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DISCUSSION PAPER

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***Goodwill Impairment Testing
in a Time of Economic and Financial Crisis
-Guidance-***

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FOREWORD

In the current economic conditions goodwill impairment testing is paramount.

This paper intends to provide guidance to (internal and external) company valuers on how to test goodwill for impairment in the presence of a large number of indications that this asset might indeed be impaired.

This paper is not an accounting manual but addresses only the valuation approaches designed to estimate recoverable amount in goodwill impairment testing under IAS 36 – Impairment of Assets. Its purpose is not to provide guidance on how to determine the recoverable amount of assets other than goodwill, an activity that is also governed by IAS 36. The paper is not concerned with the issues of disclosure (in relation to any prospective financial information other than that already disclosed) or disclosure of goodwill impairment tests in financial reports.

Under no circumstances should the content hereunder be regarded as a substitute for IAS/IFRSs (particularly IAS 36 – Impairment of Assets). Laws on financial statements and the rules laid down by IAS/IFRSs are adequate for professionals to perform an informed estimate of recoverable amount and impairment tests also in a time of crisis.

The content of this paper is not mandatory in any way. Words and expressions such as “it is appropriate” or “it might be necessary” indicate best practice recommendations to valuers and do not entail the interpretation of IFRSs. The paper refers to matters that are considered foremost in a crisis, laying out a series of logical steps to deal with them and providing some guidance to valuers.

The paper does not cover the valuation criteria that can be used to estimate fair value and/or value in use but focuses on the quality and sustainability of valuation inputs, the consistency between cash flows and discount rates, and on the reasonableness of the measurement of recoverable amount.

The paper was prepared to call valuers’ attention to the entire valuation process undertaken to determine goodwill impairment, to the main valuation issues in a crisis environment as well as to set out guidelines to document the analysis required by IAS 36 in the presence of external indications of impairment.¹

Goodwill impairment tests require that the preparers of the entity’s financial statements, and any external valuer retained to perform them, possess special skills. However, regardless of whether the tests are performed internally or by external experts, the board of directors of the entity, which is responsible for the preparation of the financial statements, is also responsible for the value estimate used to determine the recoverability of goodwill. The recommendations contained in the following notes are designed to ensure that the work of the (internal and external) valuer might be better understood and reviewed by the board of directors and the auditors, in light of external indications of impairment.

This paper intends to provide guidance in addressing the issues that the crisis makes more compelling. Moreover, value estimates always require the use of judgment. The implementation of the recommended guidelines should be considered on the basis of events and circumstances of the specific entity. Responsibility for the selection of the valuation methods that are most appropriate and more in line with the spirit of IAS 36 (Impairment of Assets), and their implementation, rests with the individual valuer.

More generally, this document intends to provide:

- a) Guidance in exercising judgment in the estimation of the recoverable amount of the CGUs or groups of CGUs to which goodwill is allocated in a crisis environment;
- b) Useful best practices for the selection of inputs and for the assessment of the reasonableness of results.

On the other hand, this document does not intend in any way:

- a) to act as an application handbook;

¹ On the need to document this analysis pursuant to IAS 36, three authorities (Bank of Italy/securities regulator Consob/insurance regulator ISVAP) made the following statement in paper no. 4 of 3 March 2010 of the Working group to coordinate the application of IAS/IFRSs: “Another aspect that should be considered is the need for directors to give adequate consideration to the existence of external indications of impairment, such as those by financial markets, among others, including a market capitalization for the company significantly lower than the book value of its equity. In this context, directors should identify the reasons for any difference that might arise between “external” valuations and the results reached by the impairment test. This analysis – required by IAS 36, paragraph 12, sub-paragraph (d) – should be properly documented within the context of this procedure”. (emphasis added)

b) to identify specific methods or solutions to be used or not to be used in every situations, regardless of specific facts and circumstances.

Lastly, it should be noted that this document does not address issues related to going-concern evaluations. The paper rests on the assumption that the reader is familiar with IAS 36 (Impairment of Assets) and IVS 300 (International Valuation Standards: Valuation for Financial Reporting)

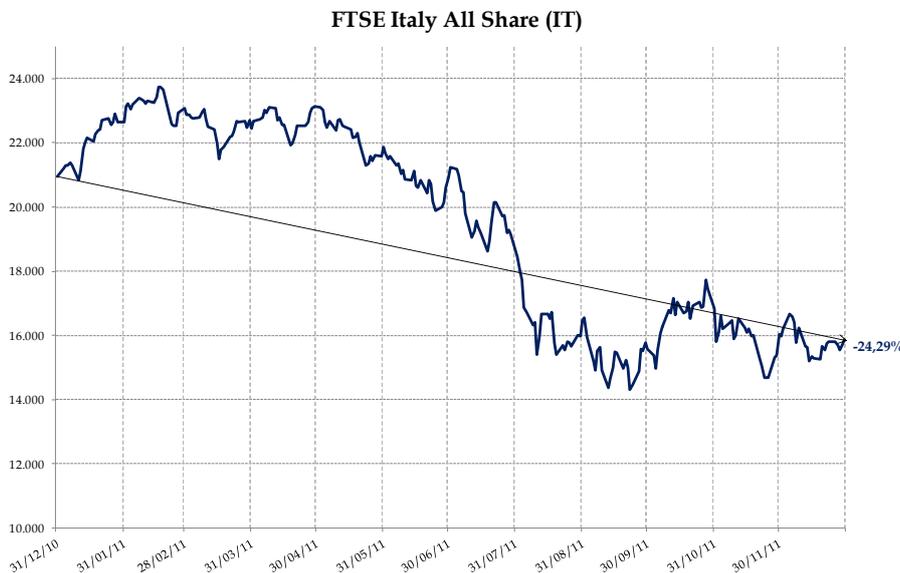
INTRODUCTION

This document analyses the main issues of goodwill impairment testing, which is required by IAS/IFRSs, in a financial-market and economic crisis. Goodwill impairment testing is governed by IAS 36 – Impairment of Assets.

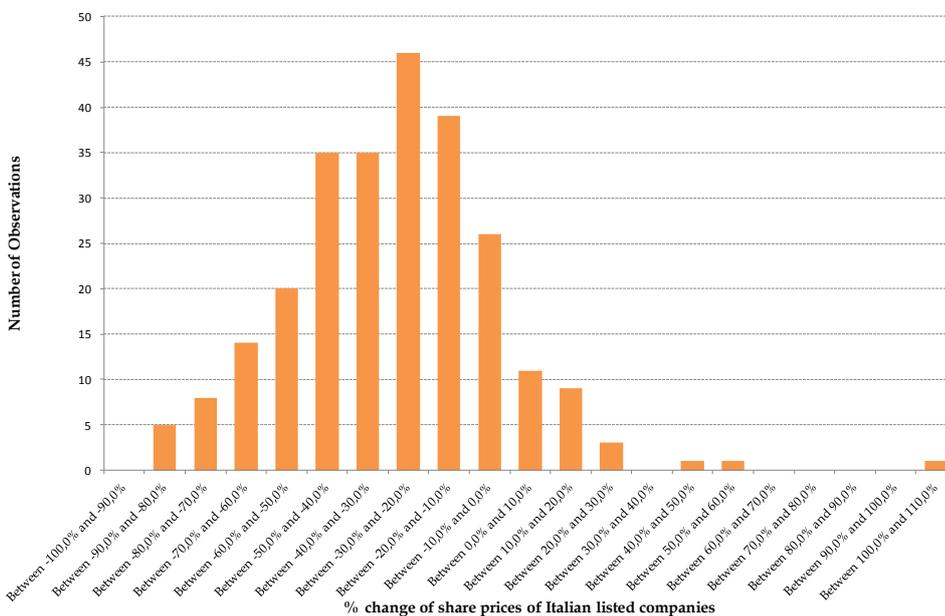
For the purposes of this paper, “crisis environment” means a situation where most companies using IAS/IFRSs are faced with the four main indications of goodwill impairment referred to by IAS 36.12. In particular, these indications include the following:

- The company’s market value has fallen substantially: graph 1 shows the performance of the FTSE Italy All Share index in 2011. It can be seen that, starting in the second half, the index began to drop and by year-end it was down 24% year-on-year. Graph 2 provides a breakdown of Italian listed companies in terms of range of changes in their market capitalization for 2011. Few companies saw their market capitalization increase (27 out of the 255 considered) while 90 companies lost more than 30%.

Graph 1 Performance of the FTSE Italy All Share index in 2011



Graph 2 Distribution of Italian listed companies by range of changes in market prices in 2011



- Significant changes in the economic and market environment in which entities operate: table 1 shows the revised consensus on GDP growth in Italy between April and October 2011. As can be seen, GDP is expected to grow at a more moderate pace in the next five years (2012-2016). Previous estimates hold for the years starting in 2017;

Table 1 Revised expectations of GDP growth rates for Italy between April 2011 and October 2011 (Source: Consensus Economics)

Real GDP Growth		
Period	Date of reference of estimate	
	April 2011	October 2011
2011	1,00%	0,70%
2012	1,10%	0,00%
2013	1,00%	0,40%
2014	1,10%	0,70%
2015	1,30%	1,10%
2016	1,30%	1,10%
2017-2021	1,00%	1,00%

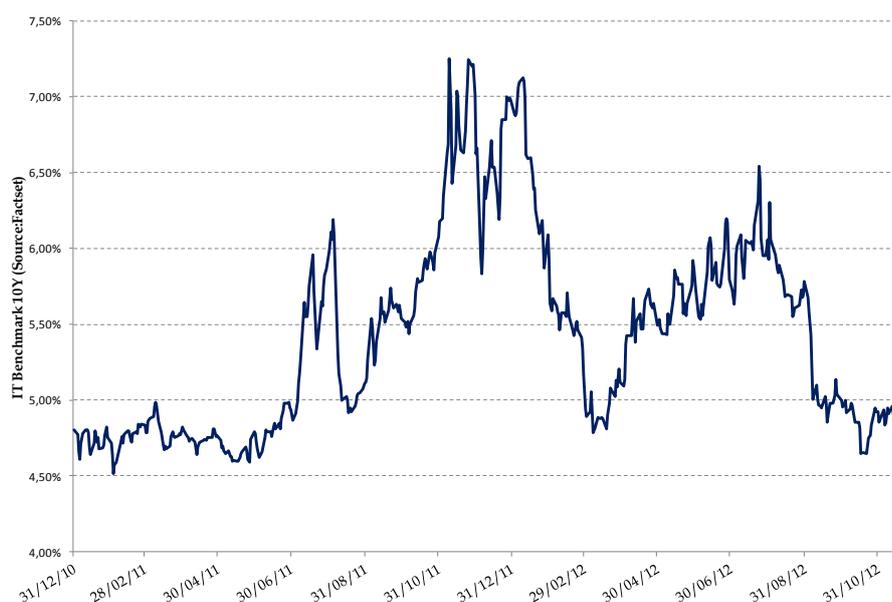
Source: Long Term Forecasts, Consensus Economics

- An increase in market interest rates capable of affecting also the discount rate utilized in calculating an asset's value in use: table 2 shows the yields to maturity of 10-year Italian government bonds (BTPs) at the end of each quarter in 2011. Yields went from 4.81% (at 31 December 2010) to 6.98% (at 31 December 2011). Graph 3 shows the performance of this yield during the year;

Table 2 Yields on Italian government bonds at the end of the last five quarters

	IT Benchmark 10Y (Factset)	BTP 10Y (IT Treasury Department)
31/12/2010	4,81%	4,43%
31/03/2011	4,82%	4,84%
30/06/2011	4,93%	4,73%
30/09/2011	5,54%	5,22%
31/12/2011	6,98%	

Graph 3 Performance of yields on Italian government bonds in 2011



- The carrying amount of the entity's net assets is lower than its market capitalization: graph 4 shows the distribution of listed Italian companies by range of "Price-to-Book" multiples (i.e. market price/book value per share = P/BV). The table supporting the graph shows a median of 0.79x for the multiple. At 31 December 2010 49% of the companies had a P/BV ratio lower than 1; by 31 December 2011 the total rose to 60%. Table 3 shows that presumed goodwill impairment, as measured by the difference between the carrying amount of the companies' net assets and their market capitalization, reached 194 billion euros.

Graph 4 Distribution of Italian listed companies by range of P/BV at 31 December 2010 and 2011

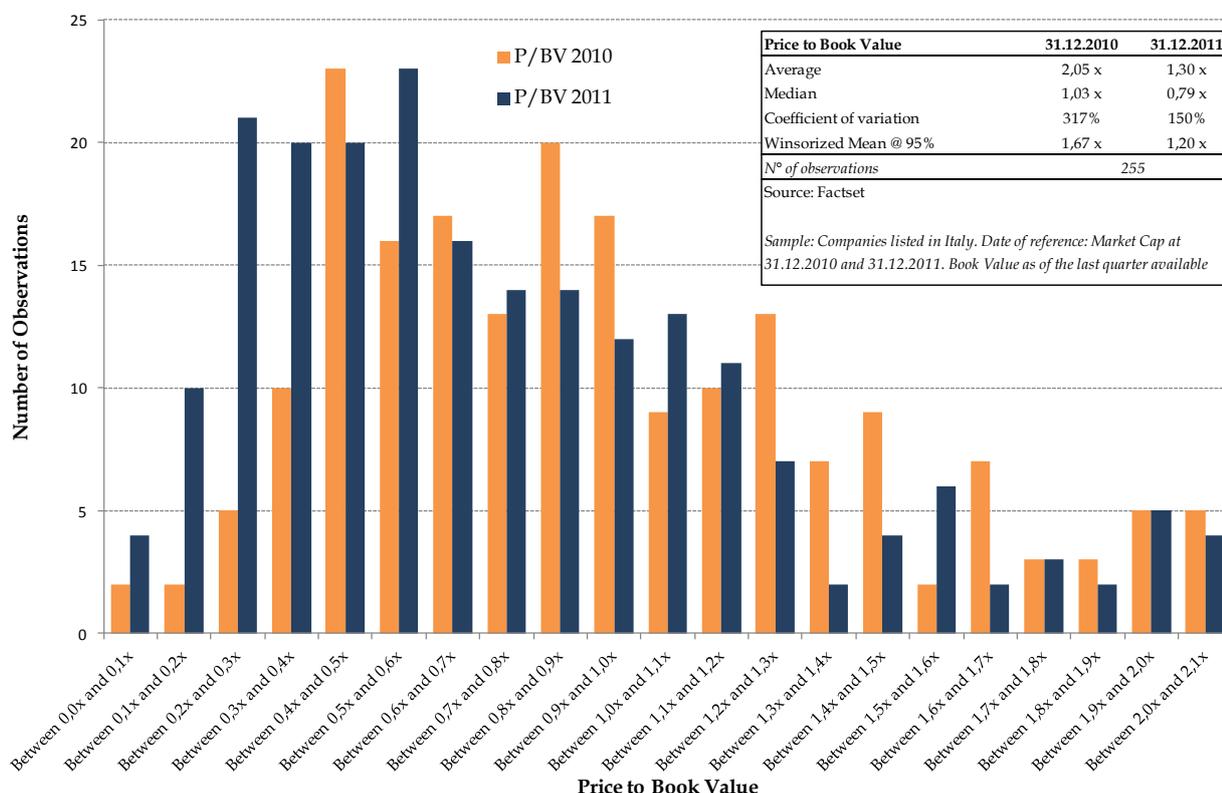


Table 3 Difference in absolute terms between the carrying amount of net assets of Italian listed companies and their market capitalization at 31 December 2010 and 2011

	31.12.2010	31.12.2011
Impairments priced in by market	140,05 bn€	193,98 bn€

Analysis conducted on a sample of listed companies in Italy (on a like-for-like basis); excluding companies with a negative book value.

Reader's Note

This paper consists of an executive summary, with 45 guidelines, and fifteen chapters grouped in three parts.

The fifteen chapters provide the rational grounds for, and explore in greater detail, the guidelines outlined in the executive summary.

Every chapter is divided in three sections:

1. Problems arisen following the crisis;
2. Rational grounds to address the problems;
3. Operational guidance.

Each section contains few paragraphs which cover the most significant issues. Every paragraphs is numbered.

GLOSSARY

CAGR: Compound Annual Growth Rate

CAPM: Capital Asset Pricing Model

CGU: Cash Generating Unit

COE: Cost of Equity

GDP: Gross Domestic Product

ERP: Equity Risk Premium

g: Growth Rate

GL: Guidelines

HBU: Highest and Best Use

IAS/IFRS: International Accounting Standards/International Financial Reporting Standards

IRS: Interest Rate Swap

IVS: International Valuation Standards

KIV: Key Input Variables (or Key Factors)

KOV: Key Output Variables

PFI: Prospective Financial Information

ROE: Return on Equity

ROEC: Return on Employed Capital

ROTE: Return on Tangible Equity

TV: Terminal Value

WACC: Weighted Average Cost of Capital

Executive Summary: 45 GUIDELINES FOR A REASONABLE AND DOCUMENTED ESTIMATE OF RECOVERABLE AMOUNT IN GOODWILL IMPAIRMENT TESTING IN A CRISIS ENVIRONMENT

Indications of impairment.

GL1. When the carrying amount of the entity's net assets is lower than its market capitalization and the entity's market capitalization has fallen substantially from the date of the latest impairment test, the most recent impairment test must contain a detailed analysis of all the events and circumstances that suggest that goodwill is indeed impaired, also from a fundamental point of view, showing how such events and circumstances were factored into the estimate of recoverable amount. This on the basis of the assumption that financial markets may overshoot the amount of the correction but they are right about the direction (in general, greater uncertainty and lack of improvement in performance prospects).

GL2. The reduction of recoverable amount due to the crisis should be attributable to: (a) the effects of the crisis on the company's value drivers, creating a structural gap between current profitability and the level of profitability that can be restored when the economy eventually goes back on track; (b) the time necessary to fill the gap (and the cost of time); (c) the investments necessary to fill the gap; (d) the relevant risks.

Sustainability of plans

GL3. The test of the operational sustainability of the plan in a crisis environment should be conducted on the sustainability of the business model and the competitive advantages. The sustainability of the plan should be evaluated in light of the best available external evidence, in view of industry prospects and the CGU's historical performance.

GL4. The test of financial sustainability of the plan in crisis environment should focus on the expected cash flows from operating activities (including those related to working capital), the expected cash flows from investing activities, as well as the actual possibility to raise debt and equity capital to fund business operations. A plan can seem financially sustainable only because the investments necessary to implement it are underestimated or the cash flows from operating activities are overestimated. Thus, the analysis of the plan's financial sustainability requires in particular the use of judgment on the assumptions underlying revenue growth rates, changes in margins, the development in working capital and expected investments.

Financially unsustainable plans

GL5. When illiquidity prevents otherwise sound plans from being implemented, there is no ground on which to base an estimate of value in use, as according to IAS 36 IN7 "the cash flow projections used to measure value in use to be based on reasonable and supportable assumptions" (emphasis added)

GL6. As the recoverable amount is the greater of value in use and fair value, when the entity cannot structure a financially sustainable plan for the GCU or the groups of GCUs to which goodwill is allocated, it is necessary to refer to fair value. This, however, requires that participants in the market are such as to make the plan sustainable (given an adequate rate of return). Fair value (IFRS 13) is the price that would be collected from the disposal of an asset in an orderly transaction on the measurement date in the main market. Thus, fair value:

- must not reflect: the need to dispose of the asset by the entity that has to carry out the impairment test (unless the CGU is an asset held for sale and, as such, it is not subject to IAS 36);
- while it takes into account the Highest and Best Use (HBU) that a market participant might achieve by utilizing the CGU or group of GCUs. Market participants need not be identified individually, yet they need to represent plausible entities;

GL7. Fair value estimates in these cases can only adopt the point of view of a hypothetical participant in a hypothetical market, thus achieving a high degree of abstraction. The recommended solution, when fair value is estimated with the income approach, involves adjustments to the operational plan prepared by the management by:

- (a) sterilizing the special assumptions² underlying the management's operational plan but that the market would not make because they are excessively ambitious;
- (b) adding the charges that a market participant should incur for the HBU of the GGU;
- (c) introducing all the caveats that illiquidity suggests with respect to the estimates of the entity's cash requirements;
- (d) including the benefits that a market participant might derive from the use of the CGU or group of CGUs together with the other operations.

As cash flow projections so adjusted are marked by a high degree of uncertainty, it is necessary to consider the risk of execution by either reducing the plan's cash flows to reflect expected average cash flows or raising the discount rate by an adequate risk premium.

Treatment of risk (cash flows vs. discount rates)

GL8. It is worthwhile to specify that, in projecting cash flows, consideration should always be given to systematic and specific risk factors. In a crisis environment the execution of the plan can represent an increasingly important element of uncertainty.

To estimate a recoverable amount, specific risks can be factored in by either raising the discount rate, given the increased asymmetry of the distribution of expected results, or lowering projected cash flows. The same principles apply to the treatment of risk of execution, resulting in either a reduction of management's estimates of future cash flows or an increase in the discount rate.

Under IAS 36 this risk can be embodied either in the cash flows or in the discount rate. Five typical cases have been developed, which reflect different treatments of risk.

GL9. Multi-scenario. When use is made of multi-scenario analysis (expected present value technique), different valuation techniques are available. One technique is the so-called Monte Carlo method. Another is analysis related to a limited number of scenarios, which should be preferred all the times. In this case, the most likely scenario (i.e. management's plan) should be supplemented with projections based on alternative scenarios (built on hypothetical assumption). Typically, three scenarios are used:

- a) management's best estimate (the most likely scenario);
- b) a situation of steady state or status quo (with no change compared to the ability to generate profits in the first year of the plan/last historical year);
- c) average scenario, representing conditions aligned to those of other market participants (with margins and growth rates in line with those expected for other competitors and the industry), which is typically referred to as survival scenario.

Obviously, these scenarios are only indicative. In any case, it should be noted that the purpose of multi-scenario analysis is to incorporate the plan's execution risk in average expected cash flows. This requires average expected cash flows lower than those reflected by management's best estimate, a case that materializes only if the alternative scenarios feature expected cash flows lower than those projected by management.

² It is worthy of note that special assumptions are not the specific synergies of an entity (which, as everyone knows, should be excluded from fair value calculation) but the assumptions that a market participant would not make at the valuation date. In particular, paragraph 6 of IVS 300 - Valuation for financial reporting provides that: "It would not normally be appropriate for a valuation prepared for inclusion in a financial statement to be made on the basis of a special assumption"; IVSs, on their part, define special assumption as follows: "**Special assumption** – an assumption that either assumes facts that differ from the actual facts existing at the valuation date or that would not be made by a typical market participant in a transaction on the valuation date".

The discount rate is derived on the basis of CAPM or similar methodologies.

GL10. A single most likely scenario. In the absence of a multi-scenario analysis, when the plan is built on the basis of the most likely scenario but does not exhibit also average expected cash flows (because the alternative scenarios are not symmetrical), it is necessary to incorporate a risk premium in the discount rate to account for the possibility that the plan might not come to fruition (discount rate adjustment technique). The extent of the risk premium should be considered on the basis of specific facts and circumstances and is dependent on the following factors:

- variance between cash flows over the explicit forecast period and comparable figures provided by external sources through:
 - benchmarking (comparison with competitors);
 - equity research reports (on the specific entity and on the industry);
 - industry analyses and forecasts;
- presence of significant and repeated non-systematic variances³ between forecast and actual results in the last 3-5 years;
- extension of the explicit forecast period;
- cash flow growth rate over the explicit forecast period.

The principle to be followed, in raising the discount rate, is to reach the same results that would be obtained by using a multi-scenario analysis based on a more prudent assessment of the reality, compared with the plan, with scenarios centred on the company's current earning power (steady state or status quo) and on normal industry prospects (survival scenario).

GL11. A single scenario validated by equity analysts. When the plan used for the impairment test has already been disclosed, and the analysts' reaction can be assessed by reviewing the adjustments that they make to the forecasts contained therein, if future income streams or cash flows - whichever is applicable for the purposes of the impairment test - fall within the range forecast by the equity analysts who follow the company (both in terms of amount and time horizon) and analyst coverage is ample, the plan can be deemed as representative. In this case the discount rate should be reasonably aligned with that used by analysts (as this discount rate is likely to reflect the risk of a failed plan).

GL12. A single representative scenario. When the plan used for the impairment test has not yet been disclosed (and there is information asymmetry between the firm and the market), or when the entity does not have such ample analyst coverage as to make an external comparison meaningful, a multi-scenario analysis and an upward adjustment to the discount rate can be avoided if it can be shown that the cash flow projections contained in the plan are not only the most likely but also the expected average cash flows (normal or symmetric distribution, with mean = median = mode). Accordingly, it is appropriate to identify both the range of likely variances for the key variables (minimum value and maximum value) for every year of the explicit forecast and the reasons why such variables are more likely to take on the values indicated in the plan. Given that typically the uncertainty increases with the length of the time horizon, the key variables tend to vary more widely as we move further out in time, thus generating "volatility cones". The range defined for the first year should be sufficiently small and broken down by quarter, as a key variable falling outside the range during the year constitutes a trigger event, which signals the need to repeat the impairment test before the scheduled annual date. In this case, the discount rate might be represented by the cost of capital estimated on the basis of CAPM or similar methodologies;

GL13. Single scenario validated by financial creditors. In the case of small capital (and/or small-float), high-leverage companies, external validation by lenders and bondholders takes added significance. In particular, when the plan is used to reschedule debts and/or to renegotiate covenants, and the lenders have accepted to renegotiate, the plan's cash flow projections can be considered representative, on average, and, as such, future cash flows can be discounted to present value by using the cost of capital as calculated on the basis of CAPM and similar methodologies, paying also special attention to the marginal cost of debt (which, in a market context, can be higher than that agreed upon at a given time). Likewise, it may be inappropriate to use normal or target financial structures that do not take into consideration the plan's execution risk.

