Anexo I. Registro del Título del Trabajo Fin de Grado (TFG-BA)

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PROGRAMA: E2-Analytics GRUPO: 5ºA FECHA: 21/10/2024

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Título provisional del TFG-BA:

Improving Bond Portfolio Profitability Using TSIR Curve Analysis

ADJUNTAR PROPUESTA (máximo 2 páginas: objetivo, bibliografía, metodología e índice preliminares)

Firma del estudiante:

Fecha: 21/10/2024

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Improving Bond Portfolio Profitability Using TSIR Curve Analysis

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MADRID | Octubre 2024

OBJECTIVE

The aim of this project is to enhance the profitability of a bond portfolio by constructing the Term Structure of Interest Rates (TSIR) curve. Based on this curve, recommendations will be made for optimizing the allocation of bonds within the portfolio, including increasing or decreasing weight in specific bonds and identifying potential selling opportunities.

METHODOLOGY

The first step involves data collection, where bond prices, bid-ask spreads, and other relevant data are obtained from Bloomberg. In this phase, bond bid-ask quotes are interpreted, and the data on bond prices and coupon rates are prepared for further analysis.

Next, the bond prices and Yield-to-Maturity (YTM) are calculated. These calculations are based on the bond's coupon payments, maturity, and the prevailing market interest rates, providing an essential yield measure that incorporates various bond characteristics.

Following this, key bond metrics such as Macaulay duration, modified duration, and convexity are calculated. These metrics offer critical insights into the bond's sensitivity to interest rate changes and the potential curvature in the price-yield relationship.

After calculating the metrics, the Term Structure of Interest Rates (TSIR) is constructed. This involves building the yield curve and analyzing both spot rates and forward rates.

Finally, develop an optimization model. This model assesses the portfolio to determine which bonds should be bought, sold, or adjusted in weight. The goal is to optimize the portfolio based on factors such as yield, duration, convexity, and positioning on the TSIR curve to improve profitability and manage risk.

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IV. Model Construction

- a) Variable Selection
- b) Model Construction
- c) Model Evaluation
- d) Key Results

V. Recommendations Construction

- a) Portfolio Allocation Suggestions
- b) Buy/Sell Strategies Based on TSIR and Metrics

VI. Conclusions

VII. Bibliography

VIII. Appendices

BIBLIOGRAPHY

Bodie, Z., Kane, A., & Marcus, A. J. (2014). Investments (10th ed.). McGraw-Hill Education.

Brigo, D., & Mercurio, F. (2006). Interest Rate Models – Theory and Practice (2nd ed.). Springer.

Fabozzi, F. J. (2012). Bond Markets, Analysis, and Strategies (8th ed.). Pearson.

Fabozzi, F. J. (2005). The Handbook of Fixed Income Securities (7th ed.). McGraw-Hill Education.

Tuckman, B., & Serrat, A. (2011). Fixed Income Securities: Tools for Today's Markets (3rd ed.). Wiley.

Bloomberg L.P. (n.d.). Market Data Analysis and Tutorials: Fixed Income Instruments, Yield Curve Construction, and Bond Analytics. Retrieved from Bloomberg Terminal.