CASH-FLOW-AT-RISK

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Overview

We introduce a methodology to analyze the long-term projection and the associated risks of a company's future cash flows. The enhanced methodology is designed to support, not replace any existing analysis.

The Cash-Flow-at-Risk methodology supports management to make business decisions with a clear view on the effect on the possible outcomes on the cash flow levels in any given year. The analysis helps to support management through:

- articulating the distribution of projected cash flows and assessing the likelihood of meeting certain targets such as the company's dividend commitment.
- assessing financial risk to be able to set, monitor and enforce agreed levels of financial risk appetite at the corporate level or any business levels.

Cash-Flow-at-Risk analysis requires simulation to be run stochastically to determine the range of possible outcomes for the overall company financial projections, based on assumed distribution of parameters (Monte Carlo simulation). The analysis provides a description of the risk-reward characteristics that is superior compared to a deterministic single point estimate.

Methods

The traditional approach is to perform scenario analysis to determine possible financial outcomes under alternative assumptions. This approach remains an important tool of the cash flow analysis. However, there are drawbacks to this approach. Each scenario analysis shows a single alternative outcome; only one variable can be changed at a time, and; there is no way of assessing how probable the stress scenario is.

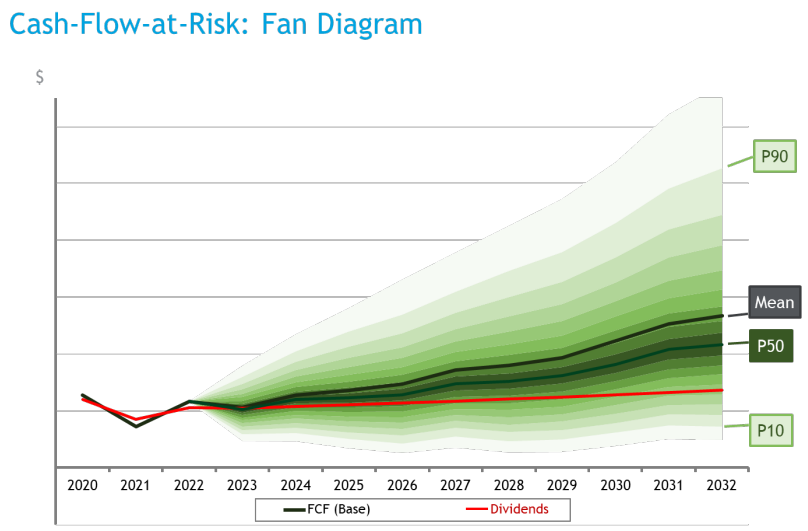
Cash-Flow-at-Risk analysis provides a superior way of analyzing uncertainty inherent in the financial forecast. It provides a tool that allows us to assess the spread of possible outcomes and also assign probability to certain outcomes, most importantly the probability that we will achieve a certain cash flow target. The analysis is also more flexible than traditional scenario analysis or stress testing in that many variables that drive cash flows can be changed and the joint effects on cash flow examined. The spread of outcomes is also crucial in supporting decision making, for example in planning for a safety margin, and in reviewing acceptability of extreme outcomes.

A major benefit of Cash-Flow-at-Risk analysis is the ability to provide management with the understanding of risk factors and drivers that affect the Company cash flows. These drivers are factored in as the distribution of the assumptions that drives the cash flows.

The Cash-Flow-at-Risk analysis relies on assumptions that are robust, ideally applying forward looking data based on the market expectations where available.

Results

The total cash flows are calculated from the stochastic simulation of its constituent parts, based on probability distributions as described above. The resulting distribution of total cash flows can be analyzed, and be associated with probability distribution. The chart below illustrates an example of total cash flows (free cash flow to equity) over 10 years, together with the spread of its likely outcomes.



In summary, the above chart shows the expected envelope of free cash flow to equity, and the threshold of probabilities.

The cash flow result from this stochastic analysis can be compared against a target cash flow, in the example above the red line represents the dividend level that has been committed to.

One of the major conclusions of the stochastic analysis is in revealing the risk of not meeting the target, a risk that is not apparent in the scenario analysis. Even under the stress scenario in the deterministic case, this risk is concealed as it may show the targets are met hence giving a false sense of security, as in reality there is still sizable chance that this will not be the case.

The same methodology above can also be easily applied to the business to assess the probability of meeting certain cash flow targets at the business segment or business unit levels.

Conclusions

The enhanced methodology allows quantification of the company's financial risks through the measure of Cash-Flow-at-Risk. Analogous to a bank's or financial institutions' trading portfolio, the company's portfolio of real assets could be analyzed using stochastic analysis and a value-at-risk established based on the volatility of future cash-flows.

The quantitative analysis allows the financial risk appetite to be established, gauged and tracked over time, in support of other qualitative assessment.