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Advisors: Dr. Robert Dean & Dr. Trevor Collier

• Study Purpose
Using ROE and sales growth as the weighting factors, I test the hypothesis that both ROE and sales growth of a 20 stock weighted portfolio will outperform XLY, consumer discretionary sector, and SPY, S&P 500 ETF.

• Weighting Strategy
Relative standard deviation for ROE and sales growth.

• Portfolio Weighting Model
\[ W_i = \frac{STD(ROE_i)}{STD(ROE_B)} \]
\[ D_i = W_i \times 1,000,000 \]
\[ SHR_i = \frac{D_i}{P_i} \]
\[ MV_{i+1} = SHR_i \times P_{i+1} \]
\[ PORT_{t+1} = \sum MV_{i+1} \]

*Above formulae used for sales growth

• Nomenclature
\[ W_i = \text{Portfolio Weight} \]
\[ D_i = \text{Dollar Investment} \]
\[ P_i = \text{Price of stock (i)} \]
\[ SHR_i = \text{Shares held (i)} \]
\[ MV_i = \text{Market value (i)} \]
\[ PORT = \text{Portfolio value} \]
\[ STD(ROE) = \text{Standard Deviation ROE} \]

• Conclusions
- ROE model outperforms XLY
- ROE model outperforms SPY
- SG model outperforms XLY
- SPY outperforms XLY
- ROE model outperforms SG model

Table 1-A

<table>
<thead>
<tr>
<th>2006-2010 Weighting Period</th>
<th>ROE</th>
<th>XLY</th>
<th>SPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>13.13%</td>
<td>11.14%</td>
<td>2.05%</td>
</tr>
<tr>
<td>2012</td>
<td>48.94%</td>
<td>34.83%</td>
<td>16.34%</td>
</tr>
<tr>
<td>2013</td>
<td>156.70%</td>
<td>68.96%</td>
<td>38.47%</td>
</tr>
<tr>
<td>2014</td>
<td>165.24%</td>
<td>88.25%</td>
<td>55.00%</td>
</tr>
<tr>
<td>2015</td>
<td>235.12%</td>
<td>99.33%</td>
<td>50.54%</td>
</tr>
</tbody>
</table>

Table 1-B

<table>
<thead>
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<th>2006-2010 Weighting Period</th>
<th>Sales Growth</th>
<th>XLY</th>
<th>SPY</th>
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</thead>
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<td>2011</td>
<td>9.84%</td>
<td>11.14%</td>
<td>2.05%</td>
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<tr>
<td>2012</td>
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<tr>
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<td>126.52%</td>
<td>68.96%</td>
<td>38.47%</td>
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<tr>
<td>2014</td>
<td>152.43%</td>
<td>88.25%</td>
<td>55.00%</td>
</tr>
<tr>
<td>2015</td>
<td>196.47%</td>
<td>99.33%</td>
<td>50.54%</td>
</tr>
</tbody>
</table>