An Analysis of Excess Stock Returns and Fat Tail Distributions for Flyer Fund Stocks in the Volatile Market Period of 2007 - 2011

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1) Study Purpose
To determine if excess return distributions as measured by excess kurtosis are useful predictors of future stock returns

2) Data Requirements
Monthly returns for 20 stocks, 2007-2011

3) Excess Return Model Specification

\[
ER_i = \frac{(R_{it} - R_{mt})}{R_{mt}}
\]

\[
\bar{ER}_i = \frac{\sum_{t=1}^{n} (R_{it} - R_{mt})}{n}
\]

Where:
- \( ER_i \) = Average Excess returns for stock
- \( R_{it} \) = Return to stock at time \( t \)
- \( R_{mt} \) = Return to market at time \( t \)
- \( ER_i \) = Excess return for stock

4) Excess Kurtosis Model Specification

\[
EK_i = \frac{1}{n-1} \sum_{t=1}^{n} \frac{(ER_{it} - \bar{ER}_i)^4}{\sigma_{ER_i}} - 3
\]

5) Regression Model

For \( +EK \)

\[
R_i = a + b (+EK_i)
\]

For \( -EK \)

\[
R_i = a + b (-EK_i)
\]

Where:
- \( R_i \) = Return for \( i \)th stock 2011 (\( I = 1 \) – 20)
- \( +EK_i \) = Excess Kurtosis for positive returns
- \( -EK_i \) = Excess Kurtosis for negative returns

6) Cross Sectional Regression Results

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Ind Var</th>
<th>N</th>
<th>( R^2 )</th>
<th>A</th>
<th>B</th>
<th>T Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Returns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/31/10 - 4/30/11</td>
<td>+ EK</td>
<td>16</td>
<td>0.032126</td>
<td>0.054749</td>
<td>0.004516</td>
<td>0.681688</td>
</tr>
<tr>
<td>9/30/11 - 2/29/12</td>
<td>+ EK</td>
<td>16</td>
<td>0.070409</td>
<td>0.092967</td>
<td>0.013366</td>
<td>0.320589</td>
</tr>
<tr>
<td>2011</td>
<td>+ EK</td>
<td>16</td>
<td>0.265734</td>
<td>0.026545</td>
<td>0.028709</td>
<td>2.250924</td>
</tr>
</tbody>
</table>

| Negative Returns        |         |    |           |          |          |            |
| 4/30/11 - 9/30/11       | -EK     | 20 | 0.249835  | -0.01929 | -0.01382 | -2.44842   |
| 2011                    | -EK     | 20 | 0.492338  | 0.186716 | -0.02429 | -4.17812   |

7) Conclusions

For \( +EK \)
- \( b \) is positive for all results
- \( R^2 \) is small
- Excluding stocks with extreme values both \( b \) coefficient and \( R^2 \) become more robust
- \( EK \) has predictive

For \( -EK \)
- \( B \) coefficients have right sign and are statistically significant
- \( R^2 \) – 25 to 49% of the variation in \( R_i \) is explained by \( EK \)