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The Multiple-Scenario Valuation Method: When Robust Strategy Meets Valuation Needs

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Abstract

In the presence of great uncertainty and volatility, the valuation of single assets or enterprises can be extremely complicated. Over the last few years, the European Securities and Market Authority (ESMA) has analyzed the potential impacts of these uncertainties on the application of the Impairment of Assets (IAS 36) accounting standards and exhorted firms adopting the IAS/IFRS accounting standards to consider multiple scenarios in forecasting information. This study, adopting a theoretical and conceptual perspective, aimed to analyze the theoretical and practical implications of the shift from single-path to multiple-scenario analysis. This paper contributes to the literature in the following ways: first, it suggests a new perspective of analysis that combines valuation needs with a strategic approach (a robust strategy). Second, it contributes to clarifying the antecedents and consequences of the ESMA recommendations. Furthermore, the paper also has practical implications as it highlights some critical issues associated with every valuation process, including the need to cope with growing uncertainty, the necessity of clarifying the great misunderstanding related to the confusion between the multiple-scenario valuation method and sensitivity analysis, and, last but not least, the importance of the relationship between strategy and the valuation process.

Keywords: uncertainty, multiple scenario method, robust strategy, scenario planning

1. Introduction

In the present context of great uncertainty and volatility, the valuation of single assets or enterprises can be extremely complicated. Regardless of the specific approach adopted, estimating the value of an enterprise or single asset is fundamentally based on forecasting future results, and consequently, the valuation process should incorporate the intrinsic uncertainty of the future (Green & Zhao, 2022; Komara et al., 2020).

Focusing, for example, on the income approach, methods change depending on the way uncertainty is incorporated into the forecasting process. When using the discounted cash flow (DCF) method, the most common implementation of the income approach, it is possible to identify (De Reyck et al., 2008; French & Gabrielli, 2005; Inselbag & Kaufold, 1997; Kruschwitz & Löffler, 2006; Oded & Michel, 2007):

- single-path DCF, based on a single scenario forecast;
- scenario-based DCF, based on multiple scenario analysis;
- decision tree analysis DCF, based on the formulation of several scenarios connected in a sequential way according to a time dimension; and
- stochastic-simulation DCF, in which one moves from discrete scenarios to statistical simulations with continuous variables, using methods based on multivariate analysis.

As generally known, the single-path approach is by far the most adopted valuation method in practice, but in a context characterized by great discontinuity and uncertainty, such as the present one, this method exhibits great weaknesses. In fact, the standard single-path DCF is only robust when there is little uncertainty about future outcomes or when the uncertainty is uniformly distributed around the expected outcomes; the reliability of the model diminishes in the presence of uncertainty (Koller et al., 2015).

In the single-path method, the risk associated with uncertainty is measured and included in the valuation process through the relationship between one flow of results (a series of flows) and one rate, specifically through a reduction of the flow and an increase of the rate. This is undoubtedly the simplest solution; however, it is not necessarily the most correct.

Over the last few years, specifically during the pandemic in 2020 and the Ukrainian war in 2022, the European Securities and Market Authority (ESMA) intervened with specific recommendations. In particular, on May 13, 2022, ESMA analyzed the potential impacts of the great uncertainty on the application of the Impairment of Assets (IAS) 36 accounting standard and exhorted firms adopting IAS/IFRS accounting standards to consider multiple scenarios when forecasting information (for the purpose of impairments). Later, the ESMA's public statement was reclaimed by the Italian authority for enterprises and stock exchange (CONSOB) and the Italian Valuation Organization (OIV), who published a paper titled "Non-financial assets impairment test (IFRS 36) after the Ukrainian War."

The different interventions culminated in a common recommendation: in a context characterized by great uncertainty and volatility, it is necessary to move from a single-scenario approach (one flow and one rate as the implicit result of several potential outcomes) to a multiple-scenario approach, under which several potential outcomes become explicit objects of valuation. In this case, the value of an enterprise value or a single asset is estimated in relation to the different possible outcomes or, at least, to some of the several possible outcomes. Therefore, to face the great uncertainty and volatility of current times, it is recommended that several possible configurations for future outcomes be identified in an explicit way, with each being assigned specific probabilities.

