Cocoa Risk Management

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Hedge Funds Provide Liquidity

- Managed Futures are a class of hedge funds that take long and short positions in futures contracts.
- 1980 - $1 billion
- 2000 - $38 billion
- 2008 Q3 - $228 billion
- 2014 Q1 – $325 billion
- 2015 Q4 - $327.3 billion of $2796.6 billion total assets under management

- As production and consumption grow, so too does the need for increased hedging. More speculators are necessary to provide liquidity for commercial operations.
There is no Escaping Price Volatility in Markets, especially Cocoa

Source: Futuresource
What Exactly Is Volatility?

- Volatility is quantified in terms of annualized standard deviation. It is quoted as a percentage of the underlying asset market value.
- Definition: **Annualized Standard Deviation**
- Annualized standard deviation is a calculation that gives us the probability that prices will fall in a certain range on a certain date in the future.
- **Example:** one standard deviation above and below current prices gives us a 65% degree of confidence that prices will fall within that range at some future date. Two standard deviations +/- current prices gives us a 95% degree of confidence.
Historic Volatility - measure of past market movement, valued on a moving average basis over a given period. Example: 10 day, 30 day, etc.

Implied Volatility - measure of expected future market variation reflected in existing option premiums.

Calculated given underlying market price, duration, strike price, premium, and interest rate (your cost of money).

Volatility Skew - the relationship between the implied volatility inherent in out-of-the-money options versus their at-the-money counterparts.
Implied Volatility Calculation

- Implied Volatility is the calculation of the annualized standard deviation number given variables already known:
  - Where the underlying market is
  - The length of time to options expiration
  - The option strike price
  - The option premium
  - Interest rates
Implied Volatility Example

- Underlying Cocoa Market = $3,000  Imp Vol 19%
  - One year at-the-money option (put or call) standard deviation=$570
    (19% of $3,000)
  - What does this mean relative to prices?
    A 65% chance exists that prices will fall in a range from
    $2,430 to $3,570 ($3,000 + or $570)
  - There is a 95% chance that prices will fall in a range between
    $1,860 to $4,140 ($3,000 + or – 2x$570) one year from today.
Historical Seasonal Relationships

There are usually underlying fundamental circumstances that occur annually that tend to cause the futures markets to react in a similar directional manner during a certain calendar period of the year.
Note on Seasonal Studies

- Seasonal studies reflect a pattern that fits into a macroeconomic context. There are years when aberrations exist.
- Seasonal work provides a starting point for making decisions or taking a reasonable or sound fundamental approach to the market.
Finding Windows of Opportunity to Profit From

- Seeking out re-occurring events:
  - weather, crop cycles, delivery and expiration of futures
- Seasonal patterns evolve that you can benefit from:
  - the majority of the time entering a position on specific date and exiting by a specific date can yield profitable results.
- Where possible, time your hedging strategies to take advantage of these opportunities and not be hurt by them.
September Seasonality (1961-2015)

- **Bull Years from Most-Least Bullish**
  73, 76, 74, 14, 77, 02, 72, 08, 83, 07, 66, 90, 15, 97, 78, 94

- **Bear Years from least-Most Bearish**
  05, 95, 75, 81, 98, 95, 93, 00, 10, 89, 71, 03, 62, 70, 79, 88, 91, 61, 86, 92, 80, 64, 82, 65, 99
Cocoa seasonal pattern: Outright buying

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Entry Date</th>
<th>Exit Date</th>
<th>Win/Loss (years)</th>
<th>Average Net Profit ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy Jul</td>
<td>Apr 16</td>
<td>Apr 28</td>
<td>12/3</td>
<td>583</td>
</tr>
<tr>
<td>Buy Sep</td>
<td>May 24</td>
<td>Jun 29</td>
<td>13/2</td>
<td>1,119</td>
</tr>
<tr>
<td>Buy Sep</td>
<td>Jun 04</td>
<td>Jun 29</td>
<td>13/2</td>
<td>930</td>
</tr>
<tr>
<td>Buy Sep</td>
<td>Jun 04</td>
<td>Aug 03</td>
<td>14/1</td>
<td>1,050</td>
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<tr>
<td>Buy Mar</td>
<td>Nov 1</td>
<td>Dec 15</td>
<td>14/1</td>
<td>1,167</td>
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</table>

Source: Moore Research Center Inc
## Cocoa seasonal patterns: Outright selling

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<tr>
<th>Strategy</th>
<th>Entry Date</th>
<th>Exit Date</th>
<th>Win/Loss (years)</th>
<th>Average Net Profit ($)</th>
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</thead>
<tbody>
<tr>
<td>Sell May</td>
<td>Feb 14</td>
<td>Apr 06</td>
<td>12/3</td>
<td>981</td>
</tr>
<tr>
<td>Sell Dec</td>
<td>Sep 27</td>
<td>Oct 03</td>
<td>12/3</td>
<td>692</td>
</tr>
<tr>
<td>Sell Mar</td>
<td>Dec 16</td>
<td>Dec 30</td>
<td>12/3</td>
<td>501</td>
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</table>

Source: Moore Research Center Inc
Cocoa seasonal patterns: spreads

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<th>Strategy</th>
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<th>Exit Date</th>
<th>Win/Loss (years)</th>
<th>Average Profit ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy Dec/ Sell May</td>
<td>Feb 27</td>
<td>Mar 31</td>
<td>13/2</td>
<td>293</td>
</tr>
</tbody>
</table>

Source: Moore Research Center Inc
www.jganesconsulting.com
to sign-up for softs research reports and services.