

Theoretical background

The author combined two main sources of literature

- 1 Yield curve modelling based on seminal paper of Diebold & Li (2006) and its extensions
- 2 Residual trading papers including three stock articles and study of the US government bond market (Blitz et al.(2011), Chang et al. (2018), Lin (2019) and Nielsen & Pungaliya (2017))

Findings

- Term structure can be modelled through three main factors(level, slope and curvature) extended with second slope and/or second curvature
- Residual trading has proved its superiority in selecting winner and loser stocks compared to standard momentum strategies
- Residual logic can be used on US treasury bonds

Research question



Can the residual trading strategy lead to a substantially higher risk-adjusted return on WTI futures, than traditional trading strategies?

Hypotheses

- Yes
- Five-factor model provides the highest return

Methodology

The main idea is to rank securities based on the difference between their **observable market price** and the **prices derived by a model**, rather than by their recent market price movements

Diebold & Li

Residual is defined as the difference between fitted and original price. Trading only takes place if the differential is substantially high (defined by average and st.dev.).

38 400 simulation
8 competing strategies

Results

Table presents the average Sharpe ratio by sigma. **Bold values** show the highest in the given row.



Sigma	Three-factor	Four-factor(C) Winner	Four-factor(S)	Five-factor	Momentum	Buy and Hold	Random	ETF
1	-0.1383	0.0782	0.0336	-0.0108	0.0439	0.0508	-0.0048	-0.5035
2	-0.0011	0.1088	0.1090	0.0508	-0.1064	0.0654	0.0067	-0.4630
Total	-0.0754	0.0948	0.0729	0.0218	-0.0291	0.0581	0.0026	-0.4869