Moving from theory to practice, the transition from a single-path perspective to a multiple-scenario perspective gives rise to at least two questions:

- What does building different scenarios mean?
- What is the relationship between each scenario and cash flows, that is, what about the relationship between scenario building and scenario planning?

This study aimed to answer these questions by adopting a perspective that combines both theoretical and operational needs. The study deepens the foundation of multiple-scenario valuation methods, highlighting their theoretical antecedents, operating aspects, and main implications from a strategic and an evaluative point of view.

This paper contributes to the literature in the following ways: first, it suggests a new perspective on analysis that combines valuation needs with a strategic approach (a robust strategy). Second, it contributes to clarifying the antecedents and consequences of the ESMA recommendations. Furthermore, the paper also has practical implications as it highlights some critical issues associated with every valuation process, including the need to cope with growing uncertainty, the necessity of clarifying the great misunderstanding related to the confusion between the multiple-scenario valuation method and sensitivity analysis, and, last but not least, the importance of the relationship between strategy and the valuation process.

The paper is organized as follows. Section 2 develops the theoretical antecedents of the multiple-scenario valuation method, focusing particularly on the role of the IFRS. Section 3 discusses the definition and role of scenario building and outlines the probability attribution problem. Section 4 focuses on the link between scenario building and scenario planning, with specific attention to the "robust strategy" concept. Finally, Section 5 concludes the paper and presents the contributions, recommendations for future research, and limitations of the study.

2. Antecedents of the Problem IAS 36 and IFRS 13

Appendix A of the IAS 36 focuses on the use of present value techniques to measure value in use, pointing out that according to the traditional approach (single-path), accounting applications of present value are based on a single set of estimated cash flows and a single discount rate, often described as the “rate commensurate with the risk” (IAS 36, A4) (André et al., 2018). However, in some situations, the expected-cash flow approach is a more effective measurement tool than the traditional approach (IAS 36, A7). The expected-cash flow approach uses all possible cash flows (cash flow scenarios) instead of the single most likely cash flow. The expected-cash flow approach thus differs from the traditional approach in that it focuses on a direct analysis of the cash flows in question and the more explicit statements of the assumptions used in the measurement.

The use of probabilities is an essential element of the expected-cash flow approach, and as IAS 36 clarifies, the use of probabilities is also present in the traditional approach (single-path) albeit from a very different perspective.

Appendix B of IFRS 13 (Fair Value Measurement) deals with this issue by recalling the following basic notions (Ball, 2006; Busso, 2014; Devalle & Rizzato, 2014; Filip et al., 2017):

- The present value techniques belong to the income approach method (IFRS 13, B11).
- Among the present value techniques, it is at least possible to distinguish between the discount rate adjustment technique and the expected present value (expected cash flow) technique.
- The discount rate adjustment technique uses a single set of cash flows from the range of possible estimated amounts, whether they are contractual or promised cash flows (as is the case for a bond) or most likely cash flows. In every case, the cash flows are conditional upon the occurrence of specified events, meaning that contractual or promised cash flows for a bond are conditional upon the event of no default by the debtor. The discount rate used in the discount rate adjustment technique is derived from observed rates of return for comparable assets or liabilities that are traded in the market. Accordingly, the contractual, promised, or most likely cash flows are discounted at an observed or estimated market rate for such conditional cash flows (i.e., a market rate of return; IFRS 13, B18–B22).
- The expected present value technique uses a set of cash flows that represent the probability-weighted average of all possible future cash flows (i.e., the expected cash flows) as a starting point. The resulting estimate is identical to the 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; IFRS 13, B23). The expected present value technique can be applied in two different ways, namely, Methods 1 and 2 (IFRS 13, B25–B30), which one can redefine as the certainty equivalent method and the risk adjusted discount (RAD) method, respectively. In the certainty equivalent method, the adjustment for systematic risk takes place on the cash flows (risk-adjusted expected cash flows) and the discounting rate is risk-free, whereas the RAD method adjusts for systematic risk by applying a risk premium to the risk-free interest rate.

