Market Timing Using Market Internals

May 2010
Market Timing is a difficult task

- Fewer independent bets or breadth
- Need high level of skill to achieve a reasonable level of IR
- Signals need to be intuitive and provide reasoning
- A market timing signal based on market internals.
- Information derived only from the market
Global Market Timing Indicator

- Based on signals derived from market movements
- We categorise the market’s internal characteristics along five broad dimensions:
  - Volume
  - Breadth
  - Volume Divergence
  - Trend
  - Risk Aversion
- Provides an intuitive framework within which to analyse market movements
Global Market Timing Indicator

Component Signals - Volume

- Market ‘internal’ that depends on supply and demand for securities
- Volume generally used to determine the conviction of a move in stocks
- Empirical findings support the relationship between positive volume and price change.
- Behavioural reasons for formation and continuation of volume trends
- Market movements stronger when supported by increasing volume in that direction.
Global Volume Signal and FTSE World Index

Source: Nomura Strategy Research
Global Market Timing Indicator

Component Signals - Breadth

- Market breadth refers to the fraction of the overall market participating in an up or down move.
- Indicative of sentiment
- Positive market breadth implies that bullish sentiment controlling momentum
- Two component indicators:
  - Price dispersion: Measures the spread of directional price movements.
  - Volume dispersion: Measures how widely dispersed directional volume movements are.
Global Breadth Signal and FTSE World Index

Source: Nomura Strategy Research
Global Market Timing Indicator

Component Signals – Volume Divergence

- The amount of volume in a market is generally seen as an indicator of liquidity.
- Low volume could imply market movements in excess of normal relationships.
- Some evidence that certain investors underreact to the information contained in order flow.
- Volume-divergence signal measures extent to which returns have moved in excess of underlying volume.
- Liquidity is generally mean-reverting and this signal captures the possibility of reversion.
Global Volume Divergence Signal and FTSE World Index

Source: Nomura Strategy Research
Global Market Timing Indicator

Component Signals – Trend

- Several behavioural reasons why trend occur
- ‘Representativeness heuristic’: causes trend-chasing as people believe trends have systematic causes.
- Important to assess whether the market is following a trend.
- Many trend strategies underperform due to the lags involved.
- Adaptive moving average: more responsive and takes into account how noisy recent market movements have been.
Global Trend Signal and FTSE World Index

Source: Nomura Strategy Research
Global Market Timing Indicator

Component Signals – Risk

- Risk is fundamental to all asset pricing models
- High risk aversion indicates that market is generally close to a bottom
- Three components:
  - Implied to realised volatility
  - Put-call ratio
  - Average idiosyncratic volatility
Global Risk Signal and FTSE World Index

Source: Nomura Strategy Research
Global Market Timing Signal and FTSE World Index

Source: Nomura Strategy Research
Performance results for Global Market Timing Signal

<table>
<thead>
<tr>
<th>Threshold level of 0.2</th>
<th>3 month forward returns</th>
<th>Equity returns</th>
<th>Excess returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4.6%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Average return for positive signal</td>
<td>-4.0%</td>
<td>-6.0%</td>
<td></td>
</tr>
<tr>
<td>% of positive signals in correct direction</td>
<td>80%</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td>% of negative signals in correct direction</td>
<td>57%</td>
<td>64%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Threshold level of 0.4</th>
<th>3 month forward returns</th>
<th>Equity returns</th>
<th>Excess returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4.9%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Average return for positive signal</td>
<td>-10.3%</td>
<td>-11.6%</td>
<td></td>
</tr>
<tr>
<td>% of positive signals in correct direction</td>
<td>85%</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>% of negative signals in correct direction</td>
<td>74%</td>
<td>78%</td>
<td></td>
</tr>
</tbody>
</table>

Results from 1/5/2001 to 15/9/2009

Source: Nomura Strategy Research
Performance of Global Market Timing Indicator – Long/Short
Weekly rebalancing

May 2001=100

Signal level % Equities
< -0.4 -100%
>-0.4 and < -0.2 -50%
>-0.2 and < 0.2 0%
> 0.2 and < 0.4 50%
> 0.4 100%

Market Timing strategy

Return Risk Return/Risk
Market Timing 16.1% 12.9% 1.25

Chart shows the absolute performance of the strategy using the Global Market Timing Signal to go long/short equities (FTSE World Index, total returns, $ terms) with the remaining proportion in Cash (6m LIBOR). The signal is smoothed over 10 days and the rebalancing is done on a weekly basis. Performance is shown prior to transactions costs.

Source: Nomura Equity Strategy