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
\[ ER_i = (R_{it} - R_{mt}) \]
\[ \overline{ER_i} = \frac{\sum_{t=1}^{n} (R_{it} - R_{mt})}{n} \]
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
\[ EK_i = \frac{\sum_{t=1}^{n} (ER_{it} - \overline{ER_i})^4}{n - 1(\sigma_{ER_i})^4} - 3 \]
Where:
\( EK_i \) = Excess kurtosis for stock
\( t \) = monthly data, 12/31/06 – 12/31/10

5) Regression Model
\[ R_i = a + b (+EK) \]
\[ R_i = a + b (-EK) \]
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>
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<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>
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<tr>
<td>9/30/11 - 2/29/12</td>
<td>+ EK</td>
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<td>0.070409</td>
<td>0.092967</td>
<td>0.013366</td>
<td>0.320589</td>
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<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>
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</table>

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<tr>
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<th>B</th>
<th>T Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Returns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/30/11 - 9/30/11</td>
<td>- EK</td>
<td>20</td>
<td>0.249835</td>
<td>-0.01929</td>
<td>-0.01382</td>
<td>-2.44842</td>
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<tr>
<td>2011</td>
<td>- EK</td>
<td>20</td>
<td>0.492338</td>
<td>0.186716</td>
<td>-0.02429</td>
<td>-4.17812</td>
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</tbody>
</table>

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