and the adjustment of certain revenue, cost, invested-capital or financial-structure items, the alpha factor is estimated synthetically. At best, the business valuer only translates the effect of the alpha factor on the final result, showing the extent to which the expected cash flows (discounted at cost of capital) should be cut to obtain the same result.

When the expected cash flows are adjusted, it is easier to find external evidence that corroborates such adjustments (suffice to think, for example, of consensus forecasts by equity analysts who follow listed companies, which are typically lower than companies' guidance). In the case of the alpha factor, instead, it is much harder to find reliable external evidence. Even the implied cost of capital does not provide useful information, when it is derived from equity analysts'

consensus forecasts of PFI under the most likely scenario.

That said, it is not always possible to refer to expected cash flows. To that end, it is necessary to distinguish between two different situations:

a) the case where the company's plan features simultaneously expected cash flows and most likely cash flows, e.g. when the plan reflects not only ordinary business operations – for which the prospective information expresses expected cash flows – but also the launch of new products in new markets whose expected results represent the most likely scenario;

b) the case of start-ups or declining companies, for which the outlook involves a binary outcome, of the hit-or-miss type.

In my experience, in the former case (mixed-cash-flow plan) a distinction should be made between expected cash flows and most likely cash flows, discounting them separately at cost of capital and at the rate of return required by investors for new projects (private equity or venture capital funds), respectively.

In the latter case (start-ups or declining companies), the valuation must start with the estimation of the most likely expected cash flows and a higher discount rate. However, in these cases the discount rate is not the sum of the cost of capital and the alpha factor but is the direct expression of the rate of return required by investors for deploying their capital in similar companies. Once again, reference can be made to private equity or venture capital firms.

SG:

Yes, if I'm using most likely cash flows. The reality is that the financial market approach in calculating discount rates tends to be usually over-simplistic and the relationship between the nature of the flows discounted ("expected" vs "most likely") and the relative cost of capital is rarely explicit. Typically a standard CAPM formula is used: 10 years risk-free rate (of the country where the company is listed or a weighted average of the countries where a multi-national company runs its businesses), a standard equity risk-premium (4-6%) and an historical beta (usually calculated on a two to five years weekly timeframe). As a first check I have a look at the statistical strength of the outcomes, meaning that, for instance, if t statistics, standard error, alpha or R^2 of the regression in the Beta calculation are within certain limits I'm more confident on the stability of the results. I tend to be market consistent in the calculation of risk-free rates and ERP (meaning, either I assume market price and market implied level in the model, respectively, or use a normalized long term growth assumption for the RFR, associated with a long term average ERP). As far as the Beta factor is concerned, I sometimes use the Blume adjustment, when I think that some degree of mean reversion of returns are reasonable, while I don't

take into account the Vasicek's technique (a bit more complex and with modest empirical results). Another typical adjustment that I follow happens when the company changes its risk profile during the period in which the historical Beta is calculated. In case of an M&A that changed the volatility of the revenue stream or the operating leverage, or in case of a meaningful change of financial leverage, for instance, I try to look either at some meaningful comparables or to re-lever the Beta to take into account the impact of the new business mix and/or gearing levels. I rarely use the Fama-French model (due to the variability of results coming from the multiple factor approach - size and P/BV). I sometimes try to discriminate for some specific factor (size, industry or volatility premiums) through the build-up method. One specific case in which I focus my attention on the significance of the Beta contribution to the cost of equity is when I value Banks. Looking at the academic literature, as well as the market experience, the focus is almost constantly based on the equity approach. Given that the definition of debt for a bank is "hard" to get and non-consensual (given its own nature, the operational and financial cash flows "cannot" be separated), the standard approach is to apply the equity method tout-court, either in the form of a DDM, or as a FCFE (essentially equal to earnings net of reinvestments in regulatory capital). The Beta coefficient is simply "market driven". Now, the fact that we skip the definition of debt and leverage doesn't mean that it's not an issue. At the end of the day, the financial gearing is embedded in the Beta itself. I would present just some consideration on the topic, given the time we have available here: starting from the role of regulatory capital in the cost of equity calculation (and the "public safety net" argument, just think about the regulatory changes occurred in the last 10 years impacting the Banks' liabilities risk profile), someone proposes to look at the mark-down as a value driver generated by deposit funding. If we calculate a free cash flow from assets (FCFA) of the bank like: after tax operating profit +/- non cash transactions +/- NWC +/- delta tangible and intangible assets, we can generate a fair value balance sheet where we have the asset side based on value of deposits (discounting mark-down benefits), value of tax shield and value of assets discounting FCFA, while in the liability side we'd have deposits at nominal value, other debt (discounting interests paid on non-deposits) and Equity. The different costs of capital used to discount every piece of partial flow are based on a modified M&M proposition. Another simplified approach looks at separating operational from financial liabilities, considering as net financial debt only the interest bearing liabilities exceeding interest earning assets, while the operating profit would be net of negative interests with operating nature. So, I

think that working on the cost of capital of financial firms is a really important task, considering the relatively weak effort that both the academy and the profession usually dedicate to the topic.