³ The expression "non-systematic variances" refers to variances attributable to factors specific to the company. One of the causes of such variances might be the special assumptions referred to in footnote 2.

Variance analysis

GL14. Variances between budgets/plans and actuals provide a basis to evaluate the reasonableness of the plan prepared by management. The new plan incorporates all the variances of a non-transitional nature.

GL15. In the presence of significant systematic variances (deriving from unexpected changes in financial-market and macroeconomic variables), it is appropriate to revise the criteria used to calculate the beta coefficient (e.g. by shortening the time horizon of reference: daily returns calculated on the previous year, instead of monthly returns on five-year horizons). As systematic variances increase, so should the beta coefficient.

GL16. In the presence of significant non-systematic variances (due to factors specific to the entity), it is appropriate to check whether equity analysts have better predictive capabilities; alternatively, a multi-scenario analysis might be conducted or the discount rate raised to account for the risk of failure of the plan. In the case of significant non-systematic variances, however, it is better to reduce cash flows (through greater prudence in formulating the plan or by translating the plan's cash flows into average expected cash flows) than to raise the discount rate (considering that it is harder to quantify exactly the risk premium associated with the implementation of the plan).

Expected cash flows

GL17. To estimate value in use it is necessary:

- (a) that considerations on the impairment test be based on updated company plans, taking into account events occurred after they are disclosed;
- (b) that the impairment test be based in general on company plans containing realistic cash flow expectations, reducing any overestimation risk by a management setting overly ambitious objectives. In particular, it is necessary to pay attention to the steps set out to execute the business plan, to analyse the individual actions outlined, their impact on operating performance and financial conditions, and their feasibility on the basis of the available human, organizational, technological resources, among others;
- (c) that expected cash flows be based on assumptions that are both reasonable and supportable, thanks a solid set of forecast data built on analyses conducted internally by the entity and, most of all, on forecasts provided by, and possibly shared among, third parties. In particular, it is necessary to pay attention to the cases where cash flows are projected to grow at rising or constant rates throughout the explicit forecast period, so as to verify the consistency of such scenario with the competitive context in which the company operates;
- (d) not to include, in the expected cash flows used in the impairment test, cash inflows and outflows resulting from any future restructuring or optimization to which the company is not yet committed;
- (e) to check the quality of the company's predictive abilities, in light of its competitive context and the relevant positioning; to this end, the company's track record in this area might be indicative. In particular, a review should focus on the company's history in producing reliable forecasts, calculating any negative non-systematic variance between forecast and actual data in the last 3-5 years. Where these variances are significant, even greater caution should be used in analysing the feasibility of the plan, making the required adjustments to reduce the risk of overestimating value in use.
- (f) To identify the most significant assumptions and draw a distinction between:
 - Significant assumptions: assumptions related to future conditions which are expected to be significantly different from current conditions and which cannot be reasonably pre-defined;
 - Sensitive assumptions: assumptions the slightest change of which can modify substantially the estimate of recoverable amount.

The classification of assumptions is necessary to evaluate:

- (a) the quality of the prediction process (higher for forecasts, lower in the case of projections);
- (b) any discontinuities affecting the prediction process (assumptions that are both significant and sensitive);
- (c) the main sources of risk for the projections.

Professional scepticism about expected cash flows

GL18. The (external or internal) valuer is called upon to:

- a) understand the manner and process for the preparation of plans, as well as the relationships between the forward-looking data used for the impairment test (and approved by senior management) and those used by various company functions for management purposes (e.g. operational and commercial plans, investment plans, management incentives, financing transactions);
- b) analyse the plan's data on the basis of the most recent available internal and external information;
- c) take into account historical metrics and the elements derivable from the analysis of the variances between budget and actual data, with a view to determining, in particular, any structural scenario changes, which cannot be reasonably expected to reverse in the medium term (e.g. the dynamic of the order backlog);
- d) focus the analysis on the assumptions underlying parameters and indicators with a greater impact on the quantitative results of the estimates, including those related to cash flows in the steady state phase to calculate terminal value. The most direct tool to identify these key parameters is sensitivity analysis;
- e) mitigate the risk associated with forecasts based mainly on management's judgment or attestation by seeking further evidence, supported by external and market sources (e.g. media reports, professional databases, data of other companies in the industry, stock analysts' reports, regulators' information and statistics, industry research);
- f) analyse the evidence underlying the plan's assumptions with a holistic approach (and not as a separate occurrence), paying special attention to possible inconsistencies among the various elements;
- g) provide the reasons for adopting a scenario vis-à-vis the main observable alternatives and the resolution of any significant evidence that appears to contradict the chosen scenario

Calculation of the carrying amount

GL19. To make the carrying amount consistent with the recoverable amount it is appropriate:

- (a) to make the necessary adjustments to normalize working capital balances: to estimate correctly medium-term and prospective investments (in the cases where seasonality impacts final balances); to deal with effects related to specific operational processes (e.g. transferring inventories to entities belonging to other CGUs); to address effects related to specific working capital items, e.g. those expected to be converted into cash shortly;
- (b) to identify separately the carrying amounts of assets not used in production or held for sale and check their recoverable amounts separately from assets tested which are being used;

- (c) to consider the impact of disposals or reorganizations when they concern (in addition to individual assets) also groups of assets being used on the allocation of goodwill to the carrying amounts of the residual CGUs. When assets sold (or held for sale) are part of a CGU (or a group of CGUs), inclusive of goodwill, it is necessary to allocate goodwill with a relative-value approach, i.e. in proportion to the overall value of the assets sold or held for sale with respect to the value of the CGU (or group of CGUs) to which such assets belong;
- (d) on complex operations involving a large number of CGUs, or CGUs that make a combined use of assets that span across legal entities, to reconcile the amount of net assets attributed with the total balances of the statement of financial position of reference (consolidated and separate);
- (e) in case of changes related to the assets included in a CGU from one year to the next: to proceed with the analysis considering that the main discriminating factor is in any case the structure and independence of the underlying cash flows.

Goodwill reallocations and restructuring of the CGUs

GL20. Goodwill reallocation takes place, in accordance with IAS 36.87, on the basis of a reorganization of the reporting structure in a way that changes the composition of one or more cash-generating units of the entity. When the reorganization results in the combination of several CGUs, the valuer should pay special attention. In fact, according to IAS 36.87 this reallocation is performed by following a value approach similar to that used when an entity disposes of a cash generating unit. Thus, the valuer should evaluate individually the two or more CGUs that are combined. As reorganizations are often driven by the possibility to achieve significant cost and/or revenue synergies, it might be appropriate to take also these benefits into account. Support to this analysis can also come from:

- (a) the presence of significant external evidence;
- (b) the pervasiveness of the reorganization

For example, an entity restructured by product line can reorganize itself by market, based on models used in the industry. In some cases the reorganization can be limited to few CGUs (as it regards synergies that can be achieved by only two complementary CGUs). Typically, the presence of synergies or benefits is the business rationale for a reorganization.

GL21. Consistency over time of the methodology used to estimate value in use takes on added significance for those CGUs (or for those entities) that in the past had a recoverable amount very close to value in use. In these cases the change in methodology must be warranted by greater valuation accuracy. However, it is appropriate for the valuer to check the result that would have been obtained by using the same method, except for cases where this is no longer feasible (for example the entity does not prepare five-year plans but only three-year plans).

Enterprise value and equity value approaches and lack of liquidity

GL22. Any lack of liquidity caused by the crisis needs to be reflected in the estimate of the recoverable amounts of the CGUs, regardless of the valuation approach adopted (enterprise value or equity value).

GL23. When lack of liquidity is not such as to jeopardize the implementation of plans (i.e. when plans – despite the liquidity shortage – are financially sustainable), such condition is typically reflected in both prospective cash flows and discount rate. This means for instance that:

- (i) in the enterprise value approach, lack of liquidity can result in:
 - (a) an increase in working capital requirements;
 - (b) lower operating cash flows and income;
 - (c) higher cost of debt and cost of equity

- (ii) in the equity value approach, lack of liquidity can result in:
 - (a) a lower income stream;
 - (b) the need to raise capital;
 - (c) higher cost of equity.

Normalized cash flows and growth rate in terminal value

GL24. The expected result to calculate terminal value is not necessarily the income for the last year of the explicit forecast period. In all the cases where the two differ, it is appropriate to normalize income so as to estimate terminal value on the basis of data and inputs derived from the company's history; this should take place over a period long enough to estimate an average normal result, after adjusting for any effects that the crisis might have also accelerated. In principle, terminal value should express the average normal income that the company is capable of generating in the long run while the plan should reflect short- and medium-term results as building blocks to arrive at long-term average normal income.

GL25. The estimates considered in terminal value should be supported, as much as possible, by external sources, such as industry research, stock reports and the like. Any variance between the plan's assumptions and external evidence should be duly analysed and justified by management.

GL26. Margins at steady state should be compared with both margins forecasted over the explicit plan's horizon and historical margins, if they are still considered projectable into the future, to bring to light management's view of the extent of the impact of the crisis or of changes, or any absence thereof. These margins should consider adequately the effects of the crisis, the cyclicity of the business and competitors' moves (such as a decrease in product/service prices). In this context, it might be appropriate to break down the period after the explicit forecast horizon in different sub-periods, to identify the effects of normalizations that do not cease at the end of the explicit period (which normalizations are typically absorbed by terminal value).

GL27. Investments are particularly important. The investments considered in terminal value represent the amount necessary to maintain the ability to generate cash flows projected beyond the explicit forecast horizon, including any portion of investments made with multi-year frequency (e.g. renewal of licenses every 10 years or refurbishment of a plant every 7 years). In general, investments should not be assumed to equal depreciation (steady state scenario), when terminal value is calculated on the basis of a positive growth rate (g). However, there might be events and circumstances for the firm or the industry that justify the assumption that investments equal depreciation also when g is positive (such as when g rises in nominal terms and the prices of capital assets are falling).

GL28. Management should consider whether working capital within the CGU has any meaningful impact on the determination of the normalized income stream or cash flows to be used to calculate terminal value

GL29. The rate of growth " g " should not exceed the long-term average growth rate of output for the industrial sectors of the country or countries in which the CGU operates. Thus, the rate of growth " g " should be constructed in such a way as to reflect any different long-term growth expectations for the countries where the CGU operates. In this sense, sales or margins are weighted for the different sectors/markets in which the CGU (or group of CGUs or the entity) operates.

To this end, it is appropriate to consider whether any elevated pace of growth (such as that for the emerging economies) might be reasonably sustained in the medium-long term or should instead suggest the presence of sub-periods characterized by progressively lower rates of growth.

GL30. Due to the high dependency of the outcome of the impairment test on the estimates incorporated in terminal value, it is appropriate to run a sensitivity analysis that might highlight the impacts of the main inputs used to arrive at terminal value on the estimated recoverable amount. Valuers are well-advised not to perform just a sensitivity analysis to measure the effects of changes in the individual parameters (for example, " g " and the discount rate) but to conduct also a variance analysis correlating cash-flow (and discount-rate) variables, which is more in keeping with a multi-scenario rationale.

GL31. The discount rate used for terminal value is typically the same as that used in the explicit forecast period, unless this discount rate reflects risks specific to the plan that should not be maintained beyond the explicit forecast period, as such risks are already factored into the normalization of the income stream or cash flows used for terminal value. However, this circumstance should be carefully analysed in light of the consistency required between cash flows and discount rates. Management checks whether the risks considered in the discount rate are consistent with the weight of terminal value on the overall recoverable amount. The greater the weight of terminal value the more the results of the valuation exercise depend on events occurring after the explicit forecast horizon.

Cost of capital

GL32. Whatever the choice made in selecting the discount rate (both in terms of estimation methodologies other than CAPM and in terms of inputs), the result should reflect in any case “the return that investors would require if they were to choose an investment that would generate cash flows of amounts, timing and risk profile equivalent to those that the entity expects to derive from the asset” (IAS 36.56), obviously for valuations at the date of reference of the impairment test.

GL33. The crisis environment puts also country risk in sharp relief. Two alternative approaches are suggested which are based on CAPM (as it is the most common valuation technique). IAS 36 permits the use of techniques to estimate the cost of capital other than CAPM. However, it is worthy of note that the suggested solutions are not the only ones that comply with IAS 36.56 and that in certain circumstances it might be necessary to refine the measurement of country risk.

GL34. Calculation of the cost of equity with country risk implicit in the risk-free interest rate. In this case it is necessary to:

(a) set the risk-free interest rate as equal to the yield of long-term government bonds, thus inclusive of country risk. It is not necessary for this interest rate to be a specific data point, but use of averages for periods longer than one year is not advisable, unless there is evidence that investors would assume returns based on discount rates incorporating longer averages. However, IAS 36 does not provide any indication on the period to be used to calculate the discount rate but points to (IAS 36.56) “a rate that reflects current market assessments of the time value of money and the risks specific to the asset is the return that investors would require if they were to choose an investment that would generate cash flows of amounts, timing and risk profile equivalent to those that the entity expects to derive from the asset”;

(b) calculate the equity risk premium in so-called unconditional (normal long-term premium) form - and, as such, without any significant change with respect to the previous impairment test – and the beta coefficient relative to the domestic equity market. In fact, the beta coefficient is a relative risk measure and, with reference to the domestic equity market index, does not capture country risk, which in this case has already been captured by the risk-free interest rate.

GL35. Calculation of the cost of equity with country risk implicit in the equity risk premium. In this case it is necessary to:

(a) use an actual risk-free interest rate. No reference should be made to the yield of the long-term bond of the least risky country in the Eurozone due to flight-to-quality effects. Instead, it is appropriate to refer to the Interest Rate Swap_ IRS (always for long maturities). Also in this case use of averages for periods longer than one year is not recommended.

(b) calculate the equity risk premium in so-called conditional (considering a risk premium higher than that normally required for the long term) and calculate the beta coefficient relative to the European equity market index. If it is related to the European equity index, the beta coefficient captures the country risk associated with the specific share.

GL36. The cost of equity is calculated on the basis of the above methodologies solely by way of example. The calculation is made for a hypothetical entity representing the average firm (beta of 1 relative to the domestic equity market index), considering that, for Italian listed companies, the average beta coefficient relative to the European equity index (Stoxx 600) is 20% higher than that calculated with respect to the domestic equity market index (FTSE Italy All Share). Even though they are reasonable, the measures of the

equity risk premium are only indicative of the minimum level. As can be seen, for the average firm both methodologies lead to the same result:

A) Calculation of the cost of equity with country risk implied in the risk-free interest rate:

Cost of equity = COE = R_f - 10-year Italian government bonds + β relative to Italian equity market x ERP long-term average (unconditional)

R_f = one-year average yield on Italian ten-year government bonds (1 January 2010- 31 December 2011) = 5.3%

β = beta coefficient calculated relatively to the domestic index = 1 (hypothetical)

ERP = normal long-term premium = 5% (hypothetical)

Hence, the cost of equity for a company with a beta equal to 1 is:

Cost of equity = COE = $R_f + \beta \times \text{ERP} = 5.3\% + 1 \times 5\% = 10.3\%$

B) Calculation of the cost of equity with country risk implied in the equity risk premium:

Cost of equity = COE = R_f - 10-year IRS + β relative to Stoxx 600 x ERP considers a spread over normal long-term ERP (conditional)

R_f = one-year average of 10-year IRS (11 January 2010- 31 December 2011) = 3.1%

β = beta coefficient calculated against the European index = 1.2 (hypothetical)

ERP = normal long-term premium = 6% (hypothetical)

Hence, the cost of equity for a company with a beta equal to 1 is:

Cost of equity = COE = $R_f + \beta \times \text{ERP} = 3.1\% + 1.2 \times 6\% = 10.3\%$

Choosing the more appropriate method requires judgment to be founded on specific facts and circumstances.

GL37. To calculate the beta coefficient it might be appropriate, in case of significant systematic variances between budgeted/planned cash flows and actual cash flows, to shorten the estimate period for the beta coefficient – e.g. making reference to the last year – and increase the frequency of returns, by using daily returns instead of monthly or weekly returns. In shortening the period of reference (e.g. one year instead of five) and the frequency of returns (e.g. daily instead of monthly), it should be considered that – as a rule – small caps show lower betas the shorter the period of reference for the returns (daily vs. weekly vs. monthly). Thus, for these shares, it is appropriate to calculate the so-called sum beta⁴ or to make equivalent adjustments.

GL38. The beta coefficient can be derived by calculating the levered beta from the average unlevered beta of a group of comparable companies, on the basis of a target financial structure. In these cases, it should be considered whether the beta coefficient so calculated fits the specific company, in light of any (negative) variance of a systematic nature between budget/plan and actual figures for the entity. With this in mind, it is always a good idea to compare the effective beta derived from the comparables and the beta coefficient of the specific company.

GL39. Typically, the cost of debt is calculated as the sum of two components: the reference rate and the credit spread. Also in this case, averages should not exceed one year. In estimating credit spreads it is necessary to determine the marginal cost of debt for a target financial structure.

⁴ The sum beta is the beta coefficient obtained by adding two components: the traditional beta coefficient and the coefficient derived by correlating the share return with the market return of the immediately preceding period. Thus, if the traditional beta is calculated on daily movements (=covariance between daily share movements and daily market movements), the sum beta considers also the covariance between daily share movements and market movements for the preceding day).

GL40. The cost of debt for a target financial structure may be calculated by reference to the cost of debt by investment grade notch. However, it is worthy of note that the cost of debt for entities with ratings better than the countries in which they operate is lower than that of government debt of similar maturity. In these cases it is necessary to achieve consistency between the calculation of the cost of debt and that of the cost of equity. In particular, use should be made of the calculation of the cost of equity with country risk implied in the risk-free interest rate. The example below refers to a large cap corporate with an AA rating.

A) Calculation of the cost of equity with country risk implied in the risk-free interest rate:

Cost of equity = COE = R_f - 10-year AA corporate bonds + β relative to the Italian equity market x ERP long-term average (unconditional)

R_f = one-year average yield on AA corporate bonds (1 January 2010- 31 December 2011) = 5.0% (lower than the average yield of 10-year government bonds for the same period = 5.3%)

β = beta coefficient calculated relatively to the domestic index = 1 (hypothetical)

ERP = normal long-term premium = 5% (hypothetical)

Hence, the cost of equity for a company with a beta equal to 1 is:

Cost of equity = COE = R_f + β x ERP = 5.0% + 1 x 5% = 10.0%

instead of the 10.3% that would have been obtained by using the average yield of 10-year Italian government bonds (5.3%).

GL41. In the case of highly leveraged companies (“speculative grade”) it is appropriate to refer to the marginal cost of debt of the specific entity. To determine whether such cost is reasonable, reference should be made to yields on high-yield bonds. In these cases it is appropriate not to place undue emphasis on the benefits of debt tax shields.

Check of overall reasonableness of results (also in the presence of a full allocation of costs and corporate assets to the CGUs)

GL42. When the market-to-book ratio of the entity that has to perform the impairment test is less than one it is appropriate – to support the reasonableness of the final estimate – to value the entity as a whole (also in the presence of a full cost allocation to the CGUs), comparing the recoverable amount of the net assets (assets – liabilities) of the entity (calculated also as a sum of the parts, if necessary) with the carrying amount of the entity’s net assets. It might also be appropriate to calculate the recoverable amount of net assets per share so as to compare it with the market price and identify the reasons (fundamental or otherwise) for any difference.

GL43. It should be stressed from the start that the valuation of the entity as a whole is just an indication of reasonableness of the valuations for the individual CGUs or groups of CGUs. In no way does the valuation of the entity as a whole change the results of the impairment tests performed for the individual CGUs or groups of CGUs. Obviously, when the reasonableness check suggests that the value of the entity as a whole is not very reasonable, it might be appropriate for the practitioner to check whether the estimated recoverable amounts of the individual CGUs have been calculated by following closely IAS 36 (e.g. regarding the application of the arm’s length principle to transfer prices between CGUs).

In any case, there might be good reasons to consider correct the estimated recoverable amounts of the individual CGUs, even though the value of the entity as a whole may not be reasonable (including, but not limited to, the case where only some of the CGUs have been allocated goodwill and are tested for impairment), Valuation of the entity as a whole may take place:

(a) with the sum-of-the-parts method: when at least one of the following conditions is met:

- (i) the businesses differ in terms of risk profile and/or growth prospects and/or reference currency;

- (ii) the recoverability test for the CGUs (or groups of CGUs) to which goodwill is allocated in the first-level impairment test used fair value for some CGUs and value in use for others.

(b) by considering the entity as a single cash-generating unit: valuation in this case should take into account:

- (i) in the discount rate: the weighted-average discount rate of the business units considered, except for the cases where the cost of capital can be more easily estimated for the entire unit or where there is external evidence about such cost (e.g. in the case of listed companies with ample coverage, the discount rate can be derived from the valuations performed by the analysts, even when these do not use the sum-of-the-parts method);
- (ii) in the growth rate used to calculate terminal value: the weighted-average growth rate of the different business units and of the reinvestments (or capex) necessary to achieve growth consistent with the assumptions made in the first-level impairment test.

GL44. Valuation of the entity as a whole can take place by measuring equity value even when enterprise value has been adopted for first-level impairment testing. Also in this case consistency is required in terms of: cash flows, discount rates and growth rates in terminal value. When the focus is on the equity value of the entity as a whole, the valuation exercise can be conducted from the standpoint of the entire group instead of the single entity. In these cases, only group cash flows are considered, and compared with net assets attributable to the parent company's shareholders (thus excluding non-controlling interests).

GL45. For a better understanding of the result of the impairment test, it is worthwhile to calculate the per-share amount of net assets attributable to the parent company's shareholders, highlighting the causes of any difference with the market price of the share and the extent of the unexplained difference in terms of both amount per share and discount to the recoverable amount of the entity's total assets and net assets.

Part One - THE PROBLEMS WITH THE ESTIMATION OF RECOVERABLE AMOUNT IN A CRISIS ENVIRONMENT

1. Impairment indications.

1.1. Problems arisen following the crisis

1.1.1. The main external indication⁵ of goodwill impairment is no doubt a market capitalization lower than the carrying amount of the entity's net assets. Also the time elapsed since market capitalization first fell below the carrying amount of net assets is an indication of impairment. A long negative difference between market capitalization and carrying amount of net assets is an even stronger indication of impairment. However, it should be noted that according to IAS 36.10 "Irrespective of whether there is any indication of impairment, an entity shall also (...): (...) (b) test goodwill acquired in a business combination for impairment annually in accordance with paragraphs 80–99 [of IAS 36, author's note]".

1.1.2. Market capitalization reflects the market price of non-controlling interests and, as such, it might be affected by factors that do not have necessarily a bearing on the recoverable amount of goodwill, owing to two main reasons: a) market price refers to non-controlling interests while recoverable amount refers to net assets from the viewpoint of their controlling shareholder (thus, the unit of valuation is different); b) market value and value in use are different types of value (as the standard of value is technically different);

1.1.3. Recoverable amount – for the purposes of the impairment test – is the greater of fair value and value in use. On the other hand, even though market capitalization refers to different units of valuation and types of value, it does not mean that it is irrelevant. In fact, it should be stressed that: (a) fair value estimated in relation to goodwill impairment testing and market capitalization may be reconciled⁶, within limits; (b) also value in use and fair value⁷ can be reconciled.

1.1.4. It is a well-known fact that financial markets can overreact to a crisis, anticipating its effects. However, given a sufficiently long time horizon (e.g. 12 months), markets are hardly wrong in indicating, even in such contexts, the change in direction of the value of publicly traded companies. Markets are often wrong about the extent but not about the direction of the change in value. That is why in a crisis a decrease in market capitalization (including payments received for newly issued shares and excluding any dividend distributions occurred in the meantime) attests to the reasonableness of the results of an impairment test. For example, assuming that the last time a company tested its goodwill for impairment was 31 December 2010, that at that

⁵ Impairment indicators or indications refer to those "indications [described in paragraphs 12-14 of IAS 36 –or others, considering that IAS regards any such indications as a minimum] that an impairment loss may have occurred", IAS 36.8

⁶ For example, U.S. best practices require reconciliation between the fair value of equity estimated for impairment testing purposes and market capitalization. The difference might be explained with the control premium. Even though on one side it is accepted that there is a residual part that cannot be explained with the control premium, on the other the greater the unexplained difference the greater the level of documentation necessary to support the estimated fair value for the purposes of the impairment test.

