An analysis of idiosyncratic risk and flyer fund performance in the highly volatile market period 2007-2011

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Idiosyncratic Risk, Beta and Stock Performance 2007-2011

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1) Study Purpose
To determine for a select group of UD Flyer Fund stocks, the impact of idiosyncratic risk and beta on stock performance

2) Data Requirements
Monthly returns for 20 stocks, 2007-2010
Monthly returns for S&P 500, 2007-2010

3) Model Specification (Idiosyncratic Risk)
\[ IR_i = \sqrt{\frac{\sum_{K=1}^{n} (e_K - \bar{e})^2}{n}} \]
Where:
- \( IR_i \) = Idiosyncratic Risk for stock
- \( e_K \) = error term for \( K^{th} \) observation
- \( \bar{e} \) = mean error term for stock
- \( n \) = number of observations

4) Model Specification (Beta)
\[ R_i = a + b(R_m + e_i) \]
Where:
- \( R_i \) = return of the stock
- \( a \) = intercept
- \( b \) = regression coefficient (Beta)
- \( R_m \) = return to market (S&P 500)
- \( e_i \) = error terms

5) Estimating Equations
\[ R_i = a + b(IR_i) \]
\[ R_i = a + b(Beta_i) \]

6) Return Periods
- (12/31/10) – (4/30/11)
- (4/30/11) – (9/30/11)
- (9/30/11) – (2/28/12)

7) Conclusions
- All \( b \) coefficients significant on 95% confidence level except (4/30/11 – 9/30/11) period for IR
- During Up-Swing periods in 2011 both IR and Beta have positive \( b \) coefficients
- During Down-Swing period in 2011 both IR and Beta have negative \( b \) coefficients
- Both IR and Beta have low R\(^2\)'s in all time periods
- Both IR and Beta despite low R\(^2\)'s have predictive capabilities

<table>
<thead>
<tr>
<th>Type of Period</th>
<th>Return Period</th>
<th>Independent Variable</th>
<th>R(^2)</th>
<th>A</th>
<th>B</th>
<th>T-Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up-Swing</td>
<td>(12/31/10 - 4/30/11)</td>
<td>IR</td>
<td>0.22</td>
<td>-0.04</td>
<td>2.20</td>
<td>2.16</td>
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<tr>
<td>Up-Swing</td>
<td>(12/31/10 - 4/30/11)</td>
<td>Beta</td>
<td>0.24</td>
<td>0.01</td>
<td>0.11</td>
<td>2.29</td>
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<tr>
<td>Down-Swing</td>
<td>(4/30/11 - 9/30/11)</td>
<td>IR</td>
<td>0.07</td>
<td>0.06</td>
<td>-2.36</td>
<td>1.16</td>
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<tr>
<td>Down-Swing</td>
<td>(4/30/11 - 9/30/11)</td>
<td>Beta</td>
<td>0.27</td>
<td>0.08</td>
<td>-0.22</td>
<td>2.49</td>
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<tr>
<td>Up-Swing</td>
<td>(9/30/11 - 2/28/12)</td>
<td>IR</td>
<td>0.33</td>
<td>-0.12</td>
<td>4.74</td>
<td>2.93</td>
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<td>Up-Swing</td>
<td>(9/30/11 - 2/28/12)</td>
<td>Beta</td>
<td>0.50</td>
<td>-0.05</td>
<td>0.28</td>
<td>4.16</td>
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