This paper focuses on the expected present value technique, particularly on its RAD method, which is the most frequently adopted method in business valuation. The nature of the relationship between expected cash flows and their probabilities is described in IFRS 13. To better understand its logic, a numerical example will be used (Beretta Zanoni & Bovolenta, 2022). First, we will assume the formulation of three scenarios with the following expected cash flows and probabilities (Table 1).

Table 1. Average expected flow: Example 1

	Flow	Probabilities	Weighted flow
Scenario 1	100	60%	60
Scenario 2	80	30%	24
Scenario 3	60	10%	6
Average expected flows (weighted)			90

Assuming that the average weighted flow of 90 is capitalized at a 10% rate, it will be equal to the opportunity cost of capital, that is, the average expected return for the investor.

$$\text{Present value}=90/0.1=900 \tag{1}$$

In the traditional approach (single-path), the most probable scenario—the scenario characterized by a flow of 100 (higher than the average flow)—would be considered. If that flow was capitalized at a 10% rate, a different return would be achieved (1000 instead of 900), but this return would be incorrect because it would not consider the additional risk that the single scenario (conditioned scenario) implies. In other words, the risk adjustment (10% rate) cannot be the same if the flow is 100 or 90 because the first flow does not take into consideration the probabilities' distribution. Therefore, in this numerical example, with a present value of 900 and the most probable flow of 100, the size of the rate adjustment would be as follows:

$$\text{Implicit rate}=100/900=0.11 \tag{2}$$

$$\text{Rate adjustment}=0.11\text{-}0.10=0.01=1\% \tag{3}$$

However, under specific conditions, the most probable scenario is equal to the average expected scenario, and therefore, the most probable flows are equal to the average weighted flows. This circumstance occurs when alternative scenarios and the most probable scenario are symmetrical, both in terms of probabilities and values; in this case, future returns get closer to a normal distribution, in which the mode and mean value correspond. Therefore, when the most probable scenario is equal to the average expected scenario, rate adjustment is no longer necessary. Now, we will consider an example with symmetrical scenarios (Table 2).

Table 2. Average expected flow: Example 2

	Flow	Probabilities	Weighted flow
Scenario 1	110	20%	22
Scenario 2	80	70%	56
Scenario 3	20	10%	2
Average expected flows (weighted)			80

In this case, with a rate of 0.1 and the most probable flow equal to 80:

$$\text{Present value}=80/0.1=800 \quad (4)$$

$$\text{Implicit rate}=80/800=0.1 \quad (5)$$

$$\text{Rate adjustment}=0.1-0.1=0 \quad (6)$$

Based on this reasoning, it is clear that the more asymmetrical the scenarios are, the greater the difference between the two rates i.e., the greater the size of the adjustment that will be applied to the rate because of the conditioned scenario risk premium. The following example shows a situation in which the difference between the most probable and average weighted flow increases (Table 3).

Table 3. Average expected flow: Example 3

	Flow	Probabilities	Weighted flow
Scenario 1	130	40%	52
Scenario 2	80	30%	24
Scenario 3	20	30%	6
Average expected flows (weighted)			82

In this case, with a rate of 0.1 and the most probable flow equal to 130:

$$\text{Present value}=82/0.1=820 \quad (7)$$

$$\text{Implicit rate}=130/820=0.158 \quad (8)$$

$$\text{Rate adjustment}=0.158-0.1=0.058=5.8\% \quad (9)$$

These examples help us implicitly hypothesize that when flow forecasts are based on a single scenario and the analyst does not consider any rate adjustment for the scenario risk, the forecasted flows are the most probable. Simultaneously, we assume that the flows get closer to the weighted average flows, in relation to a hypothetical probability distribution.

