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The Case for ROE: A Fundamentals Based Portfolio Weighting Model for Healthcare Stocks

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A Risk On Smart Beta Portfolio Weighting Model For the Healthcare Sector: The Case For ROE
Chase Dollar
Dr. Robert Dean & Trevor Collier

Study Purpose
I test the hypothesis that a ROE weighted portfolio of Healthcare stocks (20) will outperform The Healthcare sector ETF (XLV) and the S&P500 ETF (SPY).

Research Design
1. Develop ROE based weighted portfolio for top 20 stocks in the XLV sector

Weighting Strategy
1. \( W_i = \frac{\text{S.D. ROE}_i}{\text{S.D. ROE}(B)} \)
2. \( D_i = W_i \times 1,000,000 \)
3. \( \text{SHR}_{it} = \frac{D_i}{P_{it}} \)
4. \( \text{MV}_i(t+1) = \text{SHR}_i \times P_i(t+1) \)
5. \( \text{PORT}(t+1) = \sum \text{MV}_i(t+1) \)

Nomenclature
- \( W_i \): Portfolio Weight
- \( D_i \): Dollar Investment
- \( \text{SHR}_i \): Shares Held
- \( \text{MV}_i \): Market Value
- \( \text{PORT} \): Portfolio Value
- \( i \): (ith) stock
- \( B \): Benchmark Portfolio
- \( t \): time: 2011-2015
- \( P_i \): Price of Stock
- \( \text{S.D. ROE} \): Standard Deviation(ROE)

Table 1

<table>
<thead>
<tr>
<th>Cumulative Returns: Buy and Hold</th>
<th>ROE</th>
<th>XLV</th>
<th>SPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>14.18%</td>
<td>10.13%</td>
<td>2.06%</td>
</tr>
<tr>
<td>2012</td>
<td>48.79%</td>
<td>26.61%</td>
<td>18.23%</td>
</tr>
<tr>
<td>2013</td>
<td>139.39%</td>
<td>76.01%</td>
<td>56.31%</td>
</tr>
<tr>
<td>2014</td>
<td>210.35%</td>
<td>117.09%</td>
<td>77.46%</td>
</tr>
<tr>
<td>2015</td>
<td>228.48%</td>
<td>128.68%</td>
<td>79.83%</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Cumulative Returns: Rebalance</th>
<th>ROE</th>
<th>XLV</th>
<th>SPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>14.18%</td>
<td>10.13%</td>
<td>2.06%</td>
</tr>
<tr>
<td>2012</td>
<td>48.37%</td>
<td>26.61%</td>
<td>18.23%</td>
</tr>
<tr>
<td>2013</td>
<td>129.82%</td>
<td>76.01%</td>
<td>56.31%</td>
</tr>
<tr>
<td>2014</td>
<td>190.37%</td>
<td>117.09%</td>
<td>77.46%</td>
</tr>
<tr>
<td>2015</td>
<td>205.61%</td>
<td>128.68%</td>
<td>79.83%</td>
</tr>
</tbody>
</table>

Conclusion
- ROE model (B/H) outperforms XLV and SPY over five year period
- ROE model (Reb) outperforms XLV and SPY over five year period
- B/H model outperforms Reb model