J. Ganes Consulting, LLC

The Hard Facts on Soft Commodities℠

Cocoa Risk Management

May 2016

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