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

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

<table>
<thead>
<tr>
<th>Sigma</th>
<th>Three-factor</th>
<th>Four-factor(C)</th>
<th>Four-factor(S)</th>
<th>Five-factor</th>
<th>Momentum</th>
<th>Buy and Random</th>
<th>ETF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Winner</td>
<td></td>
<td></td>
<td></td>
<td>Hoki</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>-0.1383</td>
<td>0.0782</td>
<td>0.0336</td>
<td>-0.0108</td>
<td>0.0439</td>
<td>0.0508</td>
<td>-0.0048</td>
</tr>
<tr>
<td>2</td>
<td>-0.0011</td>
<td>0.1088</td>
<td>0.1090</td>
<td>0.0508</td>
<td>-0.1064</td>
<td>0.0654</td>
<td>0.0067</td>
</tr>
<tr>
<td>Total</td>
<td>-0.0754</td>
<td>0.0948</td>
<td>0.0729</td>
<td>0.0218</td>
<td>-0.0291</td>
<td>0.0581</td>
<td>0.0026</td>
</tr>
</tbody>
</table>

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.).

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