Working Draft of AICPA Accounting and Valuation Guide:

"3.95. It is important to consider all facts and circumstances when completing the comparison to market capitalization. The task force believes that as the difference between the fair value conclusion and market capitalization widens (that is, the implied control premium increases), the amount of evidence supporting the implied control premium would also increase. When considering the reasonableness of the implied control premium, it may be helpful to consider observed transaction data and any additional external evidence supporting the conclusion. Additionally, it may be necessary to assess the most likely universe of buyers in the market place, the level of activity in the markets, and the existence of at least two bidders to support a control premium".

"3.97. The task force believes that because observed trading prices represent minority ownership and the basis for testing under FASB ASC 350 is that of a control buyer, there is a need to consider minority ownership as well as other factors including:

- Control synergies (...)
- Asymmetric data (...)
- Tax Consequences (...)
- Entity specific versus market participant structures (...)
- Excessive short positions against the stock (...)
- Controlling or large block interests (...)".

⁷ The main differences between fair value – as calculated with the income approach (see IFRS 13. B10 and B11) – and value in use are determined by the fact that:

(a) fair value reflects the viewpoint of market participants, thereby excluding the synergies that the particular controlling entity achieves by way of a unique fit (so-called entity-specific synergies);
(b) value in use is calculated by excluding the effects of restructuring plans that have not yet been undertaken by the entity and/or future investment plans, as it is a snapshot of value "as is".

date its market capitalization was 100 million euros, that in 2011 it issued new shares for 20 million euros and distributed dividends for 2 million euros, that at 31 December 2011 (reference date for the most recent impairment test) its market capitalization was 70 million euros, the market indicates that the company experienced value destruction as follows:

a) in absolute terms: $70 - (100 + 20 - 2) = 48$ million euros;

b) in relative terms: $[70 / (100 + 20 - 2)] - 1 = 40.7\%$

1.1.5. So far three different indications of impairment have been described which can be defined as market based: (a) the negative difference between market capitalization and the carrying amount of net assets; (b) the time elapsed since market capitalization fell below equity value; (c) change in market capitalization since the latest impairment test. However, it might be appropriate to consider a range of more "fundamental" facts and circumstances. Below, a non-exhaustive list is provided which might be considered to that effect⁸, in addition to the factors outlined by IAS 36.12⁹ and IAS 36.14¹⁰ which, as already noted, set only minimum standards:

- Macroeconomic conditions:
 - deterioration in general economic conditions;
 - limitations on accessing capital;
 - fluctuations in foreign exchange rates;
 - other developments in equity and credit markets.
- Industry and market considerations:
 - deterioration in the environment in which an entity operates;
 - an increased competitive environment;

⁸ The list was derived and adapted from the content of ASU (Accounting Standard Update) No. 2011-08 of FASB Testing goodwill for impairment, Paragraph 350-20-35-3C. Other indications might involve: a) with respect to the industry: a decrease in demand, number of customers and average expenditure per customer; b) with respect to financial conditions: deteriorated access to credit for the specific firm; c) with respect to events concerning the specific firm: reduction in customer base and/or average revenue per customer.

⁹ IAS 36.12 "In assessing whether there is any indication that an asset may be impaired, an entity shall consider, as a minimum, the following indications:

External sources of information:

- (a) during the period, an asset's market value has declined significantly more than would be expected as a result of the passage of time or normal use.
- (b) significant changes with an adverse effect on the entity have taken place during the period, or will take place in the near future, in the technological, market, economic or legal environment in which the entity operates or in the market to which an asset is dedicated.
- (c) market interest rates or other market rates of return on investments have increased during the period, and those increases are likely to affect the discount rate used in calculating an asset's value in use and decrease the asset's recoverable amount materially.
- (d) the carrying amount of the net assets of the entity is more than its market capitalisation.

Internal sources information

- (e) evidence is available of obsolescence or physical damage of an asset.
- (f) significant changes with an adverse effect on the entity have taken place during the period, or are expected to take place in the near future, in the extent to which, or manner in which, an asset is used or is expected to be used. These changes include the asset becoming idle, plans to discontinue or restructure the operation to which an asset belongs, plans to dispose of an asset before the previously expected date, and reassessing the useful life of an asset as finite rather than indefinite.
- (g) evidence is available from internal reporting that indicates that the economic performance of an asset is, or will be, worse than expected."

¹⁰ IAS 36.14. "Evidence from internal reporting that indicates that an asset may be impaired includes the existence of:

- (a) cash flows for acquiring the asset, or subsequent cash needs for operating or maintaining it, that are significantly higher than those originally budgeted;
- (b) actual net cash flows or operating profit or loss flowing from the asset that are significantly worse than those budgeted;
- (c) a significant decline in budgeted net cash flows or operating profit, or a significant increase in budgeted loss, flowing from the asset; or
- (d) operating losses or net cash outflows for the asset, when current period amounts are aggregated with budgeted amounts for the future."

- a decline in market-dependent multiples or metrics, in both absolute terms and relative to peers (domestic and foreign);
- a change in the market for an entity's products or services;
- regulatory or political developments;
- Cost factors that have a negative effect on earnings:
 - increases in raw materials and other costs capable of generating negative impacts on cash flows;
- Decline in overall financial results:
 - Negative or decreasing cash flows;
 - A reduction in revenues and earnings from current and/or forecast levels, including in previous periods;
- Entity-specific events: such as,
 - changes in management or key personnel;
 - changes in strategy or customers;
 - risk that company might no longer be viable going concern;
- Events affecting the cash-generating unit:
 - impairment of property, plant and equipment unit and other tangible assets
 - expectation of selling or disposing all, or a portion, of a cash-generating unit;
 - need to test for recoverability a significant asset within a cash-generating unit.

1.1.6. None of the elements described in the previous paragraphs provide conclusive evidence of an impairment loss. However, under IAS 36.8¹¹, in the presence of one of the indications of impairment described in paragraphs 12-14, the entity is required to make a formal estimate of recoverable amount.

1. 2. Rational grounds to address the problems.

1.2.1. It is necessary to be aware that lack of recognition of an impairment loss is tantamount to considering that:

- a) the recoverable amount of the CGU or CGUs tested for impairment is not lower than the relevant carrying amount (first-level impairment test¹²);
- b) the recoverable amount of the entity's net assets is not lower than their carrying amount (second-level impairment test¹³).

1.2.2. The Board of Directors/Supervisory Board of the entity that carries out the impairment test should be able to evaluate the reasonableness of the test's result in light of the indications of impairment described above (and other facts and circumstances considered meaningful). In particular, the Board should be able to understand why, in the presence of the company's reduced market capitalization, the recoverable amount exceeds the carrying amount of the asset in question.

1.2.3. To form an opinion, the Board should analyse the reasonableness of the result of the impairment test, in light of all the facts and circumstances brought to the fore by management. Accordingly, it might be worthwhile to calculate the recoverable amount of net assets of the entity as a whole on a per-share basis. Management should assess the reasonableness of the difference between recoverable amount per share

¹¹ According to IAS 36: "An asset is impaired when its carrying amount exceeds its recoverable amount. Paragraphs 12–14 describe some indications that an impairment loss may have occurred. If any of those indications is present, an entity is required to make a formal estimate of recoverable amount. Except as described in paragraph 10, this Standard does not require an entity to make a formal estimate of recoverable amount if no indication of an impairment loss is present."

¹² First-level impairment test refers to the estimate of the recoverable amount of the CGU or CGUs to which goodwill is allocated.

¹³ Second-level impairment test refers to the estimate of recoverable amount of the entire entity.

and market price, in view of all the factors that might explain such difference. Such factors would include, but not be limited to:

- a. different approaches to value (value from the viewpoint of control in case of impairment test, sale price for the non-controlling shareholder in case of market value);
- b. depressing effects on price of investors' "concerns" over new share issues;
- c. different inputs used in terms of income streams, discount rates, any key variable (particularly in the presence of information asymmetry between investors and management);
- d. different financial structure (for non-controlling shareholders the financial structure that counts is the actual one; from the standpoint of the controlling shareholders, the target financial structure);
- e. different time horizons (for the investment and, as such, of the explicit forecast);
- f. different valuation methods (multiples vs. DCF);
- g. different approaches to the valuation of liabilities (book value vs. market value);
- h. different approaches to the valuation of non-controlling interests;
- i. group structure (shares of parent companies of diversified groups and/or groups that leverage their equity more intensively feature higher discounts to NAV in their market prices);
- j. the liquidity of the share.

Given that in a time of crisis financial markets are likely to overreact, it might be natural to have a difference between market capitalization and recoverable amount unexplained by the above factors. This difference, which is reflected in a discount to the recoverable amount of net assets (NAV – Net Asset Value) and/or the recoverable amount of gross assets (GAV – Gross Amount Value), should be deemed acceptable to the Board that approves the impairment test, on the basis of the supporting documentation produced during the testing process, in light of fundamental facts and circumstances. Generally speaking, however, the greater the unexplained difference, the more substantial the documentation necessary to prove that it is more likely than not that the recoverable amount of the asset in question exceeds its carrying amount.

1.3. Operating guidance.

1.3.1. When market capitalization is lower than the carrying amount of net assets of the entity that conducts the impairment test, it is appropriate to perform a second-level impairment test (also in the presence of a complete allocation of costs to the CGUs), comparing the recoverable amount of net assets (= assets – liabilities) of the entity (obtained also via the sum-of-the-parts method, if necessary) with the carrying amount of such net assets.¹⁴

1.3.2. For a better understanding of the result of the impairment test, it is worthwhile to calculate the per-share amount of the recoverable amount, highlighting the causes of any difference with the market price of the share and the extent of the unexplained difference in terms of both amount per share and discount to the recoverable amount of the entity's gross assets and net assets.

1.3.3. When market capitalization is lower than the entity's net assets and, in the meantime, market capitalization has fallen further since the date of the latest impairment test, the most recent impairment test should contain all the facts and circumstances, of a fundamental nature as well, constituting an indication of impairment, showing how account of these was taken in estimating recoverable amount.

1.3.4. The impairment test should contain also a comparative analysis of the changes occurred since the latest impairment test in terms of: (a) recoverable amount; (b) carrying amount of reference; (c) market capitalization. A comparison is particularly useful in all those cases where market capitalization reflects

¹⁴ Reference is made to the notional carrying amount of net assets obtained by grossing up goodwill with the portion attributable to non-controlling interests.

impairment losses charged directly to equity (as is the case with losses of assets designated at fair value through equity). The table below provides an example:

	Impairment test at		
	31 December 2010	31 December 2011	Change
A) Market capitalization	100	70	
B) New share issues for consideration (in 2011)	20		
C) Dividends distributed in 2011	2		
D) Change in market capitalization, net ($A_{2011}-B+C-A_{2010}$)			-48
E) Non-controlling interests - NCI (estimated)	10	9	
F) Recoverable amount of net assets (parent company's shareholders + NCI)	130	110	
G) Recoverable amount of net assets (attributable to parent company's shareholders) (F – E)	120	101	
H) Change in recoverable amount of net assets (attributable to parent company's shareholders) ($G_{2011} - G_{2010}$)			-19
I) Carrying amount of net assets (attributable to parent company's shareholders)	95	108	
L) Impairment loss (attributable to parent company's shareholders)		-7	
M) Change in carrying amount of net assets (attributable to parent company's shareholders)			+13
N) Notional carrying amount of NCI (with grossing up of goodwill)	8	7	
O) Notional carrying amount of net assets (parent company's shareholders and NCI)	103	115	
P) Change in total carrying amount of net assets			+ 12
Q) Total impairment loss (= F – O)		-5	

2. Treatment of risk (cash flows vs. discount rates)

2.1. Problems arisen following the crisis

2.1.1. Recoverable amount is the greater of fair value and value in use.¹⁵ Measurement of fair value (when the income approach is used) and value in use based on the company's prospective financial information (hereinafter PFI). According to IAS 36.33, value in use should be based on cash flow projections resting on reasonable and supportable assumptions that represent management's best estimate of the range of

¹⁵ Fair value estimates are covered by IFRS 13 - Fair value measurement.

economic conditions. Still according to IAS 36.33, greater weight is given to external evidence.¹⁶ This means that PFI should be founded on a reasonably objective basis. Reasonably objective basis refers to forecasts that consider all meaningful Key Factors (hereinafter referred to also as Key Input Variables = KIV) to make reasonably objective assumptions.

2.1.2. International valuation standards (IVS 2011¹⁷) provide that it is not appropriate for a valuation prepared for inclusion in a financial statement to be made on the basis of “special assumptions” (i.e. assumptions that would not be made by typical market participants). In particular, the assumptions should be similar to those that any expert (of the business of the specific entity and the industry in which it operates) could make.¹⁸

2.1.3. Both the AICPA “Prospective Financial Information” guide and ISAE 3400 “The examination of Prospective Financial Information” draw a distinction between forecasts and projections. Forecasts concern the best estimate (outcome considered more likely) made by management. Projections represent, instead, expected outcomes upon occurrence of hypothetical assumptions¹⁹ (related to alternative scenarios with respect to the most likely outcome²⁰). According to IAS 36.A2, whichever approach an entity adopts (whether individual- or multi-scenario), the result of the impairment test should reflect the expected present value of the future cash flows, i.e. the weighted average of all possible outcomes.

2.1.4. Appendix A to IAS 36 stresses that there may be a valuation risk in the expected cash flows and/or the discount rate. In fact, according to paragraph A3 interest rates used to discount cash flows should reflect assumptions that are consistent with those inherent in the estimated cash flows. Otherwise, the effect of some assumptions will be double-counted or ignored.

2.1.5. PFI may be in the form of financial statements, either complete (income statement, statement of financial position and cash flow statement) or incomplete, depending on whether the CGUs in question are stand-alone legal entities or business units. It is always appropriate to indicate the form of PFI utilized and the inherent limits.

2.1.6. Based on the impairment test, PFI is prepared in good faith (i.e. in a supportable, accurate and diligent manner) utilizing qualified professionals. The concept of “good faith”:

- includes any and all diligent efforts to develop appropriate and independent assumptions with respect to the results of the impairment test²¹;

¹⁶ External evidence should not just include observable market prices (market-based view) but more general evidence concerning revenues, market share, revenue growth, trends in purchasing costs and selling prices and the general economic context. This information can be derived from broker and industry reports, presentations of competitors on industry outlook, market intelligence analyses and analyses by financial institutions on industry and other economic trends.

¹⁷ IVS 300 Valuations for Financial Reporting: paragraph 6 “It would not normally be appropriate for a valuation prepared for inclusion in a financial statement to be made on the basis of a special assumption”. And the definitions (IVS Definitions) clarify that: “Special assumption – an assumption that either assumes facts that differ from the actual facts existing at the valuation date or that would not be made by a typical market participant in a transaction on the valuation date”. Obviously when the type of value adopted in value in use, the approach of the market participant does not refer to a transaction involving transfer of control of the entity, but to the assumptions that a market participant would make from the standpoint of the current controlling shareholder.

¹⁸ IAS 36.BC60 clarifies moreover that: “(...) the Board observed that the measure of value in use adopted in IAS 36 is not a pure ‘entity-specific’ measure. Although the cash flows used as the starting point in the calculation represent entity-specific cash flows (i.e. they are derived from the most recent financial budgets/forecasts approved by management and represent management’s best estimate of the set of economic conditions that will exist over the remaining useful life of the asset), their present value is required to be determined using a discount rate that reflects current market assessments of the time value of money and the risks specific to the asset (...)”. IAS 36.BC61 adds: “Therefore, the Board concluded that: (i) it is consistent with the measure of value in use adopted in IAS 36 to include in the list of elements the other factors that market participants would reflect in pricing the future cash flows the entity expects to derive from the asset. (...)”.

¹⁹ AICPA Prospective Financial Information Guide (prepared by the Financial Forecast and Projections Task Force/ Updated as of march 1, 2009): “3.08. Hypothetical Assumption: An assumption used in a financial projection or in a partial presentation of projected information to present a condition or course of action that is not necessarily expected to occur, but is consistent with the purpose of the presentation”.

²⁰ ISAE 3400.8 considers also the case where prospective information derives from a combination of best estimates and hypothetical assumptions. These are still projections and not forecasts. In fact: “3400.8: A “projection” means prospective financial information prepared on the basis of: (a) Hypothetical assumptions about future events and management actions which are not necessarily expected to take place, such as when some entities are in start-up phase or are considering a major change in the nature of operations; or (b) A mixture of best-estimate and hypothetical assumption. (...)”.

²¹ This means that PFI should be based on the best information that might be reasonably available, whether from internal or external sources. This information includes also historical information. Considering that the collection of meaningful information might involve

- excludes any unwarranted optimism or pessimism²²;
- excludes any unjustified extension or reduction of the forecast horizon;
- requires such a level of detail as to guarantee adequately reliable PFI.

In any case, responsibility for the PFI –including the identification of the Key Factors and the disclosure of the assumptions – rests always with management.

2.1.7. PFI is based on Key Factors that need to be identified. The AICPA guide on “Prospective Financial Information” defines the Key Factors as the indicators that are expected to affect to a significant extent the entity’s expected results. These indicators are closely related to the entity’s operations and regard situations that affect, among others, sales, production, operating costs, borrowings etc. The Key Factors are the foundation of PFI and represent the basis upon which to develop reasonable assumptions.²³ For example, for a credit institutions a Key Factor is the interbank interest rate, therefore PFI should include forecasts for the interbank interest rates for the successive years and the source of this information.

2.1.8. Assumptions are the essence of the development of forecasts and the main determinants of the outcome of impairment tests. Assumptions must be:

- complete (i.e. specific assumptions need to be made for all the Key Factors);
- reasonable and adequately supported, so as to provide an objective view. In particular, there must be logical relationships between assumptions and underlying facts and circumstances (assumptions must be consistent with past experience and current conditions). In the presence of conditions conducive to the development of assumptions about future circumstances significantly different from the current ones, it is necessary to show the reasons for such change (in these cases assumptions take on the modifier and become significant assumptions);
- identified on the basis of their impact on prospective results. More impactful assumptions (so-called sensitive assumptions) must be supported by a broader database and give greater weight to external information²⁴, where available;
- assessed for mutual consistency. Special attention should be paid to the portfolio effects. For instance, a slowdown of the economy can result in a drop in sales, but also in greater competitive pressure on prices;
- reasonable in the final results of the forecast, considering the context in which such forecast is made.

There are cases where:

- within a pre-defined and limited range of values that the Key Factors can take, all assumptions are equally likely to apply;
- not all assumptions can be documented and supported with adequate external information.

In both these cases, it is necessary to consider whether small changes in the assumptions might result in significant changes in the outcome of the impairment test. If this is the case, it is necessary to provide evidence in the results of the impairment test, illustrating the reasons for the choices made.

2.1.9. A regular comparison between actual results and forecasts and the relevant variance analysis constitutes a basis to improve the forecasting process.

2.1.10. As a crisis sets in, the plan used to support the previous impairment test will hardly reflect management’s best estimate of future economic conditions for business operations (= estimate most likely to

some costs, the wording “reasonably available information” does not refer to any information, regardless of the costs incurred to retrieve it, but it does emphasize that the need to incur costs is not, in and of itself, a good reason for not obtaining necessary information. Judgment is required from time to time, depending on the specific facts and circumstances.

²² This does not mean that in a multi-scenario analysis, where different alternatives are considered, account should not be taken of more or less favourable scenarios than that considered most likely.

²³ In the text assumptions is synonymous with hypotheses.

²⁴ The distinction between sensitive assumption and significant assumption is drawn by the AICPA guide to Prospective Financial Information. In particular, according to paragraph 8.23: sensitive assumptions are “assumptions about which there is a reasonable possibility of the occurrence of a variation that may significantly affect the prospective results” while significant assumptions are “assumptions about anticipated conditions that are expected to be significantly different from current conditions, which are not otherwise reasonably apparent”.

occur, IAS 36.A9). On the other hand, it is more frequent the case where the previous plan is only a projection of a result related to possible future market conditions, but not the most likely scenario.

2.1.11. Also in the cases where the previous plan can be considered management's best estimate, the crisis context will inevitably translate into a wider spectrum of possible alternative results and in a lower probability of occurrence for the most likely scenario.

2.1.12. In a crisis environment also the plan's reliable forecast horizon can become significantly shorter. Besides, a shorter forecast horizon can be in contrast to the need to estimate the recoverable amount of the investment that generated the goodwill to be tested, when such investment requires long payback periods. In cases such as these it is necessary to adopt a time horizon adequate to the estimation of recoverable amount, within the limits set by IAS 36.35.²⁵

2.1.13. In principle, in a crisis environment:

- the risk of execution of the plan increases;
- there is an increase in discrepancies between the cash flows for the last year of the explicit forecast and the expected normal cash flows used to estimate terminal value (hence the need to introduce "significant assumptions" in the normalization of the expected cash flows to be projected in perpetuity);
- there is an increase in assumptions with a strong impact on the final result which require reduced documentation support ("sensitive assumptions").

A consequence of this is the reduction of the objective bases of PFI.

2.2. Rational grounds to address the problems

2.2.1. In a crisis environment the risk of execution of company plans is higher than is usually the case in "normal" contexts. It follows that it is necessary to take such risks into account in estimating recoverable amount. IAS 36 itself, in paragraphs A17²⁶ and A18²⁷, indicates that estimating the cost of capital by using valuation techniques, such as CAPM, is only a starting point. Such cost is then adjusted to reflect the way the market would assess the specific risks associated with the estimated cash flows and to exclude risks that are not pertinent to the estimated cash flows or for which the estimated cash flows have already been adjusted.

2.2.2. The risk of execution of the company's plan may be treated on the basis of five alternative methodologies:

- (i) Combine management's plan (management's best estimates) with projections made under alternative (bearish) scenarios and use the average expected result and the estimated cost

²⁵ "Detailed, explicit and reliable financial budgets/forecasts of future cash flows for periods longer than five years are generally not available. For this reason, management's estimates of future cash flows are based on the most recent budgets/forecasts for a maximum of five years. Management may use cash flow projections based on financial budgets/forecasts over a period longer than five years if it is confident that these projections are reliable and it can demonstrate its ability, based on past experience, to forecast cash flows accurately over that longer period". IAS 36.35.

²⁶ A17: As a starting point in making such an estimate [of the discount rate, editor's note], the entity might take into account the following rates:

- (a) the entity's weighted average cost of capital determined using techniques such as the Capital Asset Pricing Model;
- (b) the entity's incremental borrowing rate; and
- (c) other market borrowing rates". (emphasis added).

²⁷ A18: However, these rates must be adjusted:

- (a) to reflect the way that the market would assess the specific risks associated with the asset's estimated cash flows; and
- (b) to exclude risks that are not relevant to the asset's estimated cash flows or for which the estimated cash flows have been adjusted.

Consideration should be given to risks such as country risk, currency risk and price risk

- of capital on the basis of CAPM or similar methodologies to calculate recoverable amount (expected present value technique²⁸;
- (ii) Use management's plan (single scenario) and raise the discount rate (over and above the cost of capital estimated on the basis of CAPM or similar methodologies) to account for the risk of execution of company plans (discount rate adjustment technique²⁹) whenever management's plans represent the most likely scenario but cannot be said to represent the average of expected future scenarios;
 - (iii) Use management's plan (management's best estimates) and a discount rate not lower than that used by equity analysts when:
 - a. the projected figures (income stream or cash flows) fall within the range forecast by the equity analysts that follows the share;
 - b. analyst coverage is ample;
 - c. the plan's horizon is the same as that used by analysts (not longer than three years);
 - d. the plan has already been disclosed (i.e. there is no information asymmetry between analysts and investors).
 - (iv) Use management's plan (management's best estimates) and the cost of capital derived from CAPM or similar methodologies whenever it can be shown that, in addition to being the most likely, the plan's projected figures are one and the same with expected average numbers. This analysis needs to show that any positive or negative variances of key variables are symmetric and equally likely to occur. If this analysis is adequately supported (also on the basis of external evidence), and suggests that the plan actually reflects expected average results, there is no need to add a premium to the discount rate for the risk of execution of the company's plan;
 - (v) Use the plan validated by external lenders (e.g. banks in relation to debt restructuring plans), after adjusting the cost of capital for the post-rescheduling cost of credit (a cost that for the specific entity can be even lower than that before the restructuring, but which is typically higher than that of investment grade entities, which are characterized by normal or target financial structures).

2.2.3. In a crisis environment, income for the last year of the explicit forecast may not reflect the normal average expected income to be projected in perpetuity. Thus, it is possible to perform an autonomous estimate of normal average long-term income. In this case, it might be appropriate to determine the normal long-term ROEC³⁰ spread³¹ (or the ROTE³² spread³³ in the case of equity valuations), considering any competitive advantage of the firm at the end of the explicit forecast period. Obviously, the ROEC or ROTE spread is derived from past experience and/or from changes in the firm's intangibles (for example, even though the firm might have had a high ROEC spread in the past, a decline in its customer base in 2011 might be indicative of a competitive advantage that is not sustainable after the explicit forecast period).