This is the rationale from which the ESMA recommendations arise, along with what has been established by International Accounting Standards: in times of crisis, such as have occurred over the past few years (COVID-19 pandemic, energy crisis, Ukrainian war, etc.), the results forecasted according to the most probable scenario are unlikely to correspond to the average expected scenarios because the symmetry among the most favorable and the most unfavorable scenarios no longer exists. Notably, the most unfavorable scenario usually becomes the worst one, the most probable one, or both.

Therefore, since the implicit assumption of equality between the most probable and weighted average flows becomes less robust, it is recommended that the alternative flows (coming from alternative scenarios) and the probabilities of their occurrence be made explicit.

In Appendix B of IFRS 13, it is recognized that in more realistic situations, there could be several possible outcomes. However, when the expected present value technique is applied, it is not always necessary to consider distributions of all future cash flows. Rather, it might be sufficient to develop a limited number of discrete scenarios and probabilities that are able to "capture the array of possible cash flows" (IFRS 13, B28). On the one hand, this simplification allows for the avoidance of using complex models and techniques, thus giving room for the use of multiple scenario methods. On the other hand, the risks can lead to some misunderstandings primarily relating to the distinction between sensitivity analysis and the multiple-scenarios valuation method.

Sensitivity analysis (Frey & Patil, 2002; McConkey, 1987; Rappaport, 1967; Tsanakas & Millossovich, 2016) is a key flexible planning tool that helps to bring about change within strategic processes and plans. Sensitivity analysis is a financial model that determines how target variables are affected by changes in input variables. It is also known as the "what if" or simulation analysis. Sensitivity analysis measures the impact of the uncertainties of one or more inputs on the outputs. It can be extremely useful in strategic planning processes because it improves the robustness of the model and, in particular, the economic and financial projections over a specific time horizon, measuring the results' response to some changes in input variables. Therefore, in sensitivity analysis, the hypothetical structure at the base of the forecast process does not change; only the key variables (normally a few) change.

In contrast, different hypothetical frameworks form the basis of alternative scenarios; not only does one variable (or a few) need to change, but the type of future hypothesized also needs to change. In fact, scenarios are descriptions of how specific events could arise and, consequently, how a future situation could play out (Godet, 1997). So, for example, within a sensitivity analysis, it is possible to simulate what happens to future cash flows when expected market shares decrease; rather than developing alternative scenarios, it is better to imagine several different future situations, each of them characterized by specific features (among which are different market shares).

To better understand the problem, let's consider a highly simple and common case. Let us assume that we have a strategic plan that implicitly corresponds to one scenario and that by changing one or a few assumptions, other scenarios are designed (normally two: the best and worst scenarios). The question here is, "Is the analyst in a multiple-scenario context?" Whether the answer is positive or negative depends on both the number of variables modified and the way in which they have been modified. In practice, the scenario probably is the same (the one implicitly embedded in the strategic plan) and, with the typical logic of sensitivity analysis, only some quantitative parameters have been changed. In this case, a multiple-scenario context does not exist because, in reality, only one scenario has been formulated, with specific variations of one or more variables within the same implicitly chosen scenario. In other words, no multiple scenarios exist.

Therefore, to develop a valuation technique that is truly based on the expected value logic, it is necessary to:

- identify alternative plausible scenarios (it is possible to attribute an occurrence probability to each scenario); we will call this process "scenario building" (De Jouvenel, 2000; Durance & Godet, 2010); and
- attribute specific forecasted cash flows to each scenario; we will call this step "scenario planning" (Chermack et al., 2001; Amer et al., 2013).

3. Scenario Building

Since the 1970s, both academics and practitioners have studied and recommended scenario analysis to help with the many uncertainties that business organizations face. The external environment is full of unexpected changes, and it is sometimes hard to detect ambiguous trends, which makes long-term forecasts often worthless the moment they are made.