ET:
Yes, we will add an alpha factor within the discount rate computation. In assessing the alpha to add, we will consider company specific factors such as key man risks, riskiness of forecast, customer concentration risk, product concentration risk etc. The quantum of alpha to add will depend on the overall reasonableness of the discount rate adopted.

6. DCF discount rate: size premium

In the calculation of the discount rate do you add a size premium? When, why and how do you estimate it?

TA:
Yes, using size premium studies, as mentioned above.

WB:
I do not use a size premium, since it is inconsistent with using the CAPM. Empirical data also show heterogenous and controversial results for different countries and different time periods. Size premiums are also not accepted in German court decisions about compensation of minority interest in the case of squeeze-out or merger.

MB:
The existence of a size premium is a controversial issue in the literature. Historically, shares of smaller companies fared better than the shares of larger firms but this phenomenon seems to have run its course.

On close scrutiny, the causes of size premium can vary substantially and sometime they do not concern strictly the size of the company, as:

a) to determine empirically the existence of the size premium, size is measured on the basis of market capitalization, with the result that the small company category includes also big companies with low market capitalization due to restructuring or experiencing operational or financial troubles, even though they are big in terms of revenue, number of employees, invested capital;

b) survival bias, which characterizes historical returns calculated on market indices instead of closed-end portfolios of companies, takes on added significance in the case of small companies, with their greater birth/death rate compared to larger companies;

c) the shares of smaller companies are less liquid than shares of big companies;

d) smaller companies can be subject to a greater competitive displacement risk, compared to larger companies.

It is clear that:

a. the first cause does not refer to small companies (strictly speaking);

b. the second cause refers to a measurement bias;

c. the third cause concerns the liquidity of shares, but not a greater fundamental risk related to small firms;

d. accordingly, only the fourth cause has a direct impact on the fundamentals of small companies.

For reasons already mentioned, it is more appropriate to address this risk in the estimation of future cash flows (and the estimation of terminal value). It is a fact that smaller companies can more easily fail due to the competitive pressure of larger firms, compared to larger firms which are better equipped to fight back, though no generalization can be made out of this circumstance. It is also a fact that small companies that adopt a traditional business model bear the brunt of the competition of larger firm, as is the case with, for example, an independent small shop that is threatened by the opening of a shopping centre in the same area or an independent hotel that is penalized by a hotel chain that sets up an operation in the same location; a textile manufacturing company may be hurt by the competition of manufacturers from low-wage countries as tariffs are lowered, etc. On the other hand, however, small companies that adopt innovative business models can be a threat for industry incumbents. Independent boutique hotels can attract customers away from large hotel chains, e-commerce represents an opportunity for independent retailers and smaller manufacturers, allowing them access to markets previously unreachable, etc.

In my opinion, applying a size premium just because a company is small is a mistake. There is no evidence that investors require higher returns on smaller companies, whatever their business model. Surely smaller firms that adopt traditional (mature or obsolete) business models are exposed to greater competition risks, but this should be properly captured in the estimation of terminal value, more than in a size premium, of a business valuation.

SG:

Talking about discounts, I think it's important to affirm that they always need to be estimated after the fundamental valuation analysis. So, the ideal process is split in two phases: we firstly calculate the fundamental value of the asset, and secondly we eventually apply a discount, in order to get a notional fair market value. In presence of a small cap (or more generally of a low liquidity stock), I tend to increase my required return. Theoretically, we are in presence of a put option (of abandonment). More specifically, we have a waiver on a short put position on the stock. Its value is driven by the price, the volatility and the fair value of the underlying asset, plus the holding period of the investment. The less liquid is the stock, the higher is the delta between the fundamental value and the fair market value of the share. Given the

difficulties to calculate a stable value of such an option, I usually refer to some rules of thumb we can infer from market prices (being the expected returns of small caps, or real transactions involving less liquid stocks). Empirically, we have of course a huge range of discounts available even if a more common average is in the ballpark of 10-20% (discounts for non-marketability tend to be closer to 30-40%). From another angle, looking at the finance literature, we can infer some 2-4% increase in the expected return, even if a lot of issues emerged during recent years, namely: a) the premiums seem to be time-varying (stronger before 1980's, weaker thereafter), b) clustering between small caps and micro caps, the effect can be much less evident, c) a huge January effect seems to be present, d) standard errors tend to be large, e) it's more relevant in less sophisticated markets (less so in US, for instance). Some academics are even arguing that the small-cap premium doesn't exist, based on both implicit market-price expected returns and some historical evidence, mainly from the US market. Having said all that, I tend to be reasonable and pragmatic in applying size/liquidity discounts. I firstly focus on the drivers of illiquidity: high bid-ask spreads, the risk of impacting the price of the stock (how many volumes do we need to trade compared to average daily value?), the opportunity cost of waiting to trade (linked to my risk-adjusted forecasted holding period), the eventual higher trading cost and the nature of the investment (a low risk-low volatility company vs high risk-high volatility one). Looking at all the drivers mentioned it's possible to build a matrix to help me assess a proper discount. Of course the larger the bid-ask spread, the higher the risk of impacting the price, the higher the opportunity cost of not to trade, the higher the trading costs and the more risky-more volatile the stock is, the higher the discount applied will be.