2.2.4. The growth rate to be applied to income to arrive at terminal value (g) depends on the time horizon of the explicit forecast and the compound annual growth rate (CAGR³⁴) Table 5 shows an example of calculation of recoverable amount on the basis of three different time horizons (five, three and one year) using the same annual compound growth rate over the explicit period (12%), the same cost of capital (10%) and the same growth rate applied to terminal value (2%). The table shows that over a longer horizon (due to the fact that CAGR in the explicit forecast horizon is faster than the growth rate g applied to terminal value) the recoverable amount is higher (171.71 over a five-year horizon, 147.93 over a three-year horizon and 125.00 over a one-year horizon).

²⁸ "3.23. (...) this technique uses as a starting point, a set of cash flows that represents the probability-weighted average of all possible future cash flows (that is the expected cash flows). The resulting estimate is identical to expected value, which, in statistical terms, is the weighted average of a discrete random variable's possible values with the respective probabilities as the weights. Because all possible cash flows are probability-weighted, the resulting expected cash flow is not conditional upon the occurrence of any specified event (unlike the cash flows used in the discount rate adjustment technique)" Working Draft of AICPA Accounting and valuation Guide, Testing Goodwill for Impairment, page 49.

²⁹ "3.22. Under the discount rate adjustment technique (...) risk is assigned to, or incorporated into, the discount rate. It is common practice to use management's best estimate or otherwise determine an estimate of an entity's most likely cash flows for discrete periods and then to discount those amounts to present value using a risk-adjusted rate of return, or discount rate. The greater the perceived risk associated with the cash flows, the higher the discount rate applied to them, and the lower their present value". Working Draft of AICPA Accounting and Valuation Guide, Testing Goodwill for Impairment, page 48.

³⁰ ROEC = return on employed capital = $EBIT \times (1 - \text{tax}) / (\text{Invested capital} - \text{Goodwill}) = \text{Nopat} / \text{Employed capital}$

³¹ ROEC spread = ROEC – WAAC (where WAAC = weighted average cost of capital)

³² ROTE = Return on Tangible Equity = $\text{Net Income} / (\text{Book value} - \text{Intangible assets})$

³³ ROTE spread = ROTE – COE (dove COE= cost of equity)

³⁴ CAGR % = Compound Annual Growth Rate a.k.a. Cumulative Average Growth Rate = $(\text{Final income} / \text{Initial income})^{1/n} - 1$.

Table 5. Same cost of capital, same growth rate g, different explicit forecast horizon with CAGR > g

Five-year forecast

Years	0	1	2	3	4	5	TV income stream	CAGR
Plan's income		10.00	11.20	12.54	14.05	15.74		12%
G	2%						16.05	
Cost of capital	10%							
TV							200.62	
Discount factor		0.9091	0.8264	0.7513	0.6830	0.6209		
Present value of income		9.091	9.256	9.424	9.596	9.770		
Sum of present value of income stream	47.14							
TV present value	124.57							
Recoverable amount	171.71							

Three-year forecast

Years	0	1	2	3	TV income stream	CAGR
Plan's income		10.00	11.20	12.54		12%
G	2%				12.79	
Cost of capital	10%					
TV					159.94	
Discount factor		0.9091	0.8264	0.7513		
Present value of income		9.091	9.256	9.424		
Sum of present value of income stream	27.77					
TV present value	120.16					
Recoverable amount	147.93					

One-year forecast

Years	0	1	TV income stream
Plan's income		10.00	
G	2%		10.20
Cost of capital	10%		
TV			127.50
Discount factor		0.9091	
Present value of income		9.09	
Sum of present value of income stream	9.09		
TV present value	115.91		
Recoverable amount	125.00		

Table 6 solves the valuation formulas of table 5 by changing the growth rate "g" and holding constant the result (the value obtained by adopting a five-year explicit forecast horizon is 171.71 and g is equal to 2%). The table shows that, as the explicit forecast horizon becomes shorter, g yields the same result by rising to 3.2% (in the case of a three-year horizon) and 4.2% (in the case of a one-year horizon). Obviously, also in this case the effect is determined by the positive difference between the CAGR for the explicit forecast

horizon and the growth rate in terminal value. If CAGR were equal to g the effect would be cancelled (see table 7).

Table 6. Changing growth rate g to obtain the same recoverable amount for the three different explicit forecast horizons with $CAGR > g$

Five-year forecast

Years	0	1	2	3	4	5	TV income stream	CAGR
Plan's income		10.00	11.20	12.54	14.05	15.74		12%
g	2%						16.05	
Cost of capital	10%							
TV							200.62	
Discount factor		0.9091	0.8264	0.7513	0.6830	0.6209		
Present value of income		9.091	9.256	9.424	9.596	9.770		
Sum of present value of income stream	47.14							
TV present value	124.57							
Recoverable amount	171.71							

Three-year forecast

Years	0	1	2	3	TV income stream	CAGR
Plan's income		10.00	11.20	12.54		12%
g	3.24%				12.95	
Cost of capital	10%					
TV					191.58	
Discount factor		0.9091	0.8264	0.7513		
Present value of income		9.091	9.256	9.424		
Sum of present value of income stream	27.77					
TV present value	143.94					
Recoverable amount	171.71					

One-year forecast

Years	0	1	TV income stream
Plan's income		10.00	
g	4.2%		10.42
Cost of capital	10%		
TV			178.88
Discount factor		0.9091	
Present value of income		9.09	
Sum of present value of income stream	9.09		
TV present value	162.62		
Recoverable amount	171.71		

Table 7. Same cost of capital, same growth rate g, different explicit forecast horizon with CAGR = g

Five-year forecast

Years	0	1	2	3	4	5	TV income stream	CAGR
Plan's income		10.00	10.20	10.40	10.61	10.82		2%
g	2%						11.04	
Cost of capital	10%							
TV							138.81	
Discount factor		0.9091	0.8264	0.7513	0.6830	0.6209		
Present value of income		9.091	8.430	7.817	7.248	6.721		
Sum of present value of income stream	39.31							
TV present value	85.69							
Recoverable amount	125.00							

Three-year forecast

Years	0	1	2	3	TV income stream	CAGR
Plan's income		10.00	10.20	10.40		2%
g	2%				10.61	
Cost of capital	10%					
TV					132.65	
Discount factor		0.9091	0.8264	0.7513		
Present value of income		9.091	8.430	7.817		
Sum of present value of income stream	25.34					
TV present value	99.66					
Recoverable amount	125.00					

One-year forecast

Years	0	1	TV income stream
Plan's income		10.00	
g	2%		10.20
Cost of capital	10%		
TV			127.50
Discount factor		0.9091	
Present value of income		9.09	
Sum of present value of income stream	9.09		
TV present value	115.91		
Recoverable amount	125.00		

2.2.5. Terminal value can be estimated also by using the so-called "exit multiple method", which involves the application of a historical average multiple observed in the market in the past (e.g. average for the cycle), or an implicit multiple in current transactions (provided that it is a forward-looking multiple³⁵).

³⁵ A forward-looking multiple is a ratio where the numerator is the forward price (or enterprise value) and the denominator is the metric of reference (e.g. net income or EBITDA). For example

2.3. Operational guidance

2.3.1. When use is made of a multi-scenario (expected present value technique), several valuation techniques are available. One is the so-called Monte Carlo method, which requires:

- a) the identification of the plan's key variables;
- b) the various distributions of such variables (to this end, it is worthwhile to consider also the values included in the analysts' forecasts);
- c) a correlation among the values taken on by the variables over time;
- d) a sufficiently large number of trials (e.g. 10,000).

Typically, this method requires a software application that calculates the average expected recoverable amount. The limit of the Monte Carlo method is the high sensitivity of its results to changes in inputs that are not adequately supported by documentary evidence. Thus, the adoption of this method is subject to the availability of significant external evidence about the distribution of key variables. However, the Monte Carlo method should return results lower than those that would be obtained by discounting management's best estimates at a rate derived from CAPM or similar valuation techniques.

Another valuation technique is the analysis of a limited number of scenarios. In this case, it is management that combines the forecasts under the most likely scenario (the actual plan) with projections made under alternative scenarios (built around hypothetical assumptions). The most common approach calls for the use of at least three scenarios³⁶:

- a) management's best estimate (most likely scenario);
- b) a steady state or status quo situation (with no change in earning power compared with the first/last year of the historical plan);
- c) an average scenario marked by conditions aligned with those of the other market participants (with margins in line with those expected for the competition and the industry), which is typically referred to as survival scenario.

Naturally, these scenarios are only indicative. At any rate, it should be noted that a multi-scenario analysis is designed to incorporate the plan's execution risk in the average expected results. This requires the calculation of average expected results lower than those obtained with management's best estimate, a circumstance that comes to pass only if the alternative scenarios are characterized by lower expected results than those forecast by management.

By using both the Monte Carlo method and multi-scenario analysis the discount rate is equal to the discount rate derived on the basis of CAPM³⁷ or similar methodologies

-
- The P/E multiple for year 5 is equal to: P_5/E_5 where $P_5 = P_0 \times (1 + \text{cost of equity})^5 - \sum \text{dividends}_t \times (1 + \text{cost of equity})^5$ and $E_5 =$ expected net income for year 5;
 - The EV/EBITDA multiple for year 5 is equal to: $EV_5/EBITDA_5$ dove $EV_5 = EV_0 \times (1 + \text{wacc})^5 - \sum \text{unlevered free cash flows}_t \times (1 + \text{WACC})^5$ and $EBITDA_5 =$ expected EBITDA for year 5.

³⁶Management spends a great deal of time in developing the most likely financial forecasts. Unfortunately, in some cases they look like a hockey stick, where revenues, margins and net incomes all increase rapidly, which is implausible. As previously mentioned, we strongly recommend that valuers work with management to generate at least three future scenarios. This is of particular importance in business combinations where synergies are involved. [The synergies incorporated in the purchase price in a business combination are always part of goodwill. Author's note] The scenarios should reflect management's most likely expectations (success scenario), some lesser level of synergies, in line with those achievable by market participants (survival scenario) and, reflecting the poor performance of most mergers, a continuation of the past year (status-quo scenario). In general, everything will not go as management expects; some middle position is probable. In other words, the valuers must distinguish between the possible and various degrees of probable. Certain practical problems apply to such a three scenario method. One is to determine which assumptions are appropriate for each scenario, another is to ensure that only probable situations are covered and the third is to confirm that all results are plausible". James Catty, Chair of IACVA_International Association of Consultants, Valuers and Analysts, It's hard to predict, especially about the future, International Conference IACVA, 2008

³⁷ This choice is consistent with above-quoted IAS 36.A18 (b).

2.3.2. In the absence of multi-scenario analyses, when the plan does not project average expected results, even though it is prepared under the most likely scenario, it is necessary to factor a risk premium into the discount rate for the plan's execution risk (discount rate adjustment technique). The extent of the risk premium should be determined on the basis of specific facts and circumstances and in view of the following:

- growth rate of the expected results in the explicit forecast period;
- extension of explicit forecast period;
- presence of significant and repeated negative non-systematic³⁸ variances between forecasts and actuals for the last 3-5 years;
- variance between the results projected throughout the explicit forecast period and metrics derived from external sources via:
 - benchmarking (comparison with competitors);
 - equity reports (on the specific entity and the industry);
 - sector analyses and forecasts.

The principle to be followed in revising to the upside the discount rate is that the objective is to arrive at the same result that would be obtained by using a multi-scenario analysis with alternative scenarios more conservative than that of the plan, based on both the firm's current earning power (steady state and status quo) and the normal industry outlook (survival scenario).³⁹

2.3.3. When the plan used for the impairment test has already been disclosed, and the reaction of the analysts to the plan can be ascertained by the way they recast the projections contained therein, if the results (income stream or cash flows) used for the impairment test fall within the range forecast by the equity analyst that follow the share, and coverage is ample, the plan can be considered representative, on average. In these cases, the discount rate to be utilized should be reasonably aligned with that used by the analysts (as this discount rate –presumably – already embodies the plan's execution risk⁴⁰).

2.3.4. When the plan used for the impairment test has not yet been disclosed (and there is information asymmetry between the company and investors), or when analyst coverage of the entity is not ample enough to make for a meaningful comparison with external forecasts, it is not necessary to perform a multi-scenario analysis and to revise the discount rate to the upside if it can be shown that the plan's projections reflect not only the most likely outcome but also average expected results (normal or symmetric distribution, mean = median = mode). To this end, it is appropriate to identify the ranges within which the values of the key variables are likely to vary (minimum value and maximum value) for every year of the explicit forecast period and identify the reasons why the values taken on by such variables in the plan are to be regarded as the most likely. Given that typically the uncertainty increases with the length of the time horizon, the key variables tend to vary more widely as we move further out in time, thus generating "volatility cones". The range defined for the first year should be sufficiently small and broken down by quarter, as a key variable falling outside the range during the year constitutes a trigger event, which signals the need to repeat the impairment test before the scheduled annual date. In this case, the discount rate might be represented by the cost of capital estimated on the basis of CAPM⁴¹ or similar methodologies;

2.3.5. In the case of small-capitalization (and/or small-float), high-leverage companies, external validation of the plan by lenders and bondholders takes added significance. In particular, when the plan is used to reschedule maturities and/or to renegotiate covenants, and the lenders have accepted to renegotiate, the plan's projections can be considered representative, on average, and, as such, projected figures can be discounted to present value by using the cost of capital as calculated on the basis of CAPM or similar methodologies. In this case, attention is called to the fact that a higher marginal cost of debt is also an indication of the plan's execution risk and that account of such higher cost should be taken in calculating the cost of capital.⁴²

³⁸ "Non-systematic variances" refer to variances attributable to entity-specific factors, including, among others, the use of "special assumptions" as defined in footnote 2.

³⁹ This choice is consistent with above-quoted IAS 36.A18 (a).

⁴⁰ This choice is consistent with above-quoted IAS 36.A17 (c) and IAS IAS.A18 (a).

⁴¹ This choice is consistent with above-quoted IAS 36.A18 (b).

⁴² This choice is consistent with above-quoted IAS 36.A17 (b).

2.3.6. For firms operating in industries which are cyclical or exposed to macro-financial variables, or for which the last year of the explicit forecast horizon does not constitute a reliable base to estimate terminal value, the result (income or cash flows) to be projected in perpetuity can differ from that of the last year of the forecast horizon. It may be an average expected result for the cycle or, vice versa, a result reconstructed on the basis of the elasticity of the result to macro-financial variables or even a result estimated on the basis of fundamental analysis conducted to identify the competitive advantage of the specific company. The principle to be followed in building the income stream or cash flows to arrive at terminal value involves in any case the projection of a result not greater than that which the company has been able to generate in the past, unless there have been disruptive factors capable of strengthening or reducing the company's competitive advantage. Typically, historical analysis should span over a period twice as long as that of the detailed forecast.⁴³ For instance, in the presence of a five-year forecast, the income stream or cash flows to be projected in perpetuity to estimate terminal value should be calculated by starting from the company's historical performance over the previous 10 years, as adjusted to the upside or downside to reflect the accumulation or shedding of intangible assets capable of boosting or undermining the company's excess earning power. Obviously, this is advisable in the absence of facts and circumstances that make reference to such a long historical horizon meaningless.⁴⁴

2.3.6. If use is made of an exit multiple to estimate terminal value, it is necessary to assess the reasonableness of the multiple applied. Accordingly, it is a good idea to extract the growth rate implied in the multiple. If the goal is to calculate enterprise value, the formula to extract the perpetual growth rate (g) implied in the multiple is as follows⁴⁵:

$$g = (TV \times WACC - UFCF) / (TV + UFCF)$$

Where:

TV = terminal value

WACC = weighted average cost of capital

UFCF = unlevered free cash flows = Nopat x (1 - reinvestment rate) = EBIT x (1 - Tax rate) x (1 - reinvestment rate).

In the case of early-stage companies or companies operating in fast-growing sectors, a fading period could be used before extracting the perpetual growth rate implied in terminal value.⁴⁶

3. Nature of variances

3.1. Problems arisen following the crisis

3.1.1. IAS 36.34 provides that "Management assesses the reasonableness of the assumptions on which its current cash flow projections are based by examining the causes of differences between past cash flow projections and actual cash flows. Management shall ensure that the assumptions on which its current cash flow projections are based are consistent with past actual outcomes, provided the effects of subsequent

⁴³ The Uses and abuses of management projection, Business Valuation Resource, December 4, 2008, Teleconference Handbook, Page 42: "Stuart Weiss: The first step in producing a forecast or a projection is to look at the past. It is a good idea to look at twice as many years in the past as you are projecting in the future"

⁴⁴ An effective simile is utilized in The Uses and abuses of management projection, Business Valuation Resource, December 4, 2008, Teleconference Handbook, slide 9 - Base the Future on the Past: "It is necessary to avoid the temptation to treat past experience like a drunkard who uses a lamp post for support rather than illumination".

⁴⁵ "3.28. If a terminal value is estimated using an exit multiple method, the best practice for determining whether the terminal value is reasonable is to calculate the implied growth inherent in the selected exit multiple. For mature companies, the following long-term growth in perpetuity formula could be used:

$$g = (TVr - CF) / (TV + CF)$$

where:

TV = terminal value

CF = cash flow in the last year of the discrete period

r = WACC

g = Long-term growth rate". Working Draft of AICPA Accounting and Valuation Guide. Testing Goodwill for impairment.

⁴⁶ "3.29. For early stage companies, alternative approaches, for example, using the fading growth method in combination with the long-term cost of capital may be appropriate". Working Draft of AICPA Accounting and Valuation Guide. Testing Goodwill for impairment

events or circumstances that did not exist when those actual cash flows were generated make this appropriate”⁴⁷.

3.1.2. In the context of a largely unexpected crisis, variances between budgets and actuals can be significant. Variance analysis is useful to evaluate the reasonableness of company forecasts and projections. Accordingly, it is appropriate to distinguish between systematic (or non-diversifiable) and non-systematic (or diversifiable) variances. Systematic variances are caused by the impact of unexpected occurrences on the market as a whole. These might include, among others, lower revenues due to a drop in domestic demand and GDP, for a manufacturing firm, and lower revenues due to worse-than-expected changes in macro-financial variables, for a bank. Systematic variances are always due to differences between actual macroeconomic or macro-financial data and the assumptions underlying the budget/plan. The greater the firm’s dependency on these variables for its performance the greater the variance resulting from changes in said variables. Non-systematic (or diversifiable) variances are not attributable to macroeconomic or macro-financial variables and typically result from the difference between total variance and systematic variance.

3.1.3. Systematic risk, which is the difference between budget and actual data, is typically captured by the discount rate. For instance, when estimation techniques such as CAPM are used, systematic risk is measured by the beta coefficient. Systematic variance analysis reveals whether the beta coefficient is correct. For instance, in the presence of particularly large systematic variances and beta coefficients of less than one, it is appropriate to check whether the technique used to estimate beta is appropriate.

3.1.4. Non-systematic risk is not captured by the discount rate calculated with market-based techniques, such as CAPM. Significant negative non-systematic variances between budget and actuals are indicative of a greater execution risk for the plan. This entails:

- (a) a revised, more conservative plan;
- (b) the need to normalize the plan’s income stream or cash flows through a multi-scenario analysis or to increase the discount rate or to check the analysts’ consensus.

In principle, the greater the non-systematic variance the lower the predictability of the business.

3.1.5. Given the proper conditions, a variance analysis should not be limited to the budget but should consider also previous plans. Also with respect to plans, it would be more appropriate to distinguish systematic effects from non-systematic effects. In particular, this analysis brings to light the positive and negative non-systematic variances occurring over time. When variances are only negative, absent any explanatory facts and circumstances, an execution risk might be presumed to exist in management’s plans. The relative extent of the variances give an idea of the quantity of such risk.

3.1.6. In the absence of adequate equity-analyst coverage, it might be a good idea to check whether the analysts’ consensus (at the date of the budget or the plan) was more successful at predicting management’s actual results. If the number of analysts is sufficiently large, consensus forecasts (i.e. the median of all the analysts’ forecast) provide a better estimate than even the best informed of investors.⁴⁸

3.2. Rational grounds to address the problems

3.2.1. IAS 36.A1⁴⁹ provides that to calculate the present value of expected future cash flows account should be taken of expectations about possible variations in the amount or timing of those cash flows. It also provides that such variations should be considered in expected cash flows as well as in the discount rate.

⁴⁷ Basis for Conclusion, IAS 36, para.BC65: “(...) the Board decided (...) to include in paragraph 34 of the Standard guidance clarifying that management:

- (a) should assess the reasonableness of the assumptions on which its current cash flow projections are based by examining the causes of differences between past cash flow projections and actual cash flows; and
- (b) should ensure that the assumptions on which its current cash flow projections are based are consistent with past actual outcomes, provided the effects of subsequent events or circumstances that did not exist when those actual cash flows were generated make this appropriate.

⁴⁸ Michael Mauboussin, Explaining the wisdom of crowds, Legg Mason, March 20, 2007. Downloadable at:

http://www.adamdell.com/media/file/original/33_ExplainingWisdom.pdf.

⁴⁹ IAS 36.A1 (b)

3.2.2. Variance analysis should identify systematic variances first. It might be worthwhile to identify to types of correlation between company results (e.g. in terms of ROEC or ROTE) and macro-financial or macroeconomic variables:

- (a) by using historical data (e.g. quarterly);
- (b) by using the plan's prospective amounts.

Based on the two series of data, performances can be correlated to macro variables. This makes it possible to ascertain the performance that would have been predicted at the date of preparation of the previous budget/plan if the macro variable under analysis had been assumed to reach the actual level that would eventually be achieved.

3.2.3. As the systematic variance is identified, it is appropriate to estimate the non-systematic variance as the difference between the effective variance and systematic variance. A systematic variance, as determined on the basis of the above correlations, greater than the effective variance suggests that the entity has partially offset the systematic variance by acting on specific company (i.e. non-systematic) variables. The following is an example:

A) Operating income as per 2011 budget (based on 1% GDP growth for 2011)	100
B) Actual 2011 operating income	70
C) Absolute variance between actual and budget	-30
D) Effective GDP growth rate in 2011	0.7%
E) Budget operating income based on historical correlation between revenues and GDP	60
F) Systematic variance (= E - A)	-40
G) Non-systematic variance (= C - F)	+ 10

3.2.4. A significant systematic variance requires a review to determine whether the company's beta coefficient is correct. Typically, significant systematic variances go hand in hand with an increase of beta coefficients calculated over shorter time horizons. For example:

Beta coefficient calculated on monthly returns over the past 5 years (60 observations)	1.10 (R ² = 30%)
Beta coefficient calculated on weekly returns over the past 3 years (156 observations)	1.08 (R ² = 33%)
Beta coefficient calculated on daily returns over the past year (250 observations)	1.35 (R ² = 30%)

Even though the R² of the beta coefficient calculated on the weekly returns for the past three years is slightly higher, in the presence of significant systematic variances between budget and actuals it might be appropriate in this specific case to use the beta coefficient calculated on the basis of the daily returns.

3.2.5. Non-systematic positive variances, with respect to the previous year's budget, and positive or negative variances, with respect to the previous plan(s), suggest that management is using average future cash flows in its plans.

In the absence of facts and circumstances that indicate that this correlation no longer holds for the new budget/plan, the projected cash flows can be assumed to be as representative, on average.

3.2.6. In the presence of variances between actuals and analysts' consensus forecasts (made at the date of the previous budget) less pronounced than variances between actuals and budget, more weight should be given to analysts' consensus forecasts.

3.3. Operational guidance

3.3.1. Variances between budget/plans and actuals provide a basis to value the reasonableness of management's plan. The new plan incorporates all permanent variances.

3.3.2. Negative systematic variances and positive non-systematic variances with budget and negative and positive non-systematic variances with management's plan suggest that no adjustments to the beta coefficient and to the plan's cash flows are necessary for the purposes of the impairment test.

3.3.3. Significant negative systematic variances indicate that it is appropriate to revise the criteria adopted to estimate the beta coefficient (e.g. by shortening the time horizon of reference: daily returns calculated over last year, instead of monthly returns calculated on five-year time horizons).

3.3.4. Significant negative non-systematic variances indicate that it is appropriate to check whether equity analysts have better predictive capabilities (if the company has ample coverage) or to carry out a multi-scenario analysis or to raise the discount rate to reflect the plan's execution risk.⁵⁰

4. Historical performance and significant variables

4.1. Problems arisen following the crisis

4.1.1. In a crisis environment historical performance can be a less reliable basis to judge the reasonableness of a plan. In fact, financial and economic crises constitute a disruptive factor that makes it harder to predict companies' prospective performance.

4.1.2. One of the main features of a crisis is the simultaneous materialization of negative effects on several fronts: greater negative variances between budget and actuals; difficulty in forecasting beyond the short term; increase in risk premium required by investors; reduced growth prospects beyond the short term. Uncertainty reflects on the inputs of models based on expected cash flows, which need to be adjusted to incorporate the greater risk that the crisis entails. Adjustments can result in: (a) plans informed by greater conservatism; (2) a shorter forecast horizon; (3) an increase in risk premiums; (4) a reduction of the rate of profit growth beyond the forecast horizon.