Scenario analysis is not aimed at making forecasts but rather at the creation of alternative images of the future (De Jouvenel, 2000; Durance & Godet, 2010; Godet, 1997). Therefore, its aim is not to predict the future but to provide a map of what might occur in the future, boosting organizations' ability to sense, shape, and adapt to whatever happens in the years ahead.

Scenarios are the result of a learning process and are based on the formulation of assumptions and simulations of future events. Consequently, scenarios highlight crucial uncertainties that impact the (strategic) decisions managers have to make. Scenario analysis does not suggest what to think about the future but rather how to think about the future.

Regarding scenario building, it is worth mentioning that, unlike what is done in sensitivity analysis, alternative scenarios are based on the so-called "scenarization" techniques that were initiated and developed in the 1960s with the aim of finding ways of dealing with managers' mindsets so that they could anticipate various futures and prepare for them. Numerous years of research and application have given rise to several different approaches and techniques for constructing scenarios (Godet 1987; Huss 1988; Ringland, 1998; Schwartz, 1991; van der Heijden 1996; von Reibnitz, 1988). Starting from this rich literature and with the aim of alleviating the confusion regarding scenario techniques, Bishop et al. (2007), in their scenario analysis literature review, pointed out eight broad categories (types) of scenario techniques, with two or three variations for each type, resulting in more than two dozen techniques overall.

Despite the many techniques analyzed in the literature, for the sake of this study, we opted to rely on the logic intuitive approach and, in particular, its deductive perspective based on a 2x2 matrix or slightly more advanced models, such as the compass model. According to the compass model, the analyst chooses the two critical dimensions from which it is believed the current state can evolve and then radicalizes its future evolutions to extreme directions, pointing out four possible evolutions of the current state (Meinert, 2014).

The two critical dimensions can be identified and selected using cross-impact analysis (CIA) techniques. These techniques allow for the identification of the possible dimensions, from a number that is not too high, that have the greatest influence as well as the least dependence on others. CIA methods are used as analysis and decision support tools, especially in cases where few statistical or empirical data are available. They allow for theory-driven and expert-oriented systems modelling (Bañuls & Turoff, 2011; Gordon & Hayward 1968; Helmer, 1981; Medina et al., 2015; Panula-Ontto & Piirainen, 2018; Thorleuchter & van den Poel, 2014; Weimer-Jehle, 2006).

CIA methods are often used for scenario building. Several types of CIA exist and have been used for analyzing the complex interactions of several processes. The central idea of CIA is that it is based on expert judgments about systemic interactions, which are analyzed to form a basis for future scenario building. CIA methods can be used in cases where computational models cannot be used due to the variety of theoretical or methodological approaches utilized or the unavailability of required numerical data.

After identifying several possible future scenarios, the issue of attributing specific probabilities comes to light. To properly use scenarios for valuation purposes, it is necessary that the scenarios identified cover the entire range of possibilities and not just some of them. It is worth mentioning that the attribution of probabilities to scenarios requires that the risk is quantifiable in a discrete way. In any case, whatever variables are used to define the different scenarios, the outcome must be discrete. For example, we will consider a simple case. We will define four scenarios based on two variables, one of which is the national gross domestic product (GDP) growth for the next two years. To build different scenarios, we will imagine two different situations: strong growth and weak growth. We will define strong growth as any growth in GDP above 2% and low growth as any growth in GDP below 2%. This way, two discrete outcomes have been identified and related to a variable—GDP growth—which, in reality, moves in a continuous way due to its nature.

Lastly, when the scenario technique is used in the valuation process, it is necessary to hypothesize that the risk factors weighing on the object of valuation (asset or enterprise) do so simultaneously, not sequentially. In fact, under the latter situation, the decision tree technique would have to be implemented (De Reyck et al., 2008; Kotsiantis, 2013); this technique is a scenario analysis method in which future scenarios progressively arise from the occurrence of specific events or decisional points in a right, sequential way.

