Axioma Factor-based Fixed Income Risk Model

July 2020

Powered by proprietary methodologies for issuer classification and modeling issuer spread returns, the Axioma Factor-based Fixed Income Risk Model enables portfolio and risk managers to construct investment portfolios with better control for tracking error and rigorously manage exposure to investment style factors.

Our Approach

The Axioma Factor-based Fixed Income Risk Model combines:

- **Parsimonious credit factor model**: coverage for spread risk of corporate, foreign currency sovereign (EM, DM), sub-sovereign and supranational bonds in all major and minor currencies for IG and HY

- **Granular key rate factors and rate volatility factors**: coverage for interest rate risk

- **Covariance with multi-asset class risk factors covering equities, commodities, FX, etc.**

The factor model is derived from a cross-sectional regression on thousands of issuer-level spread returns with Duration Times Spread (DTS)-based factor exposures. The factor structure incorporates:

- Global and regional market factors
- Currency factors
- Quality factors by region
- Sector factors
- Style Factors: Momentum, Value, Beta, Size and Steepness
The factors have been rigorously tested for statistical significance in explaining returns and are comparable to Axioma’s industry-leading equity risk factor models in capturing factor risk.

Figure 1: Risk attribution through time for a US high yield benchmark to the model factors

Key Differentiators:

> **Meaningful risk factors**: Portfolio risk attribution can be derived from statistically significant factors (sector, quality, style, etc.)

> **Style factors as risk model components**: Risk premia returns for style-tilted portfolios can now be captured by systematic factors in the risk model

> **Superior Specific Risk estimation**: Granular bond-level specific risk derived from issuer spread curves is combined with issuer specific risk derived from the parsimonious factor model

> **Risk differentiation across spread regimes**: Beyond DTS, risk is further differentiated across four spread quality categories

> **Model built on Issuer Spread Curves**: Factor return estimation based on 4,500 issuer spread returns; bond exposures generated from 12,000 full term structure issuer spread curves and an additional 6,000 rating-sector-currency-region aggregate curves produced daily

> **Proprietary Issuer Classification System**: New methodology to classify issuers that maximizes the number of relevant bonds used to construct issuer curves, assigns a country and sector of risk, and separates out bonds with different risk characteristics.
Axioma Factor-based Fixed Income Risk Model can be used for:

- **Risk Management**: Monitor and manage risk through ex-ante risk decomposition
- **Factor-based Investing**: Construct smart beta strategies and tilt portfolios
- **Index Replication**: Create tracking baskets to replicate broad fixed income indices
- **Factor-based Risk Attribution**: Attribute portfolio risk to the risk factors

Axioma Factor-based Fixed Income Risk Model is intended for:

- Fixed Income quant or smart-beta investors
- Quantamental Hedge Funds
- Sell-side quant strategy teams focused on Fixed Income factors
- Fixed Income fund managers pivoting to smart beta strategies
- Investors investigating style biases in Fixed Income strategies
- Asset managers constructing benchmark-tracking ETFs

Additional Model Details:

- **Instrument Coverage**: Corporate, foreign and local currency sovereign, sub-sovereign, supranational and covered bonds
- **Extensive history**: More than a 17-year history of daily fixed income risk factor returns

Delivery Method

This model is available in the Axioma Risk™ platform with output that can be directly imported into the Axioma Portfolio Optimizer™.

Getting Access

Please contact your Qontigo sales representative for more details on the Axioma Factor-based Fixed Income Model.
Axioma Factor-based Fixed Income Risk Model

By Qontigo GmbH
First published December 2019
This version published 22 July 2020
Copyright© 2020 Qontigo GmbH.

axiomaBlue, Axioma Risk, Axioma Portfolio Analytics,
Axioma Portfolio Optimizer, and Axioma Risk Model Machine
are trademarks of Axioma, Inc. All other company, organization,
product, or service names referenced herein may be trademarks
of their owners.