4.1.3. In this context it is easy to make double-counting errors, where the setting of overly restrictive values for all inputs simultaneously can result in the attribution of disproportionate effects to the same source of risk in a self-reinforcing circular process such as this: management prepares a very conservative forecast, reflecting a significant decrease in expected profit compared with the previous year; financial analysts focus their attention on the execution risk for the budget/plan and revise management's estimates and long-term growth rates downwards; investors, noting a greater-than-expected downward revision of expected cash flows (by management and analysts) require a higher risk premium for their investment; a higher risk premium causes share prices to fall; analysts, in turn, revise target prices to the downside, thus raising discount rates; management performs the impairment test by taking into account the compounded "conservatism" of the previous players. The risk of an "avalanche" effect on the impairment test is clear, due to cumulative risk adjustments which are reasonable and adequate taken singularly but which, taken together, provide a distorted risk estimate due to double-counting.

4.1.4. To avoid the pitfalls of double counting it is necessary to bear constantly in mind the objectives of impairment testing in a crisis environment. Impairment tests end up measuring the deterioration of the firm's earning power as a result of the crisis. This means that the impairment test is a sort of due diligence on the firm's competitiveness and the soundness of the foundation upon which the company's strategy to recoup the invested capital rests. In short, the impairment test must be able to distinguish between the temporary drop in profit from the permanent loss of value. If a negative change in profit experienced recently is considered as permanent, the effect should be also a reduction of the normal income taken as reference to estimate terminal value. If, on the other hand, the decline in profit is considered temporary, the normal income level taken as reference to estimate terminal value should reflect the "resilience" of the company's earning power beyond the time of crisis.

⁵⁰ IAS36.BC64."(...) in developing the assumptions on which the cash flow forecasts are based, management should remain mindful of, and when appropriate make the necessary adjustments for, an entity's actual past performance or previous history of management consistently overstating or understating cash flow forecasts.

4.2. Rational grounds to address the problems

4.2.1. Before focusing on future developments, impairment testing needs to engage in a structural analysis of the firm's earning power. This analysis must identify first of all the so-called value drivers, i.e. the sources of the firm's profits. Value drivers are generated by the firm's intangible assets and might reasonably be thought to be able to restore the firm's normal earning power under a post-crisis condition (restorable steady-state income). If the analysis shows that the crisis has had an adverse impact on the firm's value drivers (weakening them), it is appropriate to factor this condition into the normalized income stream to be used in the impairment test.

4.2.2. Obviously, the entity's recoverable amount depends not only on the firm's normal earning power under a post-crisis condition but also:

- on the level of investment necessary to restore the firm's normal earning power;
- on the time necessary to that end;
- on expected income along the plan's time horizon;
- on the relevant risk.

4.3. Operational guidance

4.3.1. In performing impairment testing it is appropriate, where possible, to incorporate in terminal value the entity's restored long-term earning power. This restoration must consider the current conditions of the business and, as such, does not have to include the effects of any restructuring that has not yet been undertaken by the entity. Naturally, this requires an in-depth analysis of the value drivers and their "resilience" in a time of crisis.

4.3.2. Restorable steady-state income is not necessarily the income for the last year of the explicit forecast. In all the cases where the two differ, it is appropriate to normalize income so as to estimate terminal value on the basis of data and inputs derived from the company's history; this should take place over a period long enough to estimate an average normal result, after adjusting for any effects that the crisis might have accelerated.⁵¹

4.3.3. In this sense, the loss of recoverable amount determined by the crisis should be the result of: (a) the effects of the crisis on the firm's value drivers, creating a structural gap between current income and restorable normal steady-state income; (b) the time necessary to fill the gap (and the cost of time); (c) the investment necessary to fill the gap; (d) the relevant risks.

5.Sustainability of plans and variance analysis

5.1. Problems arisen following the crisis

5.1.1. To determine the firm's ability to restore its normal earning power it is necessary to analyse the sustainability of its plans. The assessment of future sustainability relies on the quality of the assumptions underlying the plans. The valuer can judge a plan:

- (a) operationally unsustainable;

⁵¹ International Valuation Standards 2001: Valuations for Financial reporting: IVS 300.G47. "The expected cash flows have to be tested for reasonableness by ensuring that the assumptions on which the entity's projections are based are consistent with past actual outcomes, provided the effects of subsequent events or circumstances that did not exist when those actual cash flows were generated make this appropriate. Cash flows are estimated for the asset in its current condition and therefore the expected cash flows should not reflect any increase due to any restructuring or reconditioning of the asset to which the entity is not currently committed".

- (b) financially unsustainable;
- (c) operationally and financially sustainable.

Regardless of the opinion rendered, the valuer is in any case called upon to make valuation choices consistent with IAS 36.

5.1.2. Plans are considered operationally unsustainable where the crisis has brought to light the unsustainability of the business model or the competitive advantage of the CGU(s) to which goodwill has been allocated. In these cases, considering that there is no reasonable ground to prepare a sustainable stand-alone plan for the CGU(s) undergoing valuation on which to base the estimate of value in use⁵², the valuer's might want to calculate fair value, as the estimate of value in use is too uncertain. In calculating fair value, the valuer is required to follow IFRS 13 (Fair value Measurement), whereby fair value can be estimated on the basis of the cost approach, the income approach and the market approach.

5.1.3. Fair value reflects the disposal price of the business at the date of measurement in a hypothetical orderly transaction with hypothetical market participants⁵³ that can ensure the highest and best use (HBU)⁵⁴ for the CGU (or group of CGUs). IFRS 13 clarifies that fair value can be estimated by using three different valuation approaches: market, cost and income.⁵⁵ In estimating the fair value of a CGU or a group of CGUs for which the business model or the scale of the business is no longer such as to guarantee the HBU, consideration might be given – always from the point of view of market participants – to the restructuring necessary to restore an adequate earning power and/or the use of the CGU or group of CGUs not on a stand-alone basis but in conjunction with other operations.

5.1.4. Plans are financially unsustainable when, for example, the entity is characterized by excess debt and the company's plan is unable to generate the cash flow necessary to service such debt, in the absence of new equity injections from clearly identified sources, or when the plan estimates levels of losses in future years requiring recapitalizations exceeding the funds available to the controlling shareholder for that purpose. In all these cases, even though the entity produces a plan calling for future equity injections, of which no evidence of their feasibility is provided at the measurement date, there is no basis to estimate value in use, even though the company can still be considered a going concern. In these cases use of fair value is recommended. In estimating fair value the income approach can be adopted, but from the standpoint of market participants. Fair value reflects the selling price in an orderly market transaction (thus, it does not consider any diminished bargaining power of an entity obliged to sell) but considers in the cost of capital a premium for any liquidity risk (i.e. when the HBU of the CGU or the group of CGUs assumes use of cash not the generation of positive cash flows, at least in the initial years).

5.1.5. On the other hand, if the plan is sustainable (both operationally and financially), it is appropriate to identify the effects on the estimate of recoverable amount of other reasonable assumptions, as an alternative to those considered to arrive at the cash flows used in the impairment test. The analysis should concern the most significant assumptions. Obviously, to estimate the overall effects, it is appropriate to consider the

⁵²International Valuation Standards 2011: IVS 300.G44: "Value in use is specific to the entity as it reflects the cash flows that the entity expects to obtain from continuing use of the asset over its anticipated useful life, including any proceeds from its ultimate disposal".

⁵³ IFRS 13.22. "An entity shall measure the fair value of an asset or a liability using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest".

⁵⁴IFRS 13.28. "The highest and best use of a non-financial asset takes into account the use of the asset that is physically possible, legally permissible and financially feasible, as follows:

- a) A use that is physically possible takes into account the physical characteristics of the asset that market participants would take into account when pricing the asset (e.g. Location or size of a property);
- b) (A use that is legally permissible takes into account any legal restrictions on the use of the asset that market participants would take into account when pricing the asset (e.g. the zoning regulations applicable to a property);
- c) A use that is financially feasible takes into account whether a use of the asset that is physically possible and legally permissible generates adequate income or cash flows (taking into account the costs of converting the asset to that use) to produce an investment return that market participants would require from an investment in that asset put to that use".

IFRS 13.29. "Highest and best use is determined from the perspective of market participants, even if the entity intends a different use. However, an entity's current use of a non-financial asset is presumed to be its highest and best use unless market or other factors suggest that a different use by market participants would maximize the value of the asset".

⁵⁵ IFRS 13.62. "The objective of using a valuation technique is to estimate the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions. Three widely used valuation techniques are the market approach, the cost approach and the income approach. (...) An entity shall use valuation techniques consistent with one or more of those approaches to measure fair value".

correlation effects among the key variables. In this sense it is more accurate to define this as a “variance analysis” and not instead a “sensitivity analysis”⁵⁶.

5.2. Rational grounds to address the problems

5.2.1. The operational sustainability of a plan must be assessed especially in relation to the stand-alone earning power of the CGU or the group of CGUs to which goodwill is allocated. If this is not possible, it is appropriate to estimate fair value of the CGU or group of CGUs by adopting the market participant’s viewpoint. Accordingly, to achieve the HBU for the CGU or group of CGUs the market participant:

(a) might combine it with other assets (complementary assets). In this case, fair value reflects the price paid by a market participant that has already the necessary complementary assets to put the CGU or group of CGUs to best use;⁵⁷

b) might restructure it or expand it. In this case fair value reflects the price that would be paid by a market participant in view of the net benefits that such market participant would be able to obtain by restructuring the CGU or by investing for its future growth.⁵⁸

5.2.2. The financial sustainability of a plan does not imply that the entity is a going concern. This because the plan can be longer than the horizon adopted to determine whether the entity is a going concern. Thus, a plan can be financially unsustainable even though the company is a going concern. In case of financial unsustainability of the plan, no reference can be made to value in use but it is appropriate to refer to fair value. As the impairment test (with the exception of financial institutions) is conducted with reference to enterprise value, the estimation of fair value is not concerned with the entity’s financial structure. However, the discount rate should incorporate the risk premium that would be required by market participants in the case of assets that are certain to generate losses in the short term in exchange for longer-term positive results.

5.2.3. Scheduled financing for the operations of the entity and/or the CGU (or the group of CGUs) is not, in itself, a cause of financial unsustainability of the plan. However, financing constitutes a significant and sensitive assumption which should be disclosed, if changes in the cost of funds can affect to a significant extent the entity’s prospective earnings.⁵⁹

5.2.4. Variance analysis for the plan is particularly important when the recoverable amount of the CGU is close to the CGU’s carrying amount (first-level impairment test) and/or the recoverable amount of the entity as a whole (second-level impairment test) is very close to the carrying amount of net assets (after adjustments are made for consistency⁶⁰). This analysis is designed to indicate the amount of the impairment loss upon the materialization of assumptions made as a reasonable alternative to those used in the impairment test.

⁵⁶ Typically, “sensitivity analysis” refers to the analysis of the effects determined by a change in one input, holding all else constant, thus without any reference to correlation analysis.

⁵⁷ IFRS 13.31 “(...)

(i) If the highest and best use of the asset is to use the asset in combination with other assets or with other assets and liabilities, the fair value of the asset is the price that would be received in a current transaction to sell the asset assuming that the asset would be used with other assets or with other assets and liabilities and those assets and liabilities (i.e. complementary assets and the associated liabilities) would be available to market participants”.

⁵⁸ IAS 36.BC69: “(...)

(c) if the unit’s fair value less costs to sell were to be otherwise estimated (i.e. other than by reference to a recent transaction, editor’s note), it would also reflect the market’s assessment of the expected net benefits any acquirer would be able to derive from restructuring the unit or from future capital expenditure on the unit.

⁵⁹ AICPA Guide. Prospective Financial Information: “8.25. Particularly sensitive assumptions are those assumptions having a relatively high probability of variation that would materially affect the financial forecast. The impact on the financial forecast might result from either (a) an assumption with a relatively high probability of a sizable variation or (b) an assumption for which the probability of a sizable variation is not as high but for which a small variation would have a large impact. Not all significant assumptions are particularly sensitive. For example, an assumption regarding the federal income tax rate may be significant but not particularly sensitive, whereas the assumption about the interest rate of a new debt issue may be both significant and particularly sensitive. (...)”

⁶⁰ Considering the grossing-up of reported goodwill, to reflect goodwill attributable to non-controlling interests in the recoverable amount of the entity as a whole.

5.3. Operational guidance

5.3.1. A test of the operational sustainability of the plan in a crisis environment should focus on the business model and the competitive advantages. In any case, the valuer is called upon to use judgment to identify the most fitting valuation approaches including, without limitation, the adoption of multi-scenario analysis and adjustments to the discount rate to consider the specific risks of the plan. In some cases the valuer can conclude that a reliable measure of value in use cannot be determined and, as such, use should be made of fair value (minus selling costs), which is the alternative measure permitted by IAS 36 to estimate recoverable amount. Fair value measurement is treated by IFRS 13. Typically this situation concerns CGUs in a special stage of their lifecycle (start-up or in a phase of competitive repositioning) or CGUs operating in industries that leave them more exposed to competitive reactions by larger competitors (typically CGUs that can be considered price takers in their respective markets). In general these conditions regard sectors where one of the following conditions is either expected or already under way: a) concentration; b) a price war; or c) greater selection policies by the demand side. The unsustainability of the plan should be evaluated in light of the best external evidence on the prospects of the industry and the CGU's historical performance.

5.3.2. The test of the plan's financial sustainability should determine whether the entity has access to debt and equity financing to fund its operations. A plan can appear financially sustainable only because either the investments necessary to carry it out are underestimated or the expected operating income is overestimated. Analysis of the plan's financial sustainability requires judgment on the accuracy of the assumptions underlying margins and capital expenditure.

5.3.3. Variance analysis performed on the plan regards alternative assumptions that are not considered as reflecting average expected conditions but they are otherwise reasonable. Such assumptions can be either sensitive or significant, i.e.:

- (a) assumptions for which it is reasonable to expect a variation that can affect significantly the expected estimates (sensitive assumptions);
- (b) assumptions related to future conditions which are expected to be considerably different from current ones and which cannot be reasonably pre-defined (significant assumptions).

6. Continuity and discontinuity with the previous impairment test

6.1. Problems arisen following the crisis

6.1.1. The crisis may have forced the reorganization of the CGUs in the past year, with the ensuing reallocation of goodwill. As a result, at the date of the impairment test the structure of the CGUs is different from that at the date of the previous impairment test.

6.1.2. The reorganization of a CGU cannot be in itself an indication of impairment. Thus, attention should be paid to the reasons for the transformation, which is typically determined by revenue or cost synergies.

6.1.3. The impairment test refers to the current conditions of the CGUs as of the date of the test. If the company's plan calls for a future reorganization of the CGUs, no account is taken of this circumstance, and the "viewpoint" of the plan should be made consistent with that of the CGUs at the date of the impairment test. If, on the other hand, the reorganization took place at fiscal year-end/beginning of the new year (e.g. 31 December/1 January), and the new plan's approach is consistent with the new organization, the impairment test is conducted from the new perspective; this also in case the financial statements to which the impairment test refers have been prepared on the basis of the previous perspective for operating segments and CGUs.

6.1.4. The crisis may require a change in the way the value in use of the CGUs (first-level impairment test) and the entity as a whole is estimated. Changes can concern:

- a) the way expected cash flows for the explicit forecast period are estimated (e.g. on the basis of a multi-scenario analysis);
- b) the way expected income or cash flows are normalized to estimate terminal value (e.g. no longer on the basis of the amount for the last year or explicit forecast);
- c) the explicit forecast horizon (e.g. by shortening the explicit forecast period);
- d) the way cost of capital is estimated (e.g. estimate horizon of the beta coefficient).

6.2. Rational grounds to address the problems

6.2.1. A change in the way value in use is estimated is adequately supported by the external or internal evidence collected since the previous impairment test. For example, the adoption of an approach founded on embedded value earnings to estimate the recoverable amount of a life insurance company instead of the dividend discount model can be justified on the basis of one or more of the following reasons, without limitation:

- a different dividend policy of the subsidiaries;
- a policy emphasizing the generation of new business value;
- greater attention paid by equity analysts to embedded value earnings;
- use of the different impairment test methodology by other entities.

Generally speaking, changes in the way value in use is estimated should not change substantially the result of the estimate, otherwise the reason should be identified. A reason might be that the method used previously was excessively conservative and that, despite the conservatism, the recoverable amount exceeded book value.⁶¹

As the result of the impairment test does not have to be affected by management's pessimism or optimism, or any overestimation or underestimation of recoverable amount, as the gap between recoverable amount and carrying amount closes it is appropriate to use the approach considered more reasonable (as more supportable, accurate and diligently applied) in "good faith".

6.3. Operational guidance

6.3.1. Pursuant to IAS 36.87, the reallocation of goodwill should be based on a reorganization of the information system that modifies the composition one or more of the entity's CGUs. The valuer should pay special attention when the reorganization results in the combination of different CGUs. In fact, IAS 36.87 calls for the allocation to be made following a value approach similar to that used when an entity disposes of two or more cash-generating units. However, the valuer is recommended to appraise separately the two or more CGUs combined. However, since a reorganization is often carried out in view of cost and/or revenue synergies, it might be appropriate to take into account such benefits. This analysis could be supported also by:

- (a) significant external evidence;
- (b) the pervasiveness of the reorganization.

⁶¹ Let's consider the case of an entity that, for its latest impairment test, estimated its recoverable amount by capitalizing last year's income for perpetuity, even though it engages in a growing industry. Based on a cost-benefit analysis, the firm deemed it appropriate to use a possible (easily available) income stream but not the average expected income level, as calculation of this amount would have been costly and time-consuming. As the company used for its impairment test a prudent income stream, any other approach used to estimate its recoverable amount would have led to the same result, as the estimated value in use would have been higher. Following the crisis and the adoption of the income recorded in the last year, the same impairment test approach would result in an impairment loss. Consequently, the entity decides that it is appropriate to measure value in use more accurately and uses an approach other than that used previously, which discounted the expected average income to present value. This approach does not show any impairment loss. The entity discloses the change in its approach and the reason for the changes made. In addition, the entity discloses the amount of the impairment loss that would have resulted from the adoption of the same approach.

For example, an entity organized along product lines can be reorganized by market when such reorganization duplicates models used by other competitors. In some cases the reorganization can be limited to few CGUs (as it concerns synergies that can be achieved between only two CGUs). The attainment of economies (of scale and/or scope) and/or organizational benefits is typically the rationale for the restructuring.

6.3.2. Consistency over time of the approach used in estimating value in use takes on added significance for those CGUs (or for those entities) whose recoverable amount was close to the carrying amount. In these cases the change in approach should be founded in the greater proven accuracy of the valuation. In any case, it is appropriate to disclose the result that would have been determined had the same approach been used, except the cases where such application is no longer possible (for example, the entity no longer prepares five-year but three-year plans).

Part Two: ARCHITECTURE OF THE VALUATION APPROACH

7. First- and second-level impairment tests

7.1. Problems arisen following the crisis

7.1.1. Corporate assets include group or divisional assets that do not generate cash flows independently of other assets or groups of assets and their carrying amount cannot be fully attributed to the cash-generating unit undergoing impairment testing. Because corporate assets do not generate separate cash inflows, the recoverable amount of an individual corporate asset cannot be determined unless management has decided to dispose of the asset. As a consequence, if there is an indication that a corporate asset may be impaired, recoverable amount is determined for the cash-generating unit or group of cash-generating units to which the corporate asset belongs.

7.1.2. In testing a cash-generating unit for impairment, an entity identifies all the corporate assets that relate to the cash-generating unit in question.

If a portion of the carrying amount of a corporate asset can be allocated on a reasonable and consistent basis to that unit, the entity compares the carrying amount of the unit, including the portion of the carrying amount of the corporate asset allocated to the unit, with its recoverable amount, recognizing any impairment loss;

If such portion of the carrying amount of a corporate asset cannot be allocated on a reasonable and consistent basis to that unit, the entity:

1. compares the carrying amount of the unit, excluding the corporate asset, with its recoverable amount and recognizes any impairment loss;
2. identifies the smallest group of cash-generating units that includes the cash-generating unit undergoing impairment testing and to which a portion of the carrying amount of the corporate asset can be allocated on a reasonable and consistent basis; and
3. compares the carrying amount of that group of cash-generating units, including the portion of the carrying amount of the corporate asset allocated to that group of units, with the recoverable amount of the group of units, recognizing any impairment loss.

7.1.3. There have been cases where, in view of the impairment test, given a partial or nil allocation of corporate assets and/or corporate costs to the cash generating units that make up the entity, no provisions have been made to perform a second-level impairment test, i.e. a comparison between the carrying amount and the recoverable amount of the entity as a whole. This circumstance can be considered reasonable only in the presence of external indications suggesting that the amount of the entity as a whole is recoverable, such as a market capitalization greater than the carrying amount of net assets.

7.2. Rational grounds to address the problems

7.2.1. Corporate assets (e.g. the building of a headquarters) and corporate costs (e.g. management costs) can be significant.

In applying the standard, it is necessary to carry out a detailed analysis of all the corporate assets and corporate costs, considering also that corporate costs have no carrying amount but may have a substantial impact on the cash flows of the entity as a whole.

7.2.2. In case market capitalization is lower than the carrying amount of net assets attributable to the parent company's shareholders, impairment is presumed; accordingly, it is appropriate to conduct a second-level impairment test even though all the corporate assets and corporate costs have been allocated to the CGUs.

7.3.Operational guidance

7.3. In a crisis environment, a first-level impairment test is not sufficient, in itself, to meet the reasonableness condition for the recoverability of goodwill, in the presence of external evidence (e.g. market capitalization lower than the carrying amount of net assets). In this case, a second-level impairment test is recommended - also in case all the corporate costs incurred for the benefit of the entire firm, or for one or more divisions thereof, have been attributed to the cash-generating units – as such a test constitutes a more in-depth analysis of reasonableness of the results obtained.

7.4. For the purposes of the second-level impairment test, the unit of account is the entity as a whole and, as such, the recoverability of net assets should be determined by comparing the (overall notional) carrying amount of net assets attributable to the parent company's shareholders with the overall recoverable amount. It is appropriate to consider also any surplus assets, i.e. assets not essential for the core business (equity interests in associates, other investments, buildings not used in production, etc.).The overall recoverable amount can be obtained through the sum-of-the-parts approach (for instance when there are CGUs operating in foreign currencies, when there are investments in associates and other companies that are valued separately, when there are business units reporting losses over the plan's horizon whose recoverable amount is estimated on the basis of fair value).

8. Enterprise value, equity value and illiquidity

8.1.Problems arisen following the crisis

8.1.1. Typically, the recoverable amount of a CGU or a group of CGUs is calculated through the enterprise value approach, where emphasis is placed on the net invested capital of the CGU or group of CGUs. However, in certain industries – such as financial services (banking and insurance) – equity value is the approach of choice. In this case, the focus is on the net assets of the CGU or group of CGUs.⁶² In principle enterprise value and equity value should be reconcilable and should lead to the same results.

8.1.2. Even when the enterprise value approach is used, it might be appropriate to adopt the equity value approach or determine the net assets of the CGU to test the recoverability of the carrying amount of the controlling interest reported in the parent company's balance sheet, when the CGU is an autonomous legal entity. Valuers should not limit their review to the minimum mandatory contents of the impairment test set out by IAS 36, but should extend their research to elements that corroborate, and attest to the reasonableness of, the results achieved.

8.1.3. The crisis brought to the fore a growing difficulty for financial and non-financial firms to meet their financing requirements, which resulted in one or more of the following:

- (a) a growing difficulty in raising capital;
- (b) a significant increase in their cost of debt;
- (c) a need to recapitalize;
- (d) greater working capital requirements;
- (e) lower net income.

8.2. Rational grounds to address the problems

8.2.1. Regardless of the valuation approach adopted (enterprise value or equity value), it is necessary to incorporate in the valuation that illiquidity as at the valuation date. IAS 36.30 (e) provides in fact that the

⁶² A discussion on the criteria for the proper identification of the net assets of the CGU or group of CGUs is beyond the scope of this paper.

estimated value in use should reflect “(...) factors, such as illiquidity, that market participants would reflect in pricing the future cash flows the entity expects to derive from the asset”.

8.2.2. IAS 36.A1 clarifies that the “other, sometimes unidentifiable, factors (such as illiquidity) that market participants would reflect in pricing the future cash flows the entity expects to derive from the asset” might be incorporated in the discount rate, in keeping with the “traditional” approach, or might take the form of an adjustment to expected cash flows, according to the “expected cash flow” approach.

8.2.3. Illiquidity may lead management to make “special assumptions”, i.e. assumptions related to facts and circumstances considerably different from those existing at the valuation date (without adequate support) or that would not be made by market participants in a hypothetical transaction. According to IVS 300.6, special assumptions should not be reflected in the valuation of carrying amounts.

8.3 Operational guidance

8.3.1. Illiquidity conditions brought about by the crisis should be reflected in the estimated recoverable amount of the CGU, regardless of the valuation approach adopted (enterprise value or equity value).

8.3.2. When illiquidity conditions are not such as to jeopardize the implementation of plans (i.e. when the plans are financially sustainable, despite the expected illiquidity), they can be reflected both in prospective cash flows and in the discount rate. This means, for example, that:

(i) under the enterprise value approach illiquidity may result in:

- (a) an increase in working capital requirements;
- (b) a reduction in cash flows and operating income;
- (c) increase in the cost of debt and cost of equity.