A simple method of attributing probabilities to designed scenarios consists of identifying specific drivers to associate with the dimensions used to define the same scenarios. Drivers make the conditions that drive the evolution of a specific dimension in one direction or another explicit. Drivers can be specific events (such as the passage of a law) or some threshold values (such as a 2.5% growth in GDP over a four-year period).

4. Scenario Planning and Robust Strategy: The Response to the Problem

The distinction, albeit small, between scenario building and planning is useful for understanding the differences between scenarios, strategies, and plans (Godet, 2000). Looking at some basic concepts in the strategic management literature (Beretta Zanoni & Vernizzi, 2020), it was possible to highlight the following:

i. Scenarios are alternative images of the future development of the external environment.

ii. Strategy is a set of choices related to the development of a business model, given a goal set by the company management and the constraints and opportunities arising from the external environment.

iii. Strategic plans are the programmatic translation of strategy for a specific future time horizon.

In other words, the distinction between scenario building and planning answers the following question: "What is the relationship between the different scenarios identified in the scenario building phase, the strategy of the firm, and its formalization within a strategic plan?"

More concretely, the question can be posed in the following way: "Has the analyst identified an economic and financial plan for each scenario that is useful for the valuation process?" The availability and attribution of specific economic and financial forecasts to each designed scenario is a necessary element to identify the different cash flows that form the basis of the development of a useful, real multiple-scenario valuation. This is what allows one to distinguish a multiple-scenario method from a sensitivity analysis, which, as previously mentioned, is based on just one economic and financial forecast with some modified variables. By adopting real multiple-scenario valuation methods, each of the possible outcomes (or at least, some of the possible outcomes) becomes the specific object of economic and financial planning (cash flow). Thus, it moves from just one valuation result (the synthesis of several possibilities) to a higher number of valuation results.

If the process of scenarization does not involve specific economic and financial plans, even when complete and effective, it will not be sufficient to carry out a valuation using the multiple-scenario technique.

In other words, to concretely carry out a real multiple-scenario valuation, it is not sufficient to have just one strategy and plan (associated with a specific cash flow); rather, it is necessary to have a robust strategy that can adapt to several future scenarios designed through the scenario-building process and create specific economic and financial plans (cash flows) for each scenario.

Robustness is an important criterion for making good decisions in the context of uncertainty (Metz et al., 2001; Rosenhead et al., 1972). Where risks are well-defined, quantitative analysis should aim to identify optimal strategies. However, when uncertainties are significant, robustness may be preferable to optimality as a criterion for evaluating decisions. In recent years, formal methods of finding robust strategies have emerged across various subject areas, including operations research (Kouvelis & Yu, 1997), Bayesian analysis (Berger, 1985), the control theory (Zhou & Doyle, 1998), and engineering (Ben-Haim, 2001). Generally, the robust decision-making methods theory has been designed to reduce problems of overconfidence by challenging analysts and decision-makers to explore a wide range of plausible futures and to facilitate agreement by providing an analytic framework in which parties can agree on near-term actions that are robust across many expectations and values. One important attribute of robust decision-making methods is that they can help decision-makers design robust strategies whose components may not be obvious at the onset. For instance, robust strategies are often adaptive, meaning they evolve in response to new information (Dibrell et al., 2014; Lempert et al., 2006). In the strategic literature, the concept of robustness copes with the concept of strategic agility, which is deeply rooted in strategic management. Robustness is defined as the ability to remain flexible when facing new challenges, continuously adjusting the strategic direction of a company, reassessing previous choices, and changing direction in light of new developments (Brueller et al., 2014; Doz & Kosonen, 2008; Weber & Tarba, 2014). As emphasized by Lewis et al. (2014), strategic agility has a delicate nature: it is synthesized by a complex balance between a stable commitment to a vision, the importance of a strategic planning process, and the ability to be adaptable and open to emerging decisions. Therefore, starting from the agility concept and moving to the valuation context, we can define a robust strategy as one that is able to adapt easily to different identified scenarios (van der Heijden, 2005). A robust, adaptive strategy might set signposts, the observation of which would suggest that the future is evolving along one of several critical paths. The strategy might also specify actions that could be taken in response to one or more of the signposts observed (Dewar, 2001). Given the difficulty of considering the multiplicity of potential future paths, even experienced decision-makers may have little initial idea about the most robust combinations of signposts and responses. A robust strategy, therefore, allows organizations to cope with partial ease (or, in any case, with more ease) with the different future scenarios identified. If this is the case, strategic plans and their related economic and financial forecasts (and cash flows) can also be shaped according to the several scenarios without great difficulty because they are essentially driven by the same strategic framework. In other words, it is not possible to truly adopt a multiple-scenario method in the absence of a robust strategy that drives the definition of the specific cash flows associated with the scenarios identified through the scenario-building process. Hence, implementing a robust strategy is the only way to truly adopt multiple-scenario valuation. A correlation exists between the robustness of a strategy, its implicit risk, and the expected performance results; in physiological conditions, the more robust a strategy is, the less risk there is and the higher the level of expected performance there will be. The situation is very different when the strategy is not robust because in that case, the strategy and plan are highly idiosyncratic in relation to just one of the many scenarios identified. To cope with the other future scenarios identified, organizations would need extremely different strategies or, at least, an alternative robust strategy that is able to flexibly adapt. This case does not involve the adaptation of the ongoing strategy plan to alternative scenarios but rather the creation of new strategies and plans to cope with new and different scenarios (Figure 1).