ET:

Yes, we include a size premium in the computation of the discount rate. Our estimation is based on empirical studies which show the typical size premium to consider based on the size of the company.

Empirical studies have provided evidence that the degree of risk and corresponding cost of capital increase with a decrease in the size of the company. Hence, when performing a valuation for smaller companies, inclusion of a size premium which commensurate with the size of the subject of valuation is necessary. At current, references are drawn from different empirical studies, which stipulates the size premium to be considered for different companies.

7. DCF discount rate: discount rate and growth rate

Growth is risky. How do you consider the relationship between discount rate and growth? Is your cost of capital

estimate independent from the growth rate of the specific firm you are valuing?

TA:

Given that, as growth expectations increase, risk of achieving such growth also increases, I believe that discount rates are commonly higher as expectations around growth increases. When one considers that a discount rate is the sum of the capitalization rate and the growth rate, all other things equal, higher growth expectations should in turn expand the discount rate.

WB:

Growth is a characteristic of cash flows. Both measures have to be taken as expectation values. In the Gordon-Shapiro model the expected growth rate comes only technically into the denominator of the PV formula. Therefore, the riskiness of growth influences the expected value of cash flows and is independent from the discount rate.

MB:

The relationship between growth and cost of capital should be clarified.

First of all, in many cases growth is risky simply because it is calculated on the basis of the most likely cash flows, not on the basis of the expected cash flows. This is the case with start-ups, more than mature companies that launch a new product in a new market, as mentioned previously. In these cases, however, the cash flows should not be discounted at the cost of capital and the risk premium (alpha factor) does not concern growth in itself but the circumstance that the cash flows being discounted are greater than expected cash flows.

In the second place, profit growth can be the consequence of a mere accounting effect. If the company is incurring R&D or advertising expenditures, which cannot be capitalized, future profits will grow not only because the expenditures that reduced current profit will generate future benefits but also because in the future it might be enough to incur maintenance expenditures much lower than the initial outlays. In these cases growth is fuelled by an accounting effect (accounting conservatism) and does not entail greater risk.

When the effects of these growth measurement aspects are excluded, taking into account only the increase of expected cash flows, we should distinguish three different types of growth:

a) Expected growth over the plan's time horizon (CAGR% and length of plan's horizon);

b) The growth expressed by the percentage increase of the highest profit to be projected in perpetuity to estimate terminal value (end situation) with respect to current profit (start situation);

c) The growth rate used to estimate terminal value (the growth factor "g" in Gordon's formula).

By adopting the approach I suggested previously to analyse PFI, whereby PFI acts as a "bridge" between the "start" situation and the "end" situation, the assessment of the profit level of the "end" situation must precede the analysis of the growth expected to be achieved over the plan's horizon, for the simple reason that when the end point is not a realistic target, the plan ("the bridge") turns into a "stepping stone" suspended in mid-air. This perspective casts light also on the relationship between the start situation and the end situation. Many times enterprise value is broken down into two components: value of assets in place and future growth opportunities. The idea underlying this breakdown is that the earning power achieved by the company in the current situation is a value floor to which the net present value of future investments needs to be added. From this standpoint, a company's growth is regarded as a series of additions – given the initial value the final value is obtained by adding the contribution of new investments, based on the assumption that some sort of rack-and-pinion effect applies - and that once a profit level has been attained there will be no rollback, regardless of the contribution of the investments made.

In my experience, this growth model "by addition" is increasingly rare. Competition forces companies to grow or perish and only few companies, operating in protected niches, can preserve their earning power while remaining stable. The competitive displacement risk materializes mostly with companies that do not grow, do not innovate, and do not change their business model. Regarding the profitability of assets in place as less risky than the profitability of future investments stands in stark contrast with the evidence that the main source of risk for a company is "doing nothing" (no investment, no innovation etc.), that is to keep the assets in place. Slumbering companies or companies that are slow to react to competitive pressures risk much more than an active and reactive company. Obviously, acting entails the risk of making wrong choices but this does not mean that this risk is necessarily greater than the risk of doing nothing.

The attempt to separate the risk of steady-state firms from the risk of future growth opportunities is not supported, in my opinion, by fundamental analysis or by evidence gathered in the market, where companies with high growth prospects, thanks to a sound and scalable business model, are considered by investors as less risky than companies that are stable but unable to act as platforms for add-on businesses.

Even financial theory does not show any positive correlation between growth and cost of capital. Growth shares provide returns much lower than value shares. This evidence suggests that growth is an "antidote" to risk, more than a source of risk in itself. This interpretation is predicated on the assumption that growth helps to defend the profitability of assets in

place and generates additional benefits. Obviously, growth must find in the company's starting situation the engine of its fulfilment in terms of competitive advantages, ability to attract capital and talent, etc.

