Best Practices to Achieve an Efficient Fixed-Income Attribution Model

INTRODUCTION

The purpose of fixed-income attribution is to identify the sources of returns and identify the contribution of active management to the excess return.

The manager of a bond portfolio realizing a return can primarily justify it first, with certain components, such as the coupon and the convergence to the nominal value at maturity, and second, by an uncertain risk premium. The uncertain component of the return depends on the exposure to various risk factors that are associated with changes in the yield curve, evolution of the credit spread, prepayment expectations (for example for MBS) and inflation (ILB for example).

Other risk factors may also explain the sources of returns, and for convertible bonds, the volatility of the underlying share is a significant risk factor.

The objective of fixed-income attribution is threefold:

- Provide managers with a powerful tool for management monitoring
- Reinforce risk control and the performance of management teams
- Strengthen the quality and transparency of communication to customers

THE DIFFERENT FIXED-INCOME ATTRIBUTION MODELS

The bond manager makes decisions regarding its exposure to different risk factors: interest rate risk associated with deformations of the treasury curve, the credit risk depending on changes in market spread, the risk of prepayment for MBS/ABS, inflation risk for Inflation Linked Bonds (ILB) and other factors specific to over-the-counter bonds. For example, the bond manager may decide to extend the duration of his portfolio in order to obtain greater exposure to the interest rate factor, or to buy MBS to obtain the risk premium associated with the prepayment factor.

For fixed-income attribution to be useful, the model used must explain the contribution of active exposures to risk factors. Multifactorial models allow a breakdown of the total return into various elements associated with each factor. Of course, doing this implicitly assumes that the factors are not correlated. For example, the level of credit spread is not dependent on the level of the yield curve. Many factor models exist, such as Tim Lord or Murira Sierra. These models allow the breakdown of returns in numerous risk factors, using observable and accessible data at an efficient cost.

ACHIEVE DATA GOVERNANCE

The fundamental element necessary to ensure quality results, in addition to choosing a model that explains how a specific investment decision delivers active return, is the ability to obtain and validate the data. For this reason, factor models have a significant advantage over repricing models. The data is limited to the collection of treasury curves by currency or group of currencies, credit curves for different levels of risk credit (ratings), and data specific to the issue, such as market spread, Option Adjusted Spread, Yield to Maturity, or sensitivities to risk factors (modified duration, spread sensitivity, prepayment sensitivity, etc.) By limiting the amount of required data, it is possible to set up a series of validation tests for data quality and also for the results produced.

IMPROVE MANAGEMENT CONTROL

Using a fixed-income attribution application fulfils at least two objectives. First, it improves transparency in communication with clients, and second, it strengthens the management control process. Using attribution, the bond manager can follow the return he obtains according to his choices regarding active exposure to certain risk factors. Management can ensure that individual managers are efficient in their management, and that they obtain sufficient returns to justify the exposure to risk factors. For a fixed-income attribution solution to become an effective tool for management control, it is essential that all third parties understand the models and that the results produced are in line with the changes observed in the treasury curve, the credit curve, the prepayment risk and other sources of risk. Only intuitive and controllable models achieve this objective.

IN BRIEF

The establishment of a fixed income attribution process first requires an excellent understanding of how bond portfolio managers structure their portfolios to achieve returns that justify the choice of active exposure to different risk factors.

After identifying the various investment decision processes, it becomes necessary to have a flexible tool to adapt the models to these investment processes.

The choice of models is also directly determined by accessible data - this data may not, perhaps, be available immediately, but it can be obtained efficiently.

The chosen solution should not only be able to validate the data before calculations are performed (pre-calculation validation) but also allow validation tests on the effects of the attribution (post-calculation validation) in order to ensure that they are in line with market developments. If the models are comprehensible and the results validated and accurate, then fixed income attribution contributes greatly to the asset management value chain.