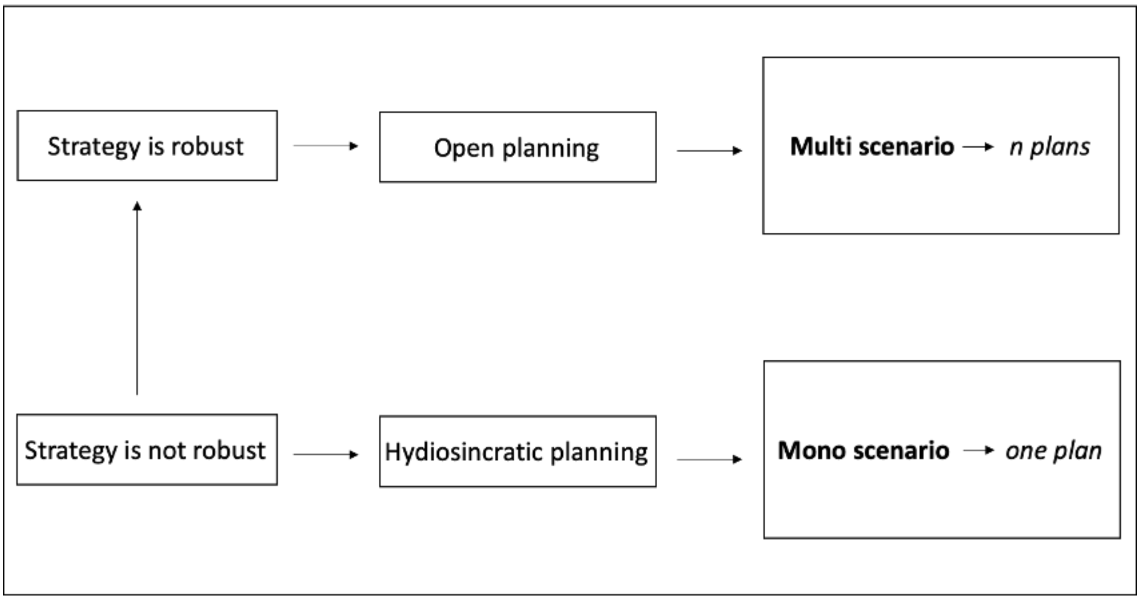

Figure 1. Robust strategy and planning activities

Naturally, this is a complex exercise that undoubtedly suggests a conclusion: the multiple-scenario method is only adoptable if the strategy is adequately robust. If this is not the case, the single-path method remains the more feasible option, acknowledging the high risk implicitly inherent in the method—the rate increase and the reduction of expected cash flow.