(ii) under the equity value approach, illiquidity may result in:

- (a) a reduction in net income;
- (b) the need to raise equity capital;
- (c) higher cost of equity.

8.3.3. On the other hand, when illiquidity conditions are such as to jeopardize the implementation of plans, value in use cannot be estimated, as “the cash flow projections used to measure value in use to be based on reasonable and supportable assumptions”⁶³ (emphasis added).

8.3.4. As recoverable amount is the greater of value in use and fair value, when the entity cannot make a financially sustainable plan for the CGU or group of CGUs to which goodwill is allocated, it is necessary to refer to fair value. Fair value (IFRS 13) is the price that would be received to sell an asset in an orderly transaction at the measurement date in the main market. Thus, fair value:

- does not have to reflect: any need for the entity to dispose of the asset that has to perform the impairment test (unless the CGU is an asset held for sale and, as such, does not fall within the scope of IAS 36);
- while consideration should be given to the Highest and Best Use (HBU) for such CGU or group of CGUs by a market participant. It is not necessary to identify market participants by name.

8.3.5. In these cases, a fair value estimate can only adopt the perspective of a hypothetical participant in a hypothetical market, thus achieving a significant degree of abstraction. Obviously, according to IFRS 13, fair value can be measured on the basis of the cost approach, the income approach and the market approach. When use is made of the income approach, the valuer starts from management’s operational plan and then adjusts it by:

⁶³ Il principio della sostenibilità è così rilevante che è ripreso addirittura fra i pilastri dello IAS 36, come ricordato nello IAS 36.IN7 da cui è tratta la citazione.

- a) sterilizing the special assumptions⁶⁴ that might characterize the plan but which market participants would not adopt as overly ambitious;
- b) adding the expenses that a market participant would incur to achieve the HBU for the CGU;
- c) making the provisions that the illiquidity conditions suggest with respect to the entity's cash requirements;
- d) adding the benefits that a market participant might derive from the use of the CGU or the group of CGUs together with other assets.

As the prospective cash flows so reconstructed are characterized by high uncertainty, it is necessary to embody an adequate risk premium in the discount rate.

9. Calculation of carrying amount

9.1 Problems arisen following the crisis

9.1.1. In a crisis environment, companies show unusual changes in working capital items, as a result of longer payment terms and inventory turnovers, or the deterioration of credit quality. In addition, they undertake actions designed to rationalize capital employed through changes in investment policies and the disposal of specific assets. In some cases, change concerns the scope of operations of the CGUs. The valuer is called upon to maintain consistency between the way the CGU's recoverable amount and carrying amount are calculated.

9.2 Rational grounds to address the problems

9.2.1. The carrying amount of the CGU must be calculated in a way that is consistent with the approach adopted to determine its recoverable amount. In other words, the opening carrying amounts and the development of prospective cash flows (or the attribution of net realizable value) must be fully consistent.

9.3 Operational guidance

9.3.1. IAS.75 stipulates that: "The carrying amount of a cash-generating unit shall be determined on a basis consistent with the way the recoverable amount of the cash-generating unit is determined". The wording of the standard is very clear. However, for practical purposes, the operational guidance provided below should be regarded as a set of best practices and not as requirements of the accounting standard:

- (a) normalize working capital items as necessary: to estimate properly average investment for the period (in the cases where seasonality has an impact on final balances) and prospectively; to address effects related to specific operating procedures (e.g. distribution of inventories to entities belonging to other CGUs); to deal with the effects related to specific working capital positions, e.g. held for sale in the short term;
- (b) identify the carrying amount and check the recoverable amount of non-operating assets or assets held for sale separately from the recoverable amount obtainable if they were used;
- (c) consider the impacts of disposals or reorganizations, when these concern (besides individual assets) also groups of assets being used, on the attribution of goodwill to the carrying amount of the remaining CGUs. When the assets held for sale come from CGUs inclusive of goodwill, allocate and derecognize part of goodwill with a relative value approach, i.e. in proportion to the overall value of the CGU to which it pertains;
- (d) in integrated operations which embrace several CGUs, or CGUs combining assets transversally with respect to the legal entities, a reconciliation is suggested to between the amount of net assets used for consistency with the recoverable amounts with the carrying amounts of the (consolidated or separate) balance sheet of reference;
- (e) in case of changes concerning the scope of operations of a CGU from one year to the next, proceed with the analysis, taking into account that the key discriminant is in any case the structure and independence of the underlying cash flows.

⁶⁴ See footnote 2.

Part Three: ESTIMATION OF RECOVERABLE AMOUNT ON THE BASIS OF THE EXPECTED INCOME STREAM OR CASH FLOWS

10. Expected income stream or cash flows

10.1. Problems arisen following the crisis

10.1.1. Expected income streams or cash flows can be either forecast – in which case they represent management’s best estimate of the future – or projected – in which case they are founded on hypothetical assumptions. They can be also the outcome of a mix of hypothetical assumptions and best estimates as well as a combination of forecasts and projections (for example, a one-year forecast plus five-year projections⁶⁵). The availability of reliable forecasts and/or projections is one of the main criticalities in performing an impairment test in a crisis environment with significant turmoil. In such a context there are objective difficulties in forecasting income or cash flows and the evaluation of the reasonableness of the assumptions on which such expected results are based is quite complex.

10.1.2. The following list includes, without limitation, some of the difficulties related to the assessment of reasonableness of the plans:

- a. The reliability of forecast revenues and costs (for the year when the budget is prepared and for the following years), in light of changed macroeconomic and industry conditions.
In particular, the estimated revenues for the current and the following years might not reflect the full uncertainty that characterizes financial markets and the real economy, with the ensuing risk of considering rates of variance that do not fully reflect the deterioration of economic and financial conditions. Meanwhile, operating cost forecasts might not give due consideration to wild swings in prices for the main commodities, as well as any increased financial pressure as a result of trends in borrowing costs.
- b. The reliability of cash flows, in light of the effects of the credit crunch on the banking system and the economy as a whole.
This problem refers to the possible impact on the cash flows generated from working capital management (i.e. involuntary increase in commodity/product inventories, slower collection of trade receivables) and the resulting increase in net debt, which can affect the financial sustainability of forecasts.
- c. The difficulty of meeting and possibly updating the budget as well as of making (operating and financial) forecasts for more than three years.
Except for some special firms (e.g. companies that operate on the basis of long-term contracts or that base their budget estimates on a firm order backlog for the period covered by the review or companies operating under concession arrangements or banks or insurance companies), long-term forecasts in such an uncertain scenario have undoubtedly some limits. It is better to shorten the explicit horizon forecast and then normalize the result to be projected in terminal value, instead of extending forecasts without adequate information.
- d. The date of preparation and approval of plans.
A possible problem is related to the date of preparation and approval of the plans which are used as the basis to carry out the impairment test. In particular, it is necessary to check whether the forecast are still valid in light of recent developments in the economy and in the industry where the company operates.

10.1.3. In addition to the above, it is appropriate to stress that, in a crisis environment, companies deal with a lower demand or a decline in profitability by reorganizing and/or restructuring their business (i.e. change in

⁶⁵ ISAE 3400.3. “(...) Prospective financial information can be in the form of a forecast, a projection or a combination of both, for example, a one year forecast plus a five year projections”.

their manufacturing capacity, downsizing of employees, change in the strategic approach from product to market or vice versa). These actions may reduce the operational significance of a cash-generating unit, as a stand-alone operation, which is tested for impairment, thus giving rise to difficulties to conduct any analysis and, in particular, to determine expected cash flows.⁶⁶

10.2. Rational grounds to address the problems

10.2.1. One of the main objectives of an impairment test is the review of the reasonableness of future plans used as the basis of the test, paying special attention to management's effort in trying to minimize any subjectivity in estimating expected cash flows. Accordingly, it is appropriate to refer to IAS 36 (see paragraph 33), whereby it is appropriate to:

“(a) base cash flow projections on reasonable and supportable assumptions that represent management's best estimate of the range of economic conditions that will exist over the remaining useful life of the asset. Greater weight shall be given to external evidence;

(b) base cash flow projections on the most recent financial budgets/forecasts approved by management, but shall exclude any estimated future cash inflows or outflows expected to arise from future restructurings or from improving or enhancing the asset's performance. Projections based on these budgets/forecasts shall cover a maximum period of five years, unless a longer period can be justified;

(c) estimate cash flow projections beyond the period covered by the most recent budgets/forecasts by extrapolating the projections based on the budgets/forecasts using a steady or declining growth rate for subsequent years, unless an increasing rate can be justified. This growth rate shall not exceed the long-term average growth rate for the products, industries, or country or countries in which the entity operates, or for the market in which the asset is used, unless a higher rate can be justified.”.

The above constraints are particularly important in light of the recent crisis and, as such, should be borne in mind and applied as extensively and as rigorously as possible, as illustrated in the operational guidance.

10.3. Operational guidance

10.3.1. Impairment tests should not be based on company plans that are not up to date, or that do not take into account significant events occurred after their preparation⁶⁷, especially the current financial crisis conditions. Specifically, forecasts should be updated not only on the basis of the budget for the next fiscal year but must regard also the successive years following an adequate review of Key Factors and assumptions capable of grasping the effects of recent phenomena (e.g. loss of market share, reduction of general real-price level, etc.). The impairment test should consider management's best estimate, as of the reference date, of the best future business conditions beyond the budget horizon. This to minimize the risk that:

- (a) the impairment test might be based on dated forecast, made by extrapolating figures from previously disclosed budgets and/or company plans that are no longer current;
- (b) the impairment test might be based on short-term budgets from which no reliable estimate of future business prospects can be derived.

10.3.2. It is necessary to base the impairment test on plans containing realistic expectations of future income streams or cash flows, reducing overestimation risks by a management bent on pursuing ambitious and unfeasible goals;

10.3.3. It is necessary to estimate expected cash flows on the basis of reasonable and supportable assumptions by building a solid database to be used as reference in making forecasts founded on internal

⁶⁶ According to IAS 36 (paragraph 33 and 44) cash flow projections must exclude any estimated future cash inflows or outflows expected to arise from future restructurings or from improving the asset's performance

⁶⁷ In this respect, attention is called to the joint paper published on 4 March 2010 by the Bank of Italy and Consob, particularly paragraph 1.a: “With reference to the way value in use is calculated, a review of the 2008 accounts revealed that, when the test was performed, the plans of certain companies were not up to date and, as such, did not reflect the complex changes in the market landscape brought about by the crisis. In the absence of multi-year forecasts, certain companies were able to determine the value in use of goodwill on the basis of medium-term projections obtained by just extrapolating the relevant amount from the 2009 budget data, on the basis of normalized growth rates.

research and, most of all, forecasts by third parties. Forecasts should place greater weight on the latter, in light of the current crisis (see in particular IAS 36.33).

10.3.4. It is necessary to analyse the treatment of risk in the plan's forecasts, especially considering how such element was factored into the cost of capital.

10.3.5. It is necessary for the impairment test to avoid the use of cash inflows and outflows related to any future restructurings or improvement of performance for the asset to which the entity is not yet committed.

10.3.6. Keeping in mind the above general guidance, guidance of a more operational type is provided below on:

- the quality of the company's forecasting ability;
- the use of multi-scenario plans;
- the activities to be performed on the "Base" Plan

10.3.7. On the quality of the company's forecasting ability. In preparing the expected cash flows to be used in the impairment test, it is important to assess first of all the company's forecasting ability, in view of the competitive context and the company's positioning in it.

This can be done through a variance analysis of past management budgets and/or plans and actuals.

This analysis is designed to develop a general view of the company's forecasting ability, in light of the internal and external context in which it operates. This opinion will eventually guide the degree of attention to, and depth of the review of, management's plans.

10.3.8. On the possible use of multi-scenario plans. In a highly volatile context, the company's plan can be supplemented with a multi-scenario analysis. This course of action appears desirable for different reasons, including:

- objective forecasting difficulties (particularly with respect to the so-called exogenous variables);
- transparency and level of responsibility with stakeholders;
- the firm's dynamic ability to react to changed scenarios.

A multi-scenario analysis serves the purposes of an impairment test only if it can reduce the execution risk of the plan, by setting out average future cash flows lower than those under the plan. This objective depends on the alternative scenarios considered (which must be based on more prudent assumptions, compared with the plan) and the probability attributed to such scenarios (which should not be so low as to affect materially the expected cash flows).

Based on the above, including where strategic reasons dictate the preparation of different sets of forecasts, management can make available for the impairment test a single plan based on its best estimate ("Base Plan") and, where necessary, alternative projections based on more prudent hypothetical assumptions. However, in these cases it is appropriate to check whether the plan is up to date and reflects management's best estimate (i.e. the most likely scenario). The risk of multi-scenario analyses is that the base plan might be regarded as the plan under the most favourable scenario and not, instead, the plan under the most likely scenario. Likewise, it is necessary to avoid alternative scenarios based on excessively radical hypothetical assumptions. In any case, projections founded on hypothetical assumptions should reflect scenarios characterized by a non-negligible probability of occurrence.

10.3.9. On the activities to be performed on the "Base" Plan. As anticipated, to minimize the risk of any overestimation of the expected income stream or cash flows and, consequently, of value in use, the valuer is recommended to use forecasts based on assumptions that reflect the issues arisen and that factor in, quantitatively, the current turmoil. This can be verified through:

- Assumption/forecast classification;
- Assumption/forecast analysis;

- Sensitivity analysis.

10.3.10. Assumption/forecast classification. To have a clear picture of the risk associated with the forecasts made, so as to direct any further analysis more effectively, it is appropriate first of all to draw a distinction between:

- Forecasts proper, based on “Management’s Best-estimate Assumptions”: these reflect the most likely results foreseen by management;
- Projections (projections or extrapolations from forecasts), based on “Hypothetical Assumptions”: these are management’s best estimate on the basis of assumptions of possible occurrence which do not, however, reflect necessarily the most likely scenario (partly because they take on values of internal or external variables that do not correspond to the scenarios considered most likely by management, and partly because they consider the external variables as the most likely, but do not include any ensuing strategic approach, as is usually the case with extrapolations)

Prospective income streams or cash flows (whether they are forecasts or projections) use significant assumptions and sensitive assumptions. The following is the distinction between the two:

- Significant assumption: assumptions related to future conditions which are expected to be significantly different from current ones and which cannot be reasonably pre-defined;
- Sensitive assumption: assumptions the smallest change of which can modify substantially the estimated recoverable amount.

Assumptions are classified to evaluate:

- (a) The quality of the forecasting process (higher in the case of forecasts proper, less so in the case of projections);
- (b) Any inconsistency in the forecasts (assumptions that are both significant and sensitive).
- (c) The main sources of risk for the projections.

10.3.11 Assumption/forecast analysis. The analysis should be distinguished in terms of:

- Best estimate assumptions/Forecasts;
- Hypothetical assumptions/ Projections.

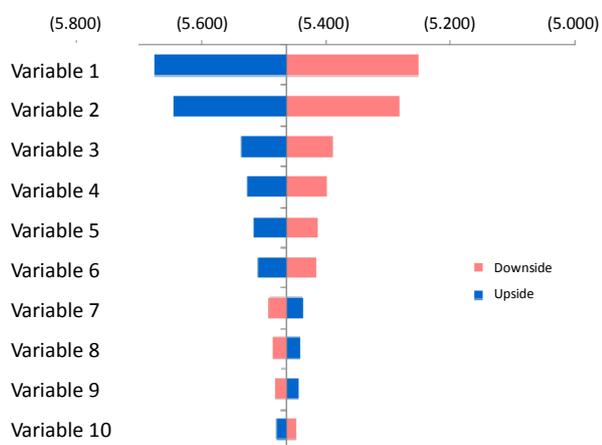
With reference to forecasts, the assumptions should be analysed in terms of consistency between data utilized and market conditions; consistency between the actions that the company intends to undertake and resources available; consistency in determining estimated data on the basis of market variables (e.g. pricing policies) etc... In other words, the valuer is recommended to conduct specific analyses designed to check the soundness of such endogenous variables as, among others:

- Analysis of consistency among strategy adopted, strategic intentions, assumptions and financial and operating forecasts;
- Analysis of feasibility and compatibility of the actions planned with the proposed timing and available resources (human, organizational, technological, etc...);
- Level of analysis of competitive forces in the sector of reference (e.g. market demand, competitors’ actions, consumers’ buying habits, regulatory and/or technological changes, etc...);

With reference to projections, which are marked by greater volatility, the analysis should focus on the hypothetical assumptions and their impact on the company’s performance. Specifically, these projections should be scrutinized through specific sensitivity analyses, to identify the assumptions that are more critical for the business; in turn, such assumptions should be analysed through ad hoc simulations to show their impact on expected results.

10.3.12. Relevance analysis for sensitive assumptions. To identify the sensitive assumptions with the greatest effects on the expected income stream or cash flows, the valuer is recommended to rank the key variables to which the sensitive assumptions refer in order of importance. The Tornado chart below (graph 5) shows an example of hierarchy of sensitive assumptions:

Graph 5: Tornado Chart to measure the variables with the greatest impact on results.



There are two types of relevance analysis for sensitive assumptions:

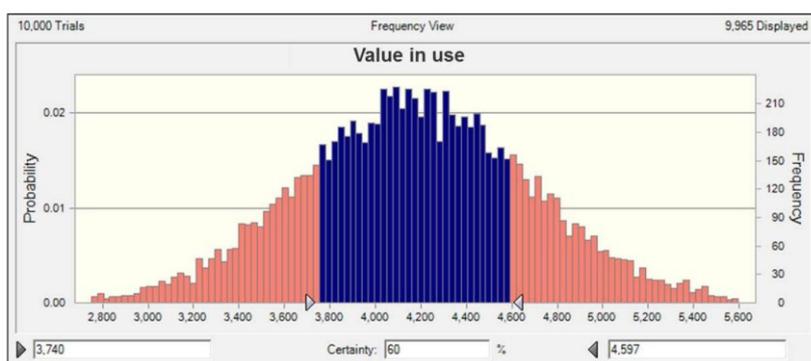
- “Static” or sensitivity analysis, which measures the impacts on expected income or cash flows (or on the result of the impairment test) of any changes in the single variables in the base plan, holding all other variables equal (e.g. +/- 10% of the value of the variable used in the base plan);
- “Dynamic” analysis, which measures the impacts on expected income or cash flows (or on the result of the impairment test) of any changes in the single variables taking account of the correlations among variables. This analysis can be carried out also by relying – where appropriate – on statistical simulation techniques (such as the Monte Carlo method), with the objective to analyse the probability of achieving the cash flows/value in use levels outlined in the “Base” plan.

The following are the main activities necessary to perform a Monte Carlo Analysis:

- Identification of Key Input Variables
- Assignment of the relevant probability distribution to such KIVs;
- Identification of Key Output Variables – KOVs – whose volatility needs to be determined as the KIVs vary (in the case under review, the plan’s annual results or value in use directly),
- Implementation, with the support of dedicated software⁶⁸ of a number of statistically significant random simulations (typically thousands);
- Analysis of the distribution of probabilities of the KOVs resulting from the attribution of probabilities to the KIVs (graph...).

⁶⁸ E.g. “Crystal Ball”.

Graph 6: Distribution of probabilities of cash flows (KOV) as the KIVs vary (Monte Carlo Method).



Obviously, it is appropriate to disclose the impacts of the Key Input Variables in terms of value in use and consequent result of the impairment test.

11. Professional scepticism about expected cash flows

11.1 Problems arisen following the crisis

11.1.1. Companies achieve operating and financial results lower, also to a significant extent, than those recorded before the crisis. Periodic results are more volatile, with the same, or even wider, variances between forecast and actual data.

11.1.2. Concerning the process to estimate expected cash flows, there is greater uncertainty and dispersion of indicators and possible scenarios. Management is often in a difficult position when historical data should be used as a basis for prospective results. Estimates are revised more frequently. The pressure to achieve objectives gives rise also to the risk of potential management bias.

11.2 Rational grounds to address the problems

11.2.1. To exercise professional scepticism at the expected cash flows means to review critically the adequacy and quality of the evidence of the assumptions underlying management's plans. To this end, the valuer must take into account information obtained from independent sources and the theoretical perspective of the market participant or the external observer.

11.2.2. The objective is to reduce the risks related to the underestimation of non-recurring circumstances and the use of inadequate assumptions which might increase the margin of error inherent in the estimation of prospective data. Laying rational grounds means also setting up an approach to analyse data in a way that does not invalidate substantially the periodic review of amounts over time.

11.3 Operational guidance

11.3.1. The valuer is called upon to:

- a) Understand the way and the process adopted to prepare the plans, as well as the relationships between the forecast data utilized to review the amounts and those utilized by the various company departments for management purposes (e.g. operational and commercial plans, investment plans, management incentives, borrowings);
- b) Analyse the data contained in the plans on the basis of the most recent internal and external information available;
- c) Take into account historical metrics and the elements derivable from actual vs. budget variance analyses, especially with a view to identifying structural scenario changes, which cannot be reasonably expected to be reversed in the medium term;
- d) Focus the analysis on the assumptions related to parameters and indicators with a greater impact on quantitative estimates, including those on cash flows at steady state to calculate terminal value. The most direct tool to identify these key parameters is sensitivity analysis;

- e) Mitigate the risk related to forecasts based mainly on judgment or management's attestation by relying on additional evidence from external and market sources (e.g. think-tank reports, professional databases, data from other industry operators, notes by equity analysts, regulators' information and statistics);
- f) Analyse the evidence supporting the plan's assumptions with an integrated approach (not autonomously), paying special attention to any inconsistencies among the different factors;
- g) Give a reason for the choice of one scenario instead of the main observable alternatives, and the resolution of any conflict between significant pieces of evidence and the chosen course of action.

12. Cash flows and growth rate in terminal value

12.1 Problems arisen following the crisis

12.1.1 The uncertainty and volatility related to the current environment crisis make the estimation of Terminal Value (TV) a particularly delicate exercise.

In fact, the cash flows used for TV purposes must reflect reasonably the best estimate of the CGU's performance in the long run where management, due to high volatility, might have already some difficulties in estimating cash flows for the explicit forecast period and – in the current crisis environment – the CGU's ability to generate cash flows at levels similar to the pre-crisis ones.

In essence, if the uncertainty on the duration of the crisis is a major consideration in the forecast for the explicit period reflects, in the cash-flow estimates used to arrive at TV, the valuer must question the reasonableness of using future results and/or growth rates consistent with the past and the industry in which the business operates.

In measuring value in use, these considerations should also take into account IAS 36.33 and its reference, as specified in the following paragraphs, to constant or falling growth rates, acknowledging that only under particular circumstances can growth be positive.

12.1.2 In addition, attention is called to the weight that TV typically has on the CGU's overall estimated value, and the shorter the explicit forecast period the greater this weight.

12.1.3 Thus, problems should be addressed on two different levels:

- a) estimate of long-term sustainable cash flows;
- b) estimate of growth rate "g" of these cash flows.

In practice, the question is whether the current crisis environment makes it possible – without solid evidence and with adequately supportable estimates – to recover the future value of assets and/or goodwill. A forward shift of the cash flows expected for the explicit forecast period and mere confirmation of the historical TV does not seem, in the current situation, an adequate exercise.

12.1.4 The considerations outlined below refer, unless specified otherwise, to the various levels of analysis/application of the impairment test: assets, GCUs and Groups of CGUs.

12.2 Rational grounds to address the problems

12.2.1 In dealing with the problem, management needs to find adequate answers to the following questions:

- (a) Are changes related to the current crisis environment such as to have a long-term impact on the margins/size of the CGU? Is this a cyclical or a structural crisis? Is the CGU losing market share or is the market shrinking in size? Is the crisis providing customers with alternative medium- and long-term solutions which are equally beneficial and such as to impact the cash-flow outlook in the medium/long term?
- (b) In terms of measurement of value in use, are the actions undertaken to cope with the crisis consistent with paragraph 33, sub-paragraph b) and paragraph 34 of IAS 36, which expressly

- prohibit the use of cash inflows and cash outflows expected to arise from “future restructurings to which the entity is not yet committed” or “improving or enhancing the asset’s performance”?
- (c) Will the actions undertaken to address the crisis and reflected in the years of the explicit forecast have an impact also in the medium/long term?
 - (d) Are the consequences of the crisis impacting the fundamentals of the sector in which the CGU is engaged?
 - (e) What are the investments or changes necessary to deal with the new scenarios? In terms of measurement of value in use, do such investments fall within the scope of paragraph 44 of IAS 36, whereby “future cash flows shall be estimated for the asset in its current condition”? Given the current credit crunch, do we have the cash generating abilities to support the current plan?
 - (f) On the other hand, can we regard the current environment as an opportunity, considering the difficulties experienced by other operators and the pressure for change?
 - (g) Significant attention should be paid to the markets in which the CGU operates. In fact, we should not ignore the possibility that the current crisis has different impacts on different industries/markets and that performances may vary widely.

12.3 Operational guidance

12.3.1 The estimates considered in Terminal Value should be supported as much as possible by external sources, such as industry research, broker reports and other evidence. Any variance between the plan’s assumptions and external evidence should be properly analysed and justified by management.