As to the growth of expected cash flows over the plan0's horizon, it is necessary to distinguish two extreme situations:

a) If the plan is a bridge between the start situation and the end situation, and the latter is a target in view of which the company has already laid the groundwork, the risk over the plan's growth horizon is not greater than the profitability of the assets in place;

b) If instead the plan is prepared by extrapolation and is not supported by a solid end situation, growth is definitely risky, simply because the plan expresses generic projections.

Lastly, it is necessary to consider the relationship between the growth rate "g" in the estimation of terminal value and the cost of capital. To this end, I just want to make a remark of a general nature. Risk does not concern the growth rate in itself but the profitability associated with that growth. For example, in a levered DCF valuation the growth rate g of net profit is equal to the earning retention rate (b) multiplied by the expected ROE. If the plan covers the time horizon over which the competitive advantage of the firm runs out of steam, the marginal investment that the company could make after the explicit forecast period cannot be different from the cost of capital. This means that a higher growth rate g must go hand in hand with a higher earnings retention rate without any effect on terminal value. In my view, the risk implicit in unrealistic earning growth rates in estimating terminal value needs to be addressed when the investments necessary to achieve that growth are estimated, more than arbitrarily raising the cost of capital.

SG:

The risk of growth depends on its nature. We can have risky growth profiles, where the company pursues growth for the sake of it, in a situation that is hardly defendable in competitive terms and its profitability can be diluted, or genuine growth where the profitability and the volatility attached to it are based on some sort of competitive advantage and can be valuable both in terms of returns on additional capital and of the marginal risk profile. In presence of above average growth opportunities, sometimes I try to split the value of assets in place from the value of growth, following the approach introduced in 1977 by Myers and Turnbull. We need to calculate the value of assets in place and, separately, the NPV of growth opportunities (NPVGO). Differently from the original approach, I don't consider the former entirely based on tangible resources and the latter mostly based on intangibles. If the risk of the assets in place is lower than the one related to growth, the latter can be considered, finan-

cially, as a call option with a higher systematic risk contribution. Therefore, the cost of equity of the company will be an average of the two different sources of value and, as a consequence, the betas of two firms with different NPVGO would not be comparable. I often try to infer the beta of the assets in place from the observable market beta (for no-growth peers, when available) and to isolate the higher beta related to the growth opportunities calculated on the residual market cap, given that assuming future investments as belonging to similar classes of risk versus the assets in place is not always a fair assumption. Another layer of analysis is related to the sustainability and intensity of growth prospects. Given that we have to figure out all the drivers of the process (sizing the market, estimating capex, operating margins, capital intensity, returns on capital, cash flows) and develop a weighted scenario, the less certain those drivers will be, the higher the applied cost of capital will result. Sometimes I use different costs of capital for different periods of time when valuing NPVGO, starting with a higher beta for the first period, where uncertainty is higher, and reducing it while the growth fades towards a more stable state of development, while the opposite is true when valuing young/start-up companies, where initial losses are almost certain and future growth is less predictable (I'm aware that this approach is debatable among academics). A quick back-on-the-envelope approach I use in relative valuations in order to discriminate for growth is looking at the market multiples in an integrated way. P/E and P/BV are linked by ROE, so analysing companies with different levels of P/E vs P/BV can help to dissect the relationship between beta and growth: high P/BV and low P/E can be related to a low financial risk - low growth company with a low beta, the opposite being true for low P/BV and high P/E. When we have high P/BV and high P/E (low financial risk but high growth) or low P/BV and low P/E (high financial risk and low growth), the level of the beta factor is less straight-forward, and we probably need deeper level of analysis on the contribution to the profitability coming from intangibles. Needless to say, the long term growth cannot be higher than the growth of the economy as a whole therefore I always try not to inflate the terminal value. Another useful cross-check is to back-solve the implicit market share discounted by the valuation (looking at the company analysed and at the sector in which it operates). It's not uncommon to find irreconcilable analysis, where adding the market shares at a certain time in the future for growth companies in the same business, the total doesn't sum up to 100%, compared with the estimated sector growth. Interestingly enough, in recent years the market performance coming from growth companies vs value ones has been pretty strong, showing a net positive contribution in terms of risk profile, in a situa-

tion where growth opportunities are overly scarce and interest rates are so low.

ET:

Our cost of capital estimate is not independent from the growth rate of the firm that we are valuing. If the PFI is risky due to the unreasonable growth rate assumptions, we will consider an alpha adjustment to the cost of capital to account for it. In addition, it is reasonable to expect a different level of risk to be associated with cash flows at different growth stages. We would expect a company to face greater risk during its high-growth stage relative to its stable-growth stage. Valuers would often employ different discount rates to the cash flows for different stages of growth as the situation warrants it.

8. Valuation of minority interest and surplus assets

In valuing minority interest in a company with surplus or redundant assets how do you consider those assets: (i) you exclude them, because the minority shareholders cannot dispose them; (ii) you consider them just for their contribution to net income (that could be disproportionate from their replacement cost); (iii) do you add the replacement cost of those assets to a valuation based on income from core business?

TA:

This is one of those questions where the answer is "it depends". If management/controlling shareholders are not expected to dispose of such assets in the foreseeable future, then I may only include any income to be received from such "non-operating" assets. If, however, the entity is expected to be sold in the near future, or if there is a plan in place by management to dispose of such assets, then I may consider them in whole or in part, with adjustments for the time value associated with the time to sale of the entity or disposal of the assets.

WB:

In Germany, valuation of minority interest follows an indirect share valuation, i.e., the value of the share is derived from the business' total value. Surplus assets are a component of business' total value. They are valued as part of DCF or – assuming they are nonessential operational assets which can be freely disposed of without affecting the normal activities of the business – with selling prices, not replacement cost.

MB:

There can only be one answer to this question: "depends on the specific facts and circumstances".

Specific facts and circumstances combine to define two different analysis levels:

a) when the redundant assets are identified, as it is not the nature of the asset that defines its pertinence, or lack thereof, to the core business, but the company's strategy;

b) when the redundant assets are valued, as it is the existence of an active market for the assets, or lack thereof, that suggests the adoption of a value-in-exchange valuation or a value-in-use valuation.

The definition of surplus or redundant asset depends on the company's strategy. A company may have purchased an office building in the past which turned out to be too big for its needs. Consequently, management plans to relocate to another building (to be rented) and to sell the previously purchased building. In this case the sale of the building is part of the company's strategy. It is the strategy that makes the building redundant originally purchased and the same strategy replaces the cost incurred in the form of depreciation of the building purchased with the rent for the new building.

Another example where the strategy can trigger transfers from the core business to redundant assets is the case of a retailer that decides to extend the term of its trade payables, paying its suppliers a higher price for their goods. As a result of its choice, the retailer will have more cash on hand, despite an increase in operating costs. Unless it is used in the core business, the cash on hand is a surplus asset that offsets the loss of value of the core business.

Another example of strategy that defines the redundancy of an asset is a minority interest in a key supplier or distributor. In these cases the investment is intended to strengthen sales or procurement ties with key partners. Even if the investment does not contribute to the bottom line (e.g. because the investee does not distribute dividends), or makes a small contribution (because the dividend yield is very low), it does produce indirect benefits in terms of greater revenue or lower purchasing costs or lower risk of failure to secure key commodities or intermediate goods for the company's production process. In all these cases the distinction between redundant assets and core business is not dictated by the nature of the assets in and of itself but by the strategy adopted to manage the core business.

Thus, extreme caution is required in identifying redundant or surplus assets. The key is to consider whether the specific asset contributes directly or indirectly to the profitability of the core business. Only when there is absolute certainty that an asset does not contribute to the profit of the core business can such asset be considered redundant.

Once the surplus assets are identified, it is necessary to value them.

To that end, it is necessary to ask oneself what benefits might surplus assets produce. Any asset can produce benefits either through its sale (value in exchange) or through its use (value in use). Typically, the firm that holds surplus assets is not capable of making their highest and best use. This means that if the redundant asset is a liquid asset (with an active

market) and the market price reflects the highest and best use of the asset from the point of view of the market participant, the asset should contribute to the value of minority interests for its market value (which should exceed its value in use). When the redundant asset has no active market it is preferable to estimate the value of an asset for its use in production. In this case the redundant asset contributes to value in light of its contribution to the company's profit.

SG:

In such a situation, as a general rule, I try to value surplus assets separately and add them to the valuation of core business. As a second best, I can consider valuing them for their contribution to net income, if I don't have enough information to calculate their fair value and the overall size of those assets are not big enough to impair the valuation process. If the company owns the assets and they have some economic value, there's no reason to ignore them. Of course we need enough information to determine the nature of redundant assets (that can or cannot contribute to the economic profit of the firm): typically we can have excess cash, marketable securities, non-consolidated subsidiaries, tax loss carry-forwards, discontinued operations, unutilized real estate assets, recreational vehicles, excess net working capital and so on. The valuation process should start from valuing the core business of the minority interest, excluding any income contribution coming from the surplus assets (if present) and then adding back their value. In order to determine this value, we have different options: in some cases (cash, marketable securities) the result is relatively straightforward, in others we need to calculate a fair value. Let's take a surplus real estate asset as an example: If we can use some sort of market value basis (sales price comparison, direct capitalization) we can follow this route, otherwise we need to use a depreciated replacement cost (DRC) approach: we should calculate the construction cost appraisal, add the appraisal of ancillary costs and detract the replacement cost depreciation. It's clear that in order to use a replacement cost approach we need a set of information not always available from the outside (land value, building value, deterioration and obsolescence, nature of the asset, dynamic depreciation functions etc.). DRC is in fact defined as the current cost of replacing an asset with its modern equivalent less deductions for physical deterioration and all relevant forms of obsolescence and optimization, so it's typically used when there is no active market for the asset being valued and it is impractical to produce a reliable valuation using other methods. Given the specific cases in which that circumstance usually happens and the related information-heavy nature of the valuation process, in financial market practice it is seldom followed. A market approach of some nature is the first choice, even if the

value determined in this way can be different from its replacement cost. I think the most important rule to follow is focusing on the impact on total value. Some error estimate can be tolerated if the role of surplus assets is negligible. If the contribution to the total value of the company is significant, on the other hand, the valuer needs to find the best appropriate way to get a fair value that can be a decent approximation of the DRC.

ET:

In valuing minority interest in a company, we will value it on a 100% equity interest basis first and adjust it through a discount for lack of control. In estimating the 100% equity interest in the company, we will include all the surplus or redundant assets.

9. Price vs. Value

Intrinsic or fundamental value is different from Price (or market value). What are the value drivers that intrinsic value includes or excludes in comparison with market value?

TA:

I believe that price and value are two distinct concepts. Price is affected by supply and demand as well as the efficiency of informational access. Value is more of a "normative" concept, i.e. what the price "should be" if the market was efficient, and all information about the entity was readily accessible. Value might be ultimately determined by consensus price, but price may or may not equal value on a given day, due to varying levels of supply and demand for the shares of the entity's stock. Price, in the short term, may be affected by numerous current events, such as interest rate changes, the publication of economic data, world events, etc., which may or may not reflect the true impact of such factors on fundamental value.

WB:

Intrinsic value is a non-observable financial dimension of utility that is attributed to a business by an actual or potential market participant. Usually, value of a business is calculated by means of a PV approach (DCF) for a going concern or by means of liquidation value for a non-going concern. Price is the empirical result of a transaction of a business.

According to economic theory and neglecting other than financial aspects, a business is sold, if its price exceeds the individual value for the seller and a business is bought, if the individual value for the buyer exceeds price. Of course, other than financial aspects may be the reason for an observed price in reality.

For a potential buyer of a business, synergies may lead to a difference between intrinsic value and price. Other drivers may be different expectations about cash flows, different opportunity cost and different risk preference. The term "market value" as equivalent for

price is also misleading when this value is measured by market capitalisation. Normally, a business is transacted at a price which differs from market capitalisation.

MB:

Price and value can diverge, widely as well, for the simple reason that the value in exchange of an asset is different from its value in use. Value in exchange reflects certain characteristics of the market in which the asset can be sold (active or inactive market, presence or absence of information traders, etc.), the bargaining power of the parties (in relation to the presence of substitute assets and the interest of potential buyers), the possibility to use the asset in different and better ways than currently, etc.

However, in comparing price and value it is necessary:

a) that the comparison be made on a consistent basis, i.e. same unit of valuation (e.g. single share or entity as a whole or controlling interest, etc.), same perspective (e.g. investment value or investment price, etc.), etc.;

b) to identify the market of reference, which may be an active market (where prices can be checked continuously, on objective bases, so that price is a given) or an inactive market (where prices are available occasionally and only to reflect specific facts and circumstances relating to: the company, the buyer or the seller, the degree of market liquidity. Thus the historical price is only indicative of the price that would be feasible in that particular market at the current date);

c) to check whether there is information asymmetry between market participants and the party that estimates intrinsic value. If intrinsic value is estimated on the basis of private information not available to the market, the comparison between price and value is not consistent;

d) check whether the market price incorporates expectation of a change of the company's control. If the company is contestable, and rumours are spread of a change of control that might benefit the shareholders, the market price incorporates part of the expected benefits (in proportion to the probability of success of the change of control) while intrinsic value reflects the value of the company as is (without change of control).

Also when the comparison is made on a consistent basis, and refers to prices formed in an active market, in the absence of information asymmetry or rumours of a change of control, the difference between price and value can be substantial. In the literature many authors studied the relationship between (intrinsic) values – estimated on the basis of public information the consensus of stock analysts – and prices formed in equity markets, concluding that in the long run the Price-to-Value ratio tends to revert to the mean, or close to 1

(when the Price-to-Value ratio = 1 it means that price = value), but it is highly volatile in the short term, with the ratio varying from 2.0x to 0.5x (where price can be double the intrinsic value or half the intrinsic value). Behavioural finance contributed to explain why markets can express inefficient prices in fundamental terms. The main cause are transaction costs (trading costs, holding costs and information costs), though the difference between price and value is due mostly to information costs.

In my experience the difference between the price prevailing in active markets and value can be explained with the different time perspective adopted by the business valuer in estimating intrinsic value compared to the perspective implicit in market prices. Typically, in rising markets prices incorporate values significantly higher than those that can be derived from the business prospects of a company as is while in market drops prices incorporate only short-term or very-short-term business prospects. In both bull and bear markets sell side analysts do not estimate target prices based on absolute values and only issue views based on relative valuations obtained through multiples. This translates into:

a) a greater reaction of market prices to events with only temporary effects;

b) markets falling more easily under the sway of irrational factors (speculative bubbles);

c) higher market price volatility compared to the intrinsic value of the same assets.

When called upon to estimate intrinsic value, in the presence of a substantial difference between intrinsic value and market price, the business valuer must in any case be able to explain the main reasons, as price (even if it is formed in a fundamentally inefficient market) constitute solid external evidence. In that respect, attention is called to the reverse engineering techniques that, starting from the consensus of the equity analysts who follow the company and the current market price of its share, derive the drivers implicit in the valuation. It is up to the business valuer to explain convincingly which drivers should not be reflected in the intrinsic value (as they have no fundamental support) and which should instead be considered also in intrinsic value.

SG:

The difference between value and price is the cornerstone of most valuation exercises. For listed companies, this delta justifies the existence of value investors (that try to exploit it in order to get a return), while the traders tend to be less reliant on the fundamental value concept (being just one driver of the potential performance). Furthermore, in situations where the company is not listed, the reference to quoted peers or to transactions of similar firms is not necessarily aligned with its intrinsic value. With an

obvious oversimplification, we can say that the value is based only on fundamentals (profitability, growth and risk), while the price can be affected by a lot of other drivers (demand and supply conditions, mood, narratives, liquidity, short term flows, technical and many others). Let's try to separate the two concepts looking at what factors I consider in discriminating between value and market price. We've seen that in order to build a sound valuation process, we need a solid and granular set of data in terms of historical and estimated parameters (accounting, macro/sector/business drivers, company's secondary information) and a coherent and consistent process in order to allow us to proper model the forward looking fundamentals and calculate what we think is the more reasonable value of the asset. This value will depend on our estimates of revenues, margins, cash flows, growth, profitability, operational and financial risks, adjusted for the cost of risk in investing in the specific asset (it's a net present value of future results). When we look at the price of a listed asset instead, we need to consider a lot of other factors that not necessarily affect the fundamentals of the company. To name a few of those factors, I would underlie: any potential information asymmetry between buyers and sellers, the current situation of supply and demand of that specific stock (for reasons not linked to any fundamental changes), incremental information (news, stories, rumors) that can shift the mood in the short term without necessarily affecting any value driver, technical indicators that can drive a price move, the role of the so called factor investing (typically quantitative algos that use to trade on some specific characteristics like the level of multiples, recent price or earnings momentum, growth or quality characteristics, size etc.) that is gaining more and more share of daily trading in equity markets, geo-political situations that are unlikely to affect the fundamentals, the holding period on which the trade - buy or sell - is based (value tends to be much more stable than price), the prominent role of narratives that contribute to the success of a story in the market through thematic investing and the liquidity of the stock traded (we discussed the liquidity premium, that in particular circumstances can affect the market price in a significant way).

ET:

In our opinion, a key value driver for the derivation of the intrinsic value for an asset is based on its ability to generate cash flows for investors. Price/market value does not always fully consider this element and is also subject to volatility of rmarkets. It is an outcome of the economics of demand and supply based on the dynamics of the buyers' and sellers' willingness to transact for the asset.

10. Business model analysis and valuation

In valuing a business do you consider the obsolescence of the business model? How do you integrate the business model analysis with the traditional valuation analysis?

TA:

I am not sure what is meant here by "Business Model". If, for instance, this means changes in the nature of the way entities conduct business over time (e.g. Retailers use of "brick and mortar" stores vs. the internet to distribute their products), then I would say that I definitely consider whether an entity is pursuing an "antiquated" strategy that may imperil its competitive advantage. Typically, I would assume that competent management would eventually gravitate toward a strategy that maintains competitive advantage, but if the current model is out of date, then there would be reorganization costs to consider in the valuation analysis, in order for the entity to realign its strategies to maximize competitive advantage. If it means something else, I cannot provide an answer.

WB:

The consideration of the obsolescence of the business model is necessary, when obsolescence is plausible and probable. Technical or regulatory changes or disruptions may be reasons for obsolescence. One way of integration may be scenario analysis.

MB:

In my opinion a valuation is of good quality if the business valuer has been able to understand the business model, the success factors (value proposition and profit formula) and the related obsolescence risks. Understanding these elements is paramount to translate them into enterprise value. Investors in shares buy a business and do not just make a financial investment.

However, it is necessary to explain what "business model" means. A business model is a blueprint of the modus operandi adopted to generate revenue and profit. It can be depicted through six main profiles:
1. value proposition;
2. market segments served and the spectrum of activities performed;
3. model to generate revenue;
4. cost structure;
5. positioning in the value chain;
6. types of assets (and capital intensity).

Every business is characterized by revenue, costs, assets and liabilities and every business buys inputs from the outside, which it then processes to produce an output that is sold in the market. However, the business model adopted determines the interrelations among these variables and, consequently, the cash flow conversion cycle. If the business is regarded as management's effort to create value by generating cash inflows in excess of cash outflows for the use of the resources employed, the cash conversion cycle pro-

vides an understanding of how the business model works, the risks to which it is exposed and the business's growth prospects.

An example is a company that incurs higher costs to provide better quality services to its customers (= value proposition). We assume also that the value proposition is successful and the company's revenue grows faster than that of its peers, given the same number of new customers acquired, due to greater customer loyalty compared to the competition.

Business model analysis is based on non-financial metrics. In the example of the firm that intends to develop customer loyalty, the key metrics are the customer churn rate, the rate of acquisition of new customers, acquisition cost per customer and retention cost per customer. These metrics explain the company's profit formula as reflected by revenue growth, return on sales and invested capital turnover.

Every business model has its strengths and weaknesses and can be more or less successful. Thus, the business model defines the value proposition of the company and how the company is structured to provide that value proposition to its target market. The success or failure of a business is explained by non-financial metrics and confirmed by financial metrics.

The business valuer must be capable of depicting the business model (i.e. the idea behind the business) and management's execution of that idea through key non-financial metrics, the cash flow conversion cycle and the profit formula. Valuation is all about translating these metrics into enterprise value.

In my experience, business model analysis is the heart of fundamental analysis. If the business valuer does not understand the business model he cannot interpret the company's performances and translate them into value, simply because he cannot appraise its risks and growth potential (business model scalability) of the company to be valued.

Business model analysis does not require sector specialization. In my experience, the greater the exposure of the business valuer to different sectors the greater his ability to grasp the risks related to the introduction of new business models by potential new entrants in the industry or by start-ups capable of combining in different ways competencies and talents already present in the industry.

SG:

Since the contributions of Porter, Rappaport and others emerged in the 1980s, the strategic analysis started to be incorporated in the valuation process. The inter-link between strategy and management practices with finance theory meets two different needs: from one side, the company itself starts to consider the economic value creation for its stakeholders as a prominent target of its own existence, from the other the economic value of invested capital is not

only something to analyse in specific circumstances (IPOs, M&A) or a prerogative of listed firms, but becomes part of the "daily language" in any analysis of corporate performance. That means that in valuing a company the competitive situation, the soundness of the business model, the reliability of the firms' strategy, the risk of its execution and the state of the art of the company's resources (both material and immaterial) are fundamental pillars of a solid process. When approaching a valuation I always start from some simple questions: how does the firm make money? What are the strengths and weaknesses of the strategy? What is its competitive position within the sector? What is the set of resources, tangible and intangible, on which it relies? Understanding the way in which the business produces its economic results is often given for granted, but in my experience the degree of knowledge the valuer shows can be sometimes relatively superficial, and the belief that "if I have a model, I can value everything" is not that uncommon. First of all, I start from the sector analysis, trying to determine its attractiveness: number of competitors and their rivalry, potential new entrants, uniqueness of the products/services sold, pricing power versus clients and suppliers, economies of scale and scope, legal/regulatory framework, growth opportunities and potential to increase penetration. A second necessary step is the focus on what the company does better or worse than competitors and why: is there any competitive advantage on which the current strategy can rely on? Is it the focus on cost or on differentiation? In this phase, focusing on the typical value chain of the firm and the sector in which it operates can be extremely helpful. The third layer of analysis is the resource assessment: does the company own unique resources compared to peers? Are they tangible or intangible? What is their risk of obsolescence? How much capital does it need to protect and renew them? Adding to that a proper focus on the obsolescence of the products and skills compared to the degree of variability of the external and internal factors is usually a strong tool to set-up a coherent risk-adjusted framework from which I build my estimates. The focus on the state of the cycle (early stage-development-maturity-decline) is another powerful lens through which I run the valuation. After the competitive and strategic analysis is done, all the information needs to be linked to the quantitative set-up we use to calculate the economic value. As an example, if the company generates most of its operating return from a high operating margin, it's probable that it relies on some sort of consumer advantage (high costs of switching or searching for substitutes versus the habitual current use), while if most of the return comes from a high turnover it's more likely that we are in a situation of product advantage (privileged access to some inputs or proprietary technology difficult or

expensive to imitate). Another topic that needs to be qualified with the strategic analysis of the business model is typically the CAPEX evolution. All future investments can come from reinvested capital or from new resources (externally financed). If the competitive dynamics of the sector and the current state of company's resources are reasonably similar to the past, looking at a normalized historical level can be a good solution otherwise a different evolution of investment level needs to be considered. All the information we put together with the business model analysis will be used to support the estimates necessary for the valuation model: growth, margins, cash flows, capital needs, risks and sustainability of competitive advantage period.

Valuing a business is not only a financial modelling exercise.

ET:

It is important to engage in discussions with the management as they are at the best position to ascertain if there is any obsolescence of the business model. External research should also be performed to assess if there is any indication of obsolescence. If there is, it should be reflected in the explicit forecast cash flows and explicit forecast period.

Conversely the discount rate determined to discount this set of forecast cash flows must match the riskiness of the forecast cash flows; that is, more uncertain cash flows should be discounted at a higher discount rate, possibly with alpha adjustments.