Re-Evaluation of the Low-Risk Anomaly via Matching

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Low-Risk Anomaly

- Death of CAPM and beta?
- Limits to arbitrage vs. behavioral bias.
- Low beta portfolios (10.5% p.a.) outperform high beta portfolios (4.6% p.a.).
Matching

- Improve balance between treatment and control groups.
- Match observations based on covariates.
- Coarsened Exact Matching (CEM package).
Re-Evaluate Low-Risk Anomaly via Matching

- Use monthly stock-level CRSP data (1968 - 2008).

- Match stocks in the highest and the lowest beta (volatility) quintile portfolios with CEM on
  - Industry
  - Company size
  - Trading volume

- Improve the balance by 10%.
All Stocks, Beta Quintiles
Cumulative Return of $1 invested in 1968

Beta Quintiles
- Matched Quintile 1 ($22.99)
- Matched Quintile 5 ($7.78)
- Original Quintile 1 ($59.84)
- Original Quintile 5 ($6.25)
Conclusions

- Part of the low beta anomaly observed is due to imbalance between high and low beta quintile portfolios.

- Low-risk anomaly still exists but has a more muted effect (in % p.a.)

- High beta quintile portfolio outperformed low beta quintile portfolio cumulatively from Oct. '99 through June '00.

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<thead>
<tr>
<th></th>
<th>Original</th>
<th>Matched</th>
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<tbody>
<tr>
<td>Lowest Beta Quintile</td>
<td>10.5</td>
<td>7.9</td>
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<tr>
<td>Highest Beta Quintile</td>
<td>4.6</td>
<td>4.9</td>
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Thank You!


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