5. Discussion and Conclusion

The last 20 years have proven that events characterized by great discontinuity and unpredictability are occurring more frequently (Altig et al., 2020; Baker et al., 2020; Bose et al., 2022).

The most impressive examples are, without a doubt, the 9/11 attacks, the great financial crisis of 2008, the sovereign debt crisis in 2011, the COVID-19 pandemic in 2019, and, last but not least, the Ukrainian war in 2022. However, despite the great relevance and shocking reaction elicited by each of these events, they are the consequences, and not just the causes, of the turbulence which economic systems are forced to face. The ultimate cause seems to be the growing complexity of the modern world, fostered by the development of new technologies, demographic changes, climate challenges, and the redesign of new economic and geopolitical balances between countries.

In this context, it is quite simple to comprehend how difficult it is to make effective forecasts and elaborate effective strategic planning (Schwenker & Wulf, 2013; Weston, 2020). Increasing complexity and market turbulence make traditional forecasting and strategic management methods less precise and able to cope with uncertainties (Lindgren & Bandhold, 2002).

This kind of unpredictability and volatility also affects the process of asset and enterprise valuation, which is naturally based on future forecasts. The valuation process can be extremely complicated if the analyst is unable to compare the present (and the possible future) to any events that have already occurred. The direct operating implication is that when variable fluctuations are unpredictable, the single-path DCF valuation model is no longer able to provide an appropriate solution for anticipated major disruptions and changes. Thus, the need to resort to an effective multiple-scenario method arises (Seneschal, 2018).

The ESMA recommendations lean in this direction: in the face of great uncertainty, an explicit method of identifying several possible future scenarios and relative future results, to which specific probabilities are attributed, should be used. This can only be achieved through the effective application of a real multiple-scenario approach. By doing so, valuation can gain the rationality it needs. However, it is only through the adoption of a robust strategy that organizations can truly implement a multiple-scenario approach, completing the cycle.

By adopting a double perspective (theoretical and practitioner), this paper highlights the antecedents of moving from a single-path to a multiple-scenario valuation method, emphasizing the role of IFRS in this change in perspective. In addition, the paper discusses one of the great issues of strategic management—the scenario-building process (De Jouvenel, 2000; Durance & Godet, 2010; Godet, 1997). It delves deep into the relationship between scenario building and scenario planning, shedding light on the necessity of developing a robust strategy (Dibrell et al., 2014; Lempert et al., 2006), which is the strategic approach with which organizations can manage their valuation needs with several possible future scenarios.

In conclusion, this paper contributes to the existing literature by giving a new perspective of analysis that combines valuation needs with a strategic approach, i.e., robust strategy (Lempert et al., 2006), focusing on the role of scenario building and highlighting the strict relationship that exists between scenarios and cash flows by shedding light on the relationship between strategic planning and every valuation process.

The paper also has managerial and practical implications. First, it highlights three significant issues of valuation: the need to cope with growing uncertainty, the need to clarify the confusion between the multiple-scenario approach and sensitivity analysis, and the importance of the link between strategy and the valuation process. Without an effective, methodologically rigorous, robust strategy, every valuation process, particularly in the context of great uncertainty such as the present one, loses its significance and rationality.

This paper has some limitations. First, it does not deeply delve into the probability attribution issue, a crucial point of the multiple-scenario approach. Further studies should aim to fill this gap by analyzing, in particular, the methodological building blocks of probability attribution and their implications on the application of the multiple-scenario method. Additionally, the paper does not delve deep into the technicalities related to the scenario-building process. Future research should examine, in depth, the link between the strategic approach adopted (i.e., how robust the strategy is) and the planning activity through which the cash flow associated with different scenarios is defined. Further studies should improve and broaden the suggestions put forward in this study, with specific analyses related to the practical application of multiple scenario method resorting to case studies and empirical analysis.

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