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Fixed Income Relative Value for Emerging Markets

This summary outlines a systematic fixed income relative value strategy (backtest here) for Mexican government local bonds (MBONOs). The strategy identifies yield curve mispricings caused by market inefficiencies, enabling well-capitalized traders to exploit arbitrage opportunities.

Key Elements

1. Mispricing Identification: Apply statistical tools to model yield curve behavior.
2. Portfolio Construction: Neutralize market risks while isolating alpha.
3. Execution: Select efficient instruments and execute trades based on theoretical curve mispricing.
4. Risk Management: Size positions to deliver favourable risk-adjusted return stream.

Data and Inputs

The strategy is based on historical daily prices. Yield curves are constructed here. A 5-year trailing window is used for estimation, with a 1-year forward window for out-of-sample testing, resulting in 10 years of total testing data.

Signal Construction

Employ PCA (alternatives discussed here) to generate mean-reversion signals:

Butterflies: Neutralize the first two principal components.

Spreads: Neutralize the first principal component only.

Signals are filtered using statistical criteria, including stationarity test p-values, asymptotic variance, and the speed of mean reversion.

Monetization Strategy

- Target positions are derived by weighting signals to achieve target volatility.
- Rebalancing of the actual position is based on the tracking error buffer.
- Instrument selection is based on spread against fitted yield curve, outliers are excluded.

Backtest

Main assumptions:

1. Transaction cost is 0.5bp in yield terms. Sensitivity analysis included.
2. Slippage is 1-day (conservative for this strategy).
3. All bonds are considered good collateral and available for borrowing. Funding costs are determined by the short end of the curve. No bonds are considered special due to the exclusion of outliers.
4. No extra tax or cost applied to the coupons.

Conclusion and Further work

Descriptive statistics and performance ratios are provided, allowing the strategy to be tailored to specific mandates or risk constraints by adjusting parameters.
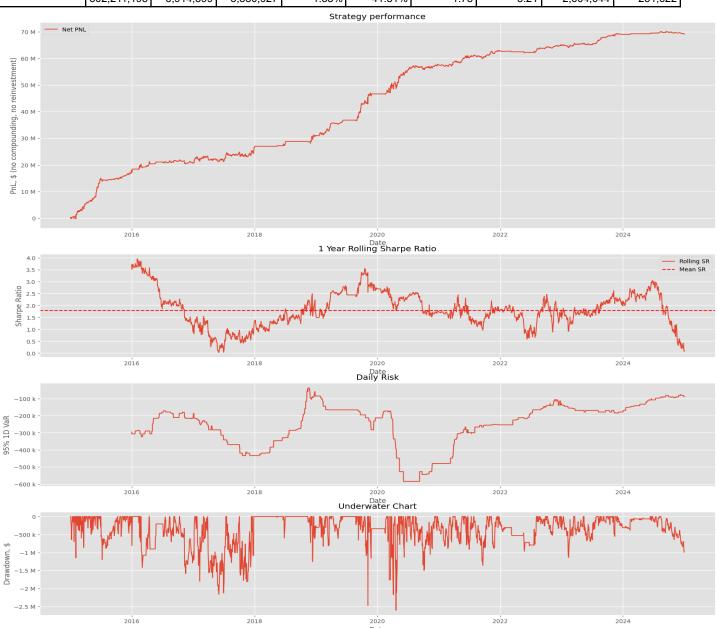
Next steps:

- Integrate derivatives to exploit additional opportunities and to optimize capital.
- Extend the strategy to other rates markets. Given the low correlation between FIRV trades across different EM currencies, Sharpe ratio will be significantly enhanced.

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	Avg GMV, $	Avg Ann PNL, $	Ann Std Dev, $	Return on GMV	Daily Turnover	Sharpe Ratio	Sortino Ratio	Max Drawdown, $	1D VaR (95%), $
Before Costs	502,211,195	8,104,646	3,901,081	1.61%	41.81%	2.08	3.82	-2,603,651	-247,140
After Costs	502,211,195	6,914,599	3,880,927	1.38%	41.81%	1.78	3.21	-2,604,044	-251,622

Strategy performance

Strategy performance for different Transaction cost assumptions:

Tcost parameter, bp	Buffer parameter								Best Sharpe
	0.0	0.01	0.025	0.05	0.1	0.2	0.5	1.0	
0.0	2.08	1.98	1.51	1.36	1.13	0.85	0.82	0.72	2.08
0.5	1.78	1.73	1.34	1.23	1.03	0.77	0.75	0.67	1.78
1.0	1.48	1.48	1.18	1.10	0.94	0.70	0.68	0.63	1.48
2.0	0.86	0.96	0.84	0.84	0.74	0.53	0.54	0.54	0.96