12.3.2 Steady-state margins should be set against the expected margins for the explicit forecast period and historical margins, if they can still be projected into the future, to underscore management’s views of the magnitude of the impact of the crisis or otherwise any changes or absence thereof.

These margins must be capable of considering adequately both the effects of the crisis and the cyclicity of the business. Against this backdrop, it might make sense to consider different periods within TV, so as to evaluate the effects of normalizations that do not run out at the end of the explicit period. For the measurement of value in use, reference is made to paragraphs A4 and A7 of IAS 36⁶⁹, related to the different possible scenarios.

12.3.3 Special emphasis is placed on investments. The investments considered in TV should represent the amount necessary for the entity to maintain its cash-generating capability beyond the explicit forecast period, including any portion of investments made with multi-year frequency (e.g. renewal of licences every 10 years or refurbishment of a plant every 7 years). In practice, investments at steady-state can be set as equal to depreciation. In general, however, investments should not be assumed to equal depreciation (steady state scenario), when terminal value is calculated on the basis of a positive growth rate (g). However, there might be events and circumstances involving the firm or the industry that justify the assumption that investments equal depreciation also when g is positive (such as when g rises in nominal terms and the prices of capital assets are falling).

For the measurement of value in use, reference is made to paragraph 49 of IAS 36.⁷⁰

The cash flow used for TV might consider also the reaching of steady state of investments made in the last few years of the plan whose effects on the cash flows have not been fully unfolded (e.g. opening of new shops/plants that are not fully operational yet, personnel reorganizations, etc.), always in light of the restrictions set by paragraph 44 of IAS 36⁷¹, to measure value in use.

⁶⁹ IAS 36.A4: “Accounting applications of present value have traditionally used a single set of estimated cash flows and a single discount rate, often described as ‘the rate commensurate with the risk’. In effect, the traditional approach assumes that a single discount rate convention can incorporate all the expectations about the future cash flows and the appropriate risk premium. Therefore, the traditional approach places most of the emphasis on selection of the discount rate”

IAS 36.A7 “The expected cash flow approach is, in some situations, a more effective measurement tool than the traditional approach. In developing a measurement, the expected cash flow approach uses all expectations about possible cash flows instead of the single most likely cash flow. For example, a cash flow might be CU100, CU200 or CU300 with probabilities of 10 per cent, 60 per cent and 30 per cent, respectively. The expected cash flow is CU220. The expected cash flow approach thus differs from the traditional approach by focusing on direct analysis of the cash flows in question and on more explicit statements of the assumptions used in the measurement”.

⁷⁰ IAS 36.49: “Estimates of future cash flows include future cash outflows necessary to maintain the level of economic benefits expected to arise from the asset in its current condition. When a cash-generating unit consists of assets with different estimated useful lives, all of which are essential to the ongoing operation of the unit, the replacement of assets with shorter lives is considered to be part of the day-to-day servicing of the unit when estimating the future cash flows associated with the unit. Similarly, when a single asset consists of components with different estimated useful lives, the replacement of components with shorter lives is considered to be part of the day-to-day servicing of the asset when estimating the future cash flows generated by the asset”.

⁷¹ IAS 36.44.” Because future cash flows are estimated for the asset in its current condition, value in use does not reflect:

12.3.4 Management should consider whether the impact of working capital within the operation of the specific CGU is significant in determining the normalized cash flows of TV.

12.3.5 The margins embodied in TV must be compared, so as to be tested for consistency, with those foreseen in the previous impairment tests. The structural impacts of the crisis might invalidate the case – as already noted – for a return of long-term margins to the historical norm or with previously forecast margins.

12.3.6 According to IAS 36, the growth rate “g” must be constant or falling, thus leading to a decline in cash flows, unless a rising “g” can be used and adequately justified. This growth rate does not have to exceed the average long-term rate of growth of the output of the industrial sectors in the country(ies) where the CGU operates. Thus, “g” must be constructed in a way that reflects the different expectations of long-term growth in the countries where the CGU is active. In these cases, the revenues or margins are weighted for the different industries/markets in which the entity engages.

To this end, it is appropriate to investigate the reasonableness of any sustained growth rate (e.g. the emerging economies) in the medium/long term or to consider – as noted previously – whether to break down the TV period into shorter periods.

It is important to ascertain the consistency between the plan’s expected growth rates and g and the consistency of the growth rates used in previous impairment tests.

It is paramount, once again, that the estimate of “g” be supported by external evidence.

12.3.6 Due to the high dependence of the outcome of the impairment test on the estimates considered in TV, it is often appropriate to carry out a sensitivity analysis that might highlight the impacts on the valuation as key inputs vary. The valuer is recommended to perform sensitivity analyses related not only to variations in the single parameters (e.g. “g” and discount rate) but also to specific assumptions, more in keeping with a multi-scenario approach (e.g. normalized cash flows).

12.3.7 Typically, the discount rate used for TV is the same as that used for the explicit forecast period, unless such rate reflects specific risks of the plan that should not be maintained beyond the explicit forecast period, as this risk has already been factored into the normalization of the terminal cash flow. In any case, this circumstance should be analysed carefully in light of the consistency required between cash flows and discount rate, on one side, and the provisions of paragraph A21 of IAS 36, on the other.⁷²

Management checks the consistency between the risk incorporated in the discount rate and the weight of TV on the outcome of the impairment test, as the greater the risk the more the outcome of the valuation exercise depends on events that are yet to materialize.

Reference should be made to paragraph 56 of IAS 36⁷³, which indicates that the risks embodied in the estimated cash flows should not be incorporated in the discount rate, to prevent the same effect from being double-counted.

-
- (a) future cash outflows or related cost savings (for example reductions in staff costs) or benefits that are expected to arise from a future restructuring to which an entity is not yet committed; or
 - (b) future cash outflows that will improve or enhance the asset’s performance or the related cash inflows that are expected to arise from such outflows.”

⁷² IAS 36.A21: “An entity normally uses a single discount rate for the estimate of an asset’s value in use. However, an entity uses separate discount rates for different future periods where value in use is sensitive to a difference in risks for different periods or to the term structure of interest rates” (emphasis added)

⁷³ IAS 36.56 “A rate that reflects current market assessments of the time value of money and the risks specific to the asset is the return that investors would require if they were to choose an investment that would generate cash flows of amounts, timing and risk profile equivalent to those that the entity expects to derive from the asset. This rate is estimated from the rate implicit in current market transactions for similar assets or from the weighted average cost of capital of a listed entity that has a single asset (or a portfolio of assets) similar in terms of service potential and risks to the asset under review. However, the discount rate(s) used to measure an asset’s value in use shall not reflect risks for which the future cash flow estimates have been adjusted. Otherwise, the effect of some assumptions will be double-counted”.

13. Cost of capital

13.1. Problems arisen following the crisis

13.1.1. The current crisis unearthed a significant increase in country risk. Each and every entity needs to evaluate facts and circumstances that determine its exposure to such a risk. Country risk entails two main problems in estimating the cost of capital:

a) The local long-term government bond is no longer a risk-free rate and CAPM is based on a reconstruction of the cost of capital based on the risk-free rate. IAS 36.A17 clarifies that, as a starting point to estimate the discount rate, the entity might consider precisely CAPM, with the following words: "the entity's weighted average cost of capital determined using techniques such as the Capital Asset Pricing Model".

b) Account should be taken of country risk anyway in estimating value in use. In fact, according to IAS 36.A18 in identifying the discount rate to be utilized to estimate value in use "consideration should be given to risks such as country risk (...)". This is predicated on the fact that government bond yields are still a fundamental standard of reference to estimate the return of a risky asset in a given country.

In an environment where long-term government bond yields rose on the comparable reading at the date of the latest impairment test, it is reasonable to expect that, if the business of the entity is largely domestic, also the cost of capital has risen (though not to the same extent as that of the government bond yields).

13.1.2. A higher cost of capital – holding equal the expected return on invested capital – reduces the contribution of growth to the firm's value. An example is provided below on the basis of the income approach to value via the single-period income capitalization (Gordon model).

Situation before the increase in the cost of capital:

Budgeted income for next year = $E_1 = 10$

Constant reinvestment of income = $b = 30\%$ (= 1 – payout ratio)

Rate of return on reinvested income = expected ROE = $r = 10\%$

Perpetual growth rate = $b \times r = g = 3\%$

Cost of equity = COE = 9%

Recoverable amount (Gordon model) = $E_1 \times (1-b)/(COE - g) = 10 \times (1-30\%)/(9\% - 3\%) = 7/6\% = 116.67$

Situation after the increase in the cost of capital (assuming the same prospective income and rate of return on reinvested income)

Budgeted income for next year = $E_1 = 10$ (assumed to be unchanged)

Constant reinvestment of income = $b = 30\%$ (= 1 – payout ratio)

Rate of return on reinvested income = expected ROE = $r = 10\%$ (assumed to be unchanged)

Perpetual growth rate = $b \times r = g = 3\%$

Cost of equity = COE = 10%

Recoverable amount (Gordon model) = $E_1 \times (1-b)/(COE - g) = 10 \times (1-30\%)/(10\% - 3\%) = 7/7\% = 100$

13.1.3. The cost of capital in line with the market rate is an expected return and must be applied to cash flows as weighted for the probability of occurrence, i.e. expected average cash flows.⁷⁴ The expected

⁷⁴ IAS 36.32 "(...) Whichever approach an entity adopts to reflect expectations about possible variations in the amount or timing of future cash flows, the result shall be to reflect the expected present value of the future cash flows, i.e. the weighted average of all possible outcomes" (emphasis added)

average cash flows and the most probable (best estimates) only if the distribution of the expected cash flows is symmetric. In case of asymmetric distribution of expected cash flows, the discount rate is the same as the cost of capital only if the most probable cash flows have been adjusted and brought into line with the expected average cash flows.

13.1.4. IAS 36.A21. clarifies that: "An entity normally uses a single discount rate for the estimate of an asset's value in use. However, an entity uses separate discount rates for different future periods where value in use is sensitive to a difference in risks for different periods or to the term structure of interest rates". Therefore, use can be made of different discount rates in different years. This circumstance is particularly important for credit institutions for which the result for the period depends largely on the level of interest rates prevailing in the specific period. For consistency, income generated in years characterized by lower interest rates should be discounted at a rate reflecting a cost of capital related built on a short-term risk-free interest rate.

13.1.5. IAS 36.56 clarifies that: "A rate that reflects current market assessments of the time value of money and the risks specific to the asset is the return that investors would require if they were to choose an investment that would generate cash flows of amounts, timing and risk profile equivalent to those that the entity expects to derive from the asset. This rate is estimated from the rate implicit in current market transactions for similar assets or from the weighted average cost of capital of a listed entity that has a single asset (or a portfolio of assets) similar in terms of service potential and risks to the asset under review. However, the discount rate(s) used to measure an asset's value in use shall not reflect risks for which the future cash flow estimates have been adjusted. Otherwise, the effect of some assumptions will be double-counted".

13.1.6. This paragraph shows an example of analysis based on the CAPM method (as referred to by IAS 36.A17, sub-paragraph a). However, IAS 36 permits the adoption of different methodologies (e.g. the Option Price Based Model). Whatever valuation approach is adopted, it is always appropriate to check the results obtained with external information sources (e.g. comparison with major peers, discount rates used by equity analysts, etc.).

13.2. Rational grounds to address the problems

13.2.1. According to CAPM, a stock return (= cost of equity) is equal to the sum of: (a) the risk-free return and (b) the risk premium (which is in turn the sum of the beta coefficient and the equity risk premium).⁷⁵ In an environment where government bond yields are not risk-free and at the same time (under IAS 36) country risk must be factored into the discount rate to measure value in use, there are two main alternative solutions⁷⁶ whereby country risk is included:

- a. in the first term of the CAPM addition, i.e. in the risk-free rate;
- b. in the second term of the CAPM addition, i.e. in the risk premium.

It is not a good idea to include country risk in both the risk-free rate and in the risk premium, because even though theoretically it might be possible to consider part of the country risk premium in both components, in practice the risk of double-counting is very high.

13.2.2. The cost of capital is an expected return (i.e. forward-looking) and, as such, in estimating the cost of debt it is necessary to start from the marginal cost of debt of the specific entity. However, even in a crisis environment the company's marginal cost of debt can be lower than yields on government bonds with similar maturity or that the increase in the cost of debt is lower than the increase in government bond yields. If the

⁷⁵ Based on CAPM, this can be rewritten as follows:

$$\text{Cost of equity} = \text{COE} = R_f + \beta \times \text{ERP}$$

where:

R_f = long-term risk-free rate of return;

β = beta coefficient (measure of systematic risk)

ERP = equity risk premium.

⁷⁶ Variants of these methods should not result in lower discount rates.

cost of debt is estimated correctly, it is not necessary to adjust it for country risk as there is evidence that the entity's debt provides a diversification (away from sovereign risk) benefit appreciated by the market.

13.2.3. Both the cost of equity and the cost of debt are closely related to the level of indebtedness (in terms of market value). However, IAS 36.A19 indicates that "the discount rate is independent of the entity's capital structure and the way the entity financed the purchase of the asset, because the future cash flows expected to arise from an asset do not depend on the way in which the entity financed the purchase of the asset". Therefore, to estimate the cost of capital it is appropriate to refer to a normal or target financial structure in keeping with industry standard. This structure should always be investment grade and, as such, should be derived from entities with a rating not lower than BBB. Even though the crisis might have raised the leverage of comparable companies (by lowering the market value of net assets), it may be inappropriate to use a target financial structure characterized by a leverage significantly higher than that taken as reference in the previous impairment test, when an increase in this ratio results in a reduction of the weighted average cost of capital.⁷⁷ In any case, it is paramount that the target financial structure and the calculation of the beta coefficient remain consistent.⁷⁸

13.2.4. On the other hand, there are cases where the entity features a financial structure characterized by a level of indebtedness significantly higher than the normal or target one (i.e. speculative grade) and, at the same time, its current ability to generate cash flows is such as to make the achievement of a target financial structure unlikely also over a reasonably long period of time. In these cases, it is necessary to avoid an unrealistic valuation of the benefits associated with debt tax shields, such as that which might be determined with the mechanical application of estimation techniques for the cost of capital which assume implicitly that the risk of debt is nil.⁷⁹

13.2.5. The cost of capital does not capture the risk of overestimating expected cash flows under the plan. Therefore, the cost of capital can be used as the discount rate only if the plan was checked in advance for any overestimation risk and was confirmed to reflect expected average cash flows.

13.2.6. The cost of capital must be consistent with the cash flows to which it is applied, both in terms of nature and in terms of frequency. Specifically:

c) Distinction by nature:

- unlevered cash flows (in determining enterprise value) are discounted by the weighted average cost of capital;
- levered cash flows (in determining equity value) are discounted by the cost of equity.

d) Distinction by frequency:

- cash flows affected by returns on short-term investments are discounted at rates, varying from year to year, which consider the future expected short-term risk-free interest rate;⁸⁰
- cash flows not affected by returns on short-term financial investments are generally discounted at constant rates.

13.2.6. Whatever the approach used in estimating the cost of capital, it is appropriate to compare the method used to determine the cost of capital in the previous impairment test, to check the reasonableness of the increase. Another useful comparison is the cost of capital used by equity analysts who follow the share (when there is adequate coverage). In general, the cost of capital based on greater country risk should reflect a noticeable increase.

⁷⁷ The weighted average cost of capital declines as debt increases under the assumption that the risk of debt is equal to zero (0 beta). This is the implicit assumption when use is made of the so-called Hamada Formula to calculate levered beta and unlevered beta.

⁷⁸ This means that the relative weights of debt and equity in the target financial structure used to calculate the weighted average cost of capital should be consistent with those used to re-leverage the unlevered beta to calculate the cost of equity.

⁷⁹ In practice, this means that the Hamada formula to calculate the entity's levered beta cannot be used, as this formula assumes that the beta of debt is nil. By the same token, no use can be made of a method to calculate the weighted average cost of capital that would consider only the tax benefit stemming from the tax deductibility of borrowing costs. In the presence of risky debt it is necessary also to consider any insolvency costs in estimating the cost of capital, as these costs can more than offset the benefits of the tax deductibility of borrowing costs.

⁸⁰ Such return can be the implied return on the current term structure of interest rates or a consensus forecast consistent with the assumptions underlying the expected cash flows.

13.3. Operational guidance

13.3.1. Regardless of the choice made in its adoption, the discount rate obtained should reflect in any case “the return that investors would require if they were to choose an investment that would generate cash flows of amounts, timing and risk profile equivalent to those that the entity expects to derive from the asset” (IAS 36.56), obviously for current valuations at the impairment test date. Below, some suggested operational solutions are outlined which, however, should be adapted to IAS 36.56. Under certain circumstances, it might also be necessary to refine the measurement of country risk.

13.3.2. Calculation of the cost of equity with country risk implicit in the risk-free rate. In this case it is necessary :

- (a) to set the risk-free interest rate as equal to the yield of long-term government bonds, thus reflecting country risk. The interest rate does not have to be necessarily a data point but use of averages calculated for periods longer than one year is discouraged⁸¹ because such longer averages would hardly reflect the return required by investors on the valuation date. However, it is worth noting that IAS36 does not identify any period of reference to calculate the discount rate but clarifies that (IAS 36.56) “A rate that reflects current market assessments of the time value of money and the risks specific to the asset is the return that investors would require if they were to choose an investment that would generate cash flows of amounts, timing and risk profile equivalent to those that the entity expects to derive from the asset”;
- (b) to calculate the unconditional equity risk premium (normal long-term premium), thus without significant changes with respect to the previous impairment test, and the beta coefficient vis-à-vis the domestic equity market. In fact, the beta coefficient is a measure of relative risk and, when it refers to the domestic equity market, it does not capture country risk, which in this case is already incorporated in the risk-free interest rate.

13.3.3. Calculation of the cost of equity with country risk implicit in the risk premium. In this case it is necessary:

- (a) to use an actual risk-free rate of return. In identifying the risk premium, it is not a good idea to use of the yields of the least risky government bond in the euro area, due to flight-to-quality phenomena. It is more appropriate to refer to the Interest Rate Swap_IRS (in relation to long-term maturities). Also in this case use of averages calculated for periods longer than one year is discouraged;
- (b) to calculate both the conditional equity risk premium (considering a risk premium higher than that normally required for the long term) and the beta coefficient with respect to the European equity market. When it relates to the European equity market, the beta coefficient captures the country risk associated with the specific share.

13.3.4. Below, an example is provided of the calculation of the cost of equity on the basis of the two methods described. The calculation is performed for an average entity (beta with the stock market of reference equal to 1), considering that the beta of the average Italian listed company relative to the Stoxx 600 (index of the European equity market) is 20% higher than that relative to the FTSE Italy All Share (domestic equity index). Even though they are reasonable, the equity risk premiums so calculated are only indicative of minimum levels. As can be seen, for the average company, both methods lead to the same result:

A) Calculation of the cost of equity with country risk implicit in the risk-free interest rate:

Cost of equity = COE = $R_{f-10\text{-year Italian government bonds}}$ + $\beta_{\text{relative to Italian equity market index}}$ × ERP_{normal long-term level (unconditional)}
 $R_f = \text{one-year average yield of ten-year Italian government bonds (1 January 2010 – 31 December 2011)} = 5.31\%$

$\beta = \text{beta coefficient relative to domestic index} = 1$ (hypothetical)

⁸¹ Thus IAS 36.30: “The following elements shall be reflected in the calculation of an asset’s value in use:

(...)

(c) the time value of money, represented by the current market risk-free rate of interest “(emphasis added).

ERP = normal long-term premium = 5% (hypothetical)

Hence, the cost of equity for a company with beta equal to 1 is

Cost of equity = COE = $R_f + \beta \times \text{ERP} = 5.3\% + 1 \times 5\% = 10.3\%$

B) Calculation of the cost of equity with country risk implicit in the risk premium:

Cost of equity = COE = $R_f - 10\text{-year IRS} + \beta_{\text{relative to equity index Stoxx 600}} \times \text{ERP}_{\text{inclusive of a spread over the normal long-term ERP (conditional)}}$

R_f = one-year average of 10-year IRS (1 January 2010 – 31 December 2011) = 3.1%

β = beta coefficient relative to European index = 1.2 (hypothetical)

ERP = normal long-term premium = 6% (hypothetical)

Hence, the cost of equity for a company with beta equal to 1.2 is

Cost of equity = COE = $R_f + \beta \times \text{ERP} = 3.1\% + 1.2 \times 6\% = 10.3\%$

13.3.5. In choosing the method to be used to capture country risk for calculating the cost of equity, it is appropriate to consider that both methods, valid though as they may be, do not yield the same results in the case of companies with a beta other (higher or lower) than 1. In particular:

a) for firms with a beta higher than 1 (high systematic risk), typically the following condition holds: cost of equity with country risk implicit in the risk-free rate < cost of equity with country risk implicit in the risk premium.

b) for firms with a beta lower than 1 (low systematic risk), typically the following condition holds: cost of equity with country risk implicit in the risk-free rate > cost of equity with country risk implicit in the risk premium.

Therefore, making the right choice depends on judgment, to be founded on specific facts and circumstances. There may be cases where the choice of the risk-free rate, the beta coefficient and the equity risk premium use different financial markets as reference, provided that the results are reasonable.

13.3.6. In case of significant systematic variances between budget and actual cash flows, the beta coefficient might be calculated appropriately by shortening the estimation period, maybe by reference to the last year or by increasing the frequency of the returns, by utilizing daily returns instead of monthly or weekly returns. In shortening the estimation period (e.g. one year instead of five) and the frequency of the returns (e.g. daily instead of monthly), it should be borne in mind that – as a rule – smaller companies feature lower betas as the return horizon shortens (daily vs. weekly vs. monthly). Therefore, for these shares it is appropriate to calculate the so-called sum betas.⁸²

13.3.7. The beta coefficient can be derived on the basis of the average unlevered beta of a comparable group of companies, after it is restated as levered on the basis of a target financial structure. In these cases it is necessary to consider whether the beta coefficient so calculated is appropriate for the specific firm, considering the systematic (negative) variance between budget/plan and actuals for the entity. For these purposes, it is always appropriate to check the specific company's beta against the actual betas of the comparable firms.

13.3.8. The cost of debt is normally the sum of two components: the base rate and the credit spread. Also in this case no use should be made of averages longer than one year. In estimating credit spreads it is

⁸² The sum beta is the beta coefficient obtained by adding two components: the traditional beta coefficient and the coefficient calculated by correlating the movement of the share with that of the market in the immediately preceding period. Thus, if the traditional beta is calculated on daily returns (0 covariance of the daily movements of the share with daily market changes), the sum beta consider also the covariance of daily movements of the specific share with the movements of the market for the previous day.

necessary to express alternatively: (a) the cost of debt of a firm characterized by a target financial structure; (b) the marginal cost of debt of the specific firm whose level of indebtedness is so high⁸³ that it cannot possibly reach in its current conditions a target financial structure, including in an adequate period of time.

13.3.9. The cost of debt of a target financial structure can be calculated by reference to the cost of debt by investment grade rating in Europe.

Table 8 shows the average rates for 2011 (source: Datastream) and the relevant spreads over the corresponding triple A (AAA) issuers in three difference categories: corporate large caps, financials and corporates.

Tab. 8 Average redemption yields (1 January 2010 – 30 December 2012) of (Bank of America – Merrill Lynch (BOFA-ML) benchmark 7/10-year corporate and financial bonds listed in the Euro zone, broken down by rating

Issuer/Name	Maturity	Rating	Sector/constituents	Redemption Yield (1-y avg.)	Average spread over AAA
BOFA ML - EMU CORP	7-10Y	AAA	Corporate Large Cap	3.62%	
BOFA ML - EMU CORP	7-10Y	AA	Corporate Large Cap	4.39%	0.77%
BOFA ML - EMU CORP	7-10Y	A	Corporate Large Cap	4.96%	1.34%
BOFA ML - EMU CORP	7-10Y	BBB	Corporate Large Cap	6.12%	2.50%
BOFA ML - EMU CORP	7-10Y	AAA	Financials	2.89%	
BOFA ML - EMU CORP	7-10Y	AA	Financials	3.65%	0.76%
BOFA ML - EMU CORP	7-10Y	A	Financials	4.88%	1.99%
BOFA ML - EMU CORP	7-10Y	BBB	Financials	9.20%	6.31%
BOFA ML - EMU CORP	7-10Y	AAA	Corporate	3.63%	
BOFA ML - EMU CORP	7-10Y	AA	Corporate	4.38%	0.74%
BOFA ML - EMU CORP	7-10Y	A	Corporate	4.95%	1.32%
BOFA ML - EMU CORP	7-10Y	BBB	Corporate	6.23%	2.60%

(Source: Datastream)

Table 9 below lists the average annual yields of ten-year bonds of the main European governments broken down by rating at 30 December 2011, to show that the cost of debt of the specific entity can be lower than government bond yields with similar maturity.

Tab.9. Redemption yields of benchmark ten-year government bonds issued by the main Western European countries

Country	Rating	Currency	Rating date (dd/mm/yy)	Redemption yield (1-y avg.)
Sweden	AAA	SEK	07/08/1995	2.59%
Germany	AAA	EUR	05/12/2011	2.64%

⁸³ Ordinarily, companies with a speculative-grade rating are considered highly indebted. In general, an entity shows excess debt when, all things being equal, the interest coverage ratio (EBIT/borrowing costs) is lower than 2.5x.

Denmark	AAA	DKK	03/08/1995	2.82%
Netherlands	AAA	EUR	05/12/2011	2.98%
Finland	AAA	EUR	05/12/2011	3.03%
UK	AAA	GBP	26/10/2010	3.05%
Norway	AAA	NOK	17/03/1995	3.14%
Austria	AAA	EUR	05/12/2011	3.28%
France	AAA	EUR	05/12/2011	3.29%
Belgium	AA	EUR	05/12/2011	4.22%
Italy	A	EUR	05/12/2011	5.31%
Spain	AA-	EUR	05/12/2011	5.46%
Ireland	BBB+	EUR	05/12/2011	9.38%
Portugal	BBB-	EUR	05/12/2011	10.17%
Greece	CC	EUR	27/07/2011	19.02%

(source: Datastream)

Table 9 shows that the benchmark 10-year Italian bond (A rating) yielded on average 5.31% compared with the lower yields of comparably rated (A) bonds with similar maturities (7-10 years) (tab. 8): Corporate Large Cap: 4.96%; Financials: 4.88%; Corporate: 4.95%. Generally speaking, it might be said that entities with a higher rating than their country have cost of debt lower than the yield of government bonds with similar maturities. In these cases it is necessary to make the calculation of the cost of debt consistent with that for the cost of equity. In particular, it is appropriate to use the methodology to calculate the cost of equity with the country risk implicit in the risk-free rate. Below an example is provided for a hypothetical large-cap financial firm with an AA rating.

A) Calculation of the cost of equity with country risk implicit in the risk-free interest rate:

Cost of equity = COE = R_f - redemption yield 10-year AA-rated bonds + β relative to Italian equity market index x ERP normal long-term level
(unconditional)

R_f = one-year average yield of AA bonds (1 January 2010 – 31 December 2011) = 4.96% (rounded up to 5.0%)

β = beta coefficient relative to domestic index = 1 (hypothetical)

ERP = normal long-term premium = 5% (hypothetical)

Hence, the cost of equity for a company with beta equal to 1 is

Cost of equity = COE = R_f + β x ERP = 5.0% + 1 x 5% = 10.0%

instead of the 10.3% that would have been obtained by using the average yield of 10-year Italian government bonds.

13.3.10. In the case of highly leveraged companies (speculative grade) it is appropriate to refer to the marginal cost of debt of the entity in question. The reasonableness of these rates can be assessed against the yields to maturity (yearly averages and specific data points) of high-yield bonds.

Tab. 10. Yields to maturity of benchmark Barclays High Yield Indices for which the yields to maturity are made available by Factset

LISTED BOND INDICES

Name	Rating	Area	YTM Barclays by Factset (1-y avg.)	YTM Barclays by Factset (Specific data point at 30 December 2011)
Barclays Capital High Yield (B3+/B-or >)	B-	n.a.	7.22%	7.48%
Barclays Capital US Aggregate Credit - Corporate - High Yield (BA)	BA	US	6.54%	6.70%
Barclays Capital US Aggregate Credit - Corporate - High Yield (B)	B	US	7.98%	8.40%
Barclays Capital US Aggregate Credit - Corporate - High Yield (CAA)	CAA	US	11.00%	12.47%

Source: FACTSET

14. Consistency analysis of risk profiles of cash flows and discount rates

14.1. Problems arisen following the crisis

14.1.1. The cost of capital does not capture the risk of overestimation of expected cash flows, due to non-systematic factors. Therefore, it is necessary to be aware of the fact that discounting by the cost of capital expected cash flows reflecting management's best estimates, which are not expected average cash flows, results typically in the overestimation of value in use. When the analysis of historical performance shows significant and recurring non-systematic negative variances between forecasts and actuals it is appropriate:

- (a) to verify that the new plan is inspired by greater prudence by taking into account the causes of the variances;⁸⁴
- (b) to consider whether the new plan is representative (i.e. whether the most likely scenario is representative);
- (c) to consider, in case the plan is not representative, whether:
 - to act on the expected cash flows and recast them are representative of the average expected cash flows, maintaining the cost of capital as the discount rate;
 - to maintain the plan's cash flows and raise the cost of capital to reflect the plan's execution risk. One way to raise the cost of capital might be, for example, to apply a linear model that calculates the risk premium on the basis of total risk instead of just systematic risk (so-called total beta).

14.1.2. The following list includes, without limitation, some of the main sources of non-systematic risk:

- Concentration of customer base;
- Dependence on key employees;
- Dependence on key suppliers;
- Current or potential increase in competitive pressures;
- Possible regulatory changes;
- Abnormal volatility of income over time;
- Quality of the planning process.

⁸⁴ IAS36.34. "(...) Management shall ensure that the assumptions on which its current cash flow projections are based are consistent with past actual outcomes, provided the effects of subsequent events or circumstances that did not exist when those actual cash flows were generated make this appropriate.

When one or more of these sources of risk are significant for the entity required to perform the impairment test, it is appropriate to check whether management has embodied such risks in its projections, regardless of any history of negative and positive variances between budget and actuals. For example, a company with a significant concentration of its customer base, which assumes in its best estimates that it will maintain its customer base (as the most likely scenario), does not consider an alternative scenario with a shrinking customer base. When the most likely scenario reflects the most favourable scenario and the possible alternative scenarios (as in our case) are all unfavourable, the expected average cash flows are always lower than planned, regardless of the probability associated with the unfavourable scenarios.

14.1.3. In determining whether the discount rate derived from such valuation techniques as CAPM required further adjustments, it is necessary to consider also the growth rate (g) used in estimating terminal value. Provided that a significant part of value in use is made up of terminal value, the most important rate in valuations is the capitalization rate (discount rate minus the growth rate “g”). In principle, the higher the growth rate the higher the discount rate.

14.1.4. IAS 36.A1 states that value in use should consider also such indications as the illiquidity that market operators incorporate in the future cash flows that the entity expects to generate. This means that a plan that generates losses and/or requires fresh equity injections and/or a significant increase in debt, due to substantial negative cash flows, requires, ceteris paribus, a discount rate greater than a plan that calls instead for the net generation of cash flows.

14.1.4. In the absence of:

- (a) Significant sources of non-systematic risk;
- (b) Significant variances between budget and actuals;
- (c) High growth rates in terminal value (compared with the most recent experience);
- (d) Significant negative cash flows in some years of the plan,

the cost of capital derived from such valuation techniques as CAPM do not require –as a rule – further adjustments and may constitute a sound basis upon which to estimate expected cash flows.

14.2. Rational grounds to address the problems

14.2.1. IAS 36.A18 provides that the cost of capital must be adjusted:

- “(a) to reflect the way that the market would assess the specific risks associated with the asset’s estimated cash flows; and
- (b) to exclude risks that are not relevant to the asset’s estimated cash flows or for which the estimated cash flows have been adjusted.

14.2.2. It is appropriate to compare the estimated cost of capital for the specific entity with that used by the analysts that follow the share (when there is adequate coverage). The most appropriate comparison is between capitalization rates (= discount rate – growth rate “g”) used in estimating terminal value, as generally the discount rate is directly related to the growth rate (faster growth = greater discount rate).

14.2.3. Lo IAS 36.A3 (b) recalls that: “estimated cash flows and discount rates should be free from both bias and factors unrelated to the asset in question”. The standard refers to the overestimation or underestimation of cash flows, which give rise to distortive effects.

14.3. Operational guidance

14.3.1. Table 11 provides the example of an entity that has been showing negative variances, of a non-systematic nature for the past five years and of a systematic nature for the past few years. On average, in

the five years considered, non-systematic and systematic factors account for 11% and 10%, respectively, of the variances between plan and actual.

Table 11. Variance analysis between forecasts and actuals for the past five years

	Years	-5	-4	-3	-2	-1	Average
a	forecasts (applicable cash flows)	10	11	13	14	14	
b	actuals	9	10	10	9	10	
c	Cash flows that would have been forecast on the basis of the advance knowledge of the actual performance of the macroeconomic and macro-financial variables	10	11	11	11	12	
d= b-a	Variances in absolute terms	-1	-1	-3	-5	-4	
e= c-a	Variances of a systematic nature	0	0	-2	-3	-2	
f = e/a	Systematic variances as a % of expected cash flows	0%	0%	- 15%	-21%	-14%	-10%
g=d-e	Specific variances (of a non-systematic nature)	-1	-1	-1	-2	-2	
h= g/a	Specific variances as a % of plan	-10%	-9%	-8%	-14%	-14%	-11%

A variance analysis reveals that there is an actual risk that negative (systematic and non-systematic) variances might materialize in the future and that a market operator would factor these risks into the estimation of the entity's recoverable amount.

14.3.2. Table 12 shows the entity's plan for the next five years. The estimated value in use is derived from the plan on the basis of a 10% cost of capital and a 2% growth rate embodied in terminal value. The estimation of the cost of capital is unrelated to the systematic variances recorded by the entity (which uses a historical beta obtained from comparable companies).

Table 12. Estimation of value in use without adjustments for systematic and non-systematic variances.

Years	Impairment test data	1	2	3	4	5	TV
Forecasts (applicable cash flows)		10	11	13	14	14	
Systematic variances as a % of forecast cash flows (average last five years)	-10%						
Non-systematic variances as a % of forecast cash flows (average last five years)	-11%						
Risk free rate	5%						
Historical beta	1						
Equity risk premium	5%						
Cost of capital (CAPM)	10%						
Discount factor		0,90 9	0.826	0.751	0.683	0.621	
g	2%						14.3
Present value of cash flows		9,1	9.1	9.8	9.6	8.7	
Sum of present value of cash flows	46						
TV							178.5
Present value of TV	111						
Total	157						

14.3.3. Table 13 recalculates value in use on the basis of a cost of capital that reflects the entity's systematic variances for the past five years (- 10%). In particular, the beta coefficient was raised by 10% (from 1 to 1.1) while the growth rate in terminal value was reduced by 10%

Table 13. Estimation of value in use with beta raised and the growth rate in terminal value reduced to reflect systematic variances.

Years	Impairment test data	1	2	3	4	5	TV
Forecasts (applicable cash flows)		10	11	13	14	14	
Systematic variances as a % of forecast cash flows (average last five years)	-10%						
Non-systematic variances as a % of forecast cash flows (average last five years)	-11%						
Risk free rate	5%						
Adjusted beta (historical beta x 1.1)	1.1						
Equity risk premium	5%						
Cost of capital (CAPM)	10.5%						
Discount factor		0.905	0.819	0.741	0.671	0.607	
g	1.8%						14.3
Present value of cash flows		9.05	9.01	9.64	9.39	8.50	
Sum of present value of cash flows	46						
TV							163.8
Present value of TV	99						
Total	145						

14.3.4. Table 14 recalculates value in use on the basis of forecast cash flows reduced by the same percentage as the average non-systematic variance for the past five years (- 11%), maintaining the cost of capital updated to reflect systematic variances.

Table 14. Estimation of value in use with forecast cash flows reduced to reflect non-systematic variances.

Years	Impairment test data	1	2	3	4	5	TV
Forecasts (applicable cash flows)		10	11	13	14	14	
Non-systematic variances as a % of forecast cash flows (average last five years)	-11%						
Forecast cash flows reduced to reflect the average estimation for the past five years		8.89	9.78	11.56	12.45	12.45	
Risk free rate	5%						
Adjusted beta	1.1						
Equity risk premium	5%						
Cost of capital (CAPM)	10.5%						
Discount factor		0.905	0.819	0.741	0.671	0.607	
g	1.8%						12.7
Present value of cash flows		8.05	8.01	8.57	8.35	7.56	

Sum of present value of cash flows	41						
TV							145.7
Present value of TV	88						
Total	129						

14.3.5. Table 15 recalculates value in use, by holding constant the forecast cash flows and incorporating non-systematic risk in the discount rate. The discount rate is increased by the same percentage as the historical non-systematic variances recorded by the company (11%).

Table 15. Estimation of value in use with an increased cost of capital to reflect systematic risk

Years	Impairment test data	1	2	3	4	5	TV
Forecasts (applicable cash flows)		10	11	13	14	14	
Non-systematic variances as a % of forecast cash flows (average last five years)	-11%						
Risk free rate	5%						
Adjusted beta	1						
Equity risk premium	5%						
Cost of capital (CAPM)	10.5%						
Addition to cost of capital = cost of capital x 11% (= non-systematic average variance)	1.2%						
Discount rate adjusted for non-systematic risk	11.7%						
Discount factor		0.89 6	0.802	0.718	0.643	0.576	
g	1.8%						14.3
Present value of cash flows		8.96	8.82	9.34	9.01	8.07	
Sum of present value of cash flows	44						
TV							144.6
Present value of TV	83						
Total	128						

As can be easily seen from a comparison with table 14, the reduction of value in use through a percentage increase in the discount rate equal to the historical non-systematic variance between plan and actuals yields a result very similar to that which would be obtained by reducing the cash flows. Nevertheless, this result depends on the distribution of cash flows over time. That is why – where possible – the reduction of forecast cash flows (though greater conservatism in planning or in translating forecast cash flows in average expected cash flows) is the preferred course of action.

14.3.6. A methodology that might be used, in case the valuer intends to use a higher discount rate, would involve the basic CAPM formula, but with the so-called total betas.⁸⁵ The result is a premium for the specific risk incorporated in the discount rate, which increases the risk-free rate in proportion to total risk instead of just systematic risk. Even though it is easy to use and its key components are objectively determined, this

⁸⁵ This involves raising beta by a quantity equal to a $\Delta = \sigma \times (1 - \rho) / \sigma_M$ where σ is the asset volatility, σ_M is the market volatility and ρ the correlation coefficient between the asset return and the market return.

technique does not always represent the best approach to factor non-systematic risk into the discount rate.⁸⁶ That is why – where possible – adjusting forecast cash flows is the suggested course of action

14.3.6. Table 16 shows the effects of the different adjustments made to take into account the overall variances. The table indicates that the adjustments to value in use –regardless of how they are calculated – are lower, in percentage terms, than past cash flow variances.

Table 16. Summary of the results of the adjustments to account for systematic and non-systematic variances

		Value in use
a	Estimate without considering risk factors related to variances (amount before adjustments)	157
b	Estimate considering only systematic risk factors (beta and g)	145
c	Estimate considering also non-systematic risk factors (in the cash flows)	129
d	Estimate considering also non-systematic risk factors (in the discount rate)	128
	Reduction of pre-adjustment value in use	
e= b-a	Reduction due to systematic risk	-12
f=b-c	Further reduction due to non-systematic risk (in the cash flows)	-16
g = d-b	Further reduction due to non-systematic risk (in the discount rate)	-17
h = e+f	Overall reduction (with non-systematic risk in the cash flows)	-28.07
i = e+g	Overall reduction (with non-systematic risk in the discount rate)	-29.51
l = h/a	Overall reduction (with non-systematic risk in the cash flows) in % terms	- 18%
m =i/a	Overall reduction (with non-systematic risk in the discount rate) in % terms	-19%

15. Check of overall reasonableness of results

15.1. Problems arisen following the crisis

15.1.1. The second-level impairment test required by IAS 36 in the presence of costs and/or corporate assets not allocated to the CGU.⁸⁷ This Discussion Paper recommends that the recoverable amount of the

⁸⁶ In other cases reference might be made, for example, to small company risk premiums.

⁸⁷ IAS 36.102" In testing a cash-generating unit for impairment, an entity shall identify all the corporate assets that relate to the cash-generating unit under review. If a portion of the carrying amount of a corporate asset:

- (a) can be allocated on a reasonable and consistent basis to that unit, the entity shall compare the carrying amount of the unit, including the portion of the carrying amount of the corporate asset allocated to the unit, with its recoverable amount. Any impairment loss shall be recognised in accordance with paragraph 104.
- (b) cannot be allocated on a reasonable and consistent basis to that unit, the entity shall:
 - (i) compare the carrying amount of the unit, excluding the corporate asset, with its recoverable amount and recognise any impairment loss in accordance with paragraph 104;
 - (ii) identify the smallest group of cash-generating units that includes the cash-generating unit under review and to which a portion of the carrying amount of the corporate asset can be allocated on a reasonable and consistent basis; and
 - (iii) compare the carrying amount of that group of cash-generating units, including the portion of the carrying amount of the corporate asset allocated to that group of units, with the recoverable amount of the group of units. Any impairment loss shall be recognised in accordance with paragraph 104."

IAS 36.102 shows that an entity may have more than two levels of impairment test when, for example, it is organized in different levels (holding, sub-holding, operating companies) and has simultaneously:

- a) CGUs or groups of CGUs to which goodwill is allocated for every operating segment;
- b) unallocated costs and corporate assets pertaining to the operating segments;
- c) unallocated costs and corporate assets in the holding company.

entity as a whole be calculated also in the cases where costs and corporate assets are fully allocated to the CGUs, when market capitalization is lower than the carrying amount of net assets.⁸⁸ This to provide further supporting evidence to the reasonableness of the estimated recoverable amount.

15.1.2. When it is not required by IAS 36, the estimated recoverable amount of the entity as a whole cannot be used as a reference for the impairment loss to be charged to the income statement. This because IAS 36 does not require a second-level impairment test in the absence of the prescribed conditions (lack of full allocation of costs and corporate assets). Accordingly, the estimated recoverable amount of the entity as a whole should be seen more as a way to carry out the analysis required by IAS 36.12(b).⁸⁹

15.1.3. The different methods to estimate the value of the entity as a whole are mainly four:

- a) sum-of-the-parts approaches or approaches that regard the entity as a single cash-generating unit;
- b) approaches that adopt the same or different valuation criteria;
- c) enterprise value or equity value approach;
- d) with respect to the equity value approach; approaches that look at the group in its entirety (without grossing up goodwill) and approaches that look at the entity alone (with the grossing-up of goodwill).

In a crisis environment the entity may want to modify the way it conducted its second-level impairment tests in the past. The appropriateness of such a change is considered also on the basis of the information available to support the new approach used and the relevance of the new assumptions to be introduced.

15.1.4. A crisis enhances the differences between recoverable amount and market capitalization. Suffice it to consider the different investment horizons between controlling and non-controlling shareholders, the different relevance of the effective financial structure, the deepening discount to NAV of diversified entities and/or complex groups. Thus, it is natural that there might be some unexplained differences between the two measures. However, this difference should be temporary. It is reasonable that as that gap widens, the impairment test is conducted at least every six months.

15.2. Rational grounds to address the problems

15.2.1. The valuation of the entity as a whole is conducted for different reasons:

- a) to determine the recoverability of the carrying amounts of all of the CGUs (including the CGUs to which no goodwill is allocated) and the entity's corporate assets (including surplus assets);
- b) to include in the valuation the carrying amount of all the assets, including those that did not go first-level impairment testing (for example because they were not considered consistent with the approach used to determine the recoverable amount of the first-level cash-generating unit⁹⁰);
- c) to provide a database to assess the reasonableness of recoverable amount, considering the external evidence.

In this case, the first-level impairment test concerns the CGUs of groups of CGUs to which goodwill is allocated; the second-level impairment tests regards the entire operating segment (including the CGUs to which no goodwill is allocated) and the unallocated costs and corporate assets pertaining to it; the third-level impairment test focuses on the entity as a whole.

⁸⁸ The presence of an external or internal indication of impairment requires an impairment test also for the units to which no goodwill is allocated. IAS 36.IE69 "Entity M has three cash-generating units: A, B and C. The carrying amounts of those units do not include goodwill. There are adverse changes in the technological environment in which M operates. Therefore, M conducts impairment tests of each of its cash-generating units. (...)" (emphasis added).

⁸⁹ Document Bank no. 4 of 3 March 2010 by Italy/Consob/Isvap. Working Group set up by Bank of Italy, Consob and Isvap on the application of IAS/IFRS: "Another aspect to be stressed is the need for directors to take due consideration of any external indications of impairment, such as those given by financial markets in the way, among others, of a market capitalization of the company lower than the carrying amount of the company's net assets. In such a situation, the directors should investigate the reasons for any difference between "external" valuations and the result of the impairment test. This analysis – which is required by IAS 36.12 (d) – must be accompanied by adequate supporting evidence. (emphasis added). Page 4 .

⁹⁰ IAS 36.75. "The carrying amount of a cash-generating unit shall be determined on a basis consistent with the way the recoverable amount of the cash-generating unit is determined"

15.2.3. What distinguishes the valuation of the entity as a whole from the first-level impairment test is the unit of account, i.e. the reporting unit whose recoverability is tested. The unit of account is not the same as the unit of valuation and, as such, the second-level impairment test may be conducted also with the sum-of-the-parts valuation approach. Where the value in use of a part cannot be reliably estimated and/or it is better to determine the fair value of this part, the second-level impairment test can be conducted by determining fair value for some parts and value in use for others. Use of the carrying amount can be made for some intangible assets when it is reasonable to suppose that their recoverable amounts exceed their carrying amounts.

15.2.4. The valuation of the entity as a whole does not have to be necessarily founded on the same approach as that used to value the CGUs in the first-level impairment test. However, it is appropriate to give evidence of the thoroughness of the analysis (in the sense that consideration has been given to all the assets and all the cash flows stemming therefrom) without excluding any asset and/or any cash inflows or outflows and/or without any cash-flow duplication.

15.3. Operational guidance

15.3.1. Valuation of the entity as a whole with the sum-of-the-parts approach. The valuation of the entity is generally made with the sum-of-the-parts approach when at least one of the following conditions is met:

- (a) the businesses differ in terms of risk profile and/or growth prospects and/or reference currency;
- (b) the test to calculate the recoverable amount of the CGUs (or groups of CGUs) to which goodwill is allocated in the first-level impairment test used fair value for some CGUs and value in use for others.

With the sum-of-the-parts approach, use is made of the recoverable amounts calculated in the first-level impairment test and the amount of unallocated corporate assets and costs. This means, first of all, that it is necessary to compute the present value of unallocated corporate assets and costs. The present value of corporate assets and costs (not allocated to the CGUs) is then subtracted from the overall value of the entity; such present value can be calculated on a pre-tax (utilizing pre-tax cash flows and discount rate) and on an after-tax (using after-tax cash flows and discount rate) basis. The projected corporate assets and unallocated costs should be consistent with the entity's valuation outlook (typically a finite life) while use should be made of cash flows consistent with the PFI utilized in the first-level impairment test (plan or cash flows either expected or weighted for scenario probability) both in terms of explicit horizon forecast and in terms of growth (beyond the explicit horizon). The discount rate must be consistent with that used for the other CGUs.

15.3.2. Valuation of the entity as a whole through the valuation of the entity as a single cash-generating unit. In this case the entity is considered as a single unit and the cash flows refer to it in its entirety. In this case the valuation approach must take into account:

- a) in the discount rate: the weighted average discount rate for the business units considered, except for the case where the cost of capital can be more easily estimated by reference to the unit as a whole or there is external evidence that such cost of capital (for example, in the case of listed companies with adequate analyst coverage, the discount rate may be derived from the analysts' valuations, when these do not use valuations based on the sum-of-the-parts approach);
- b) in the growth rate for terminal value: the weighted average of the growth rates of the different business units and the reinvestment (or capex) necessary to ensure growth consistent with the assumptions underlying the first-level impairment test.

The valuation approach adopted for the second-level impairment test does not have to be necessarily equal to the approach used in the impairment test performed on the CGUs or groups of CGUs to which goodwill is allocated. The approach can be different, provided that it is consistent in terms of cash flows, discount rates and growth rate in terminal value.

An equity value approach can be used for the entity as a whole also when the enterprise value approach has been used in the first-level impairment test. Also in this case, consistency is required in terms of cash flows, discount rates and growth rate in terminal value.

The equity value approach used for the entity as a whole can also take the view of the group instead of the entity. In a case such as this, consideration is given only to net profit attributable to the parent company's shareholders and compared to equity attributable to the parent company's shareholders (thus, excluding non-controlling interests).

15.3.3. The allocation of recoverable amount to each ordinary share requires:

- (a) in case the enterprise value approach is used: the deduction from the recoverable amount of financial liabilities and non-controlling interests. Both financial liabilities and non-controlling interests should be accounted for at fair value. However, there might be facts and circumstances that make this estimate arbitrary or meaningless;
- (b) in case the equity value approach is used: the deduction from the recoverable amount of non-controlling interests. Also in this case, non-controlling interests should be accounted for at fair value. However, there might be facts and circumstances that make this estimate arbitrary or meaningless.

In any case, it is necessary to consider:

- all the ordinary shares outstanding (= shares issued minus treasury shares);
- the potentially dilutive effects of convertible instruments (convertible bonds, warrants, stock options);
- any other class of shares outstanding (which are made equivalent to ordinary shares based on the discount or premium implicit in their market price vis-à-vis ordinary share prices. Also in the calculation of the discount it might be appropriate to refer to an average for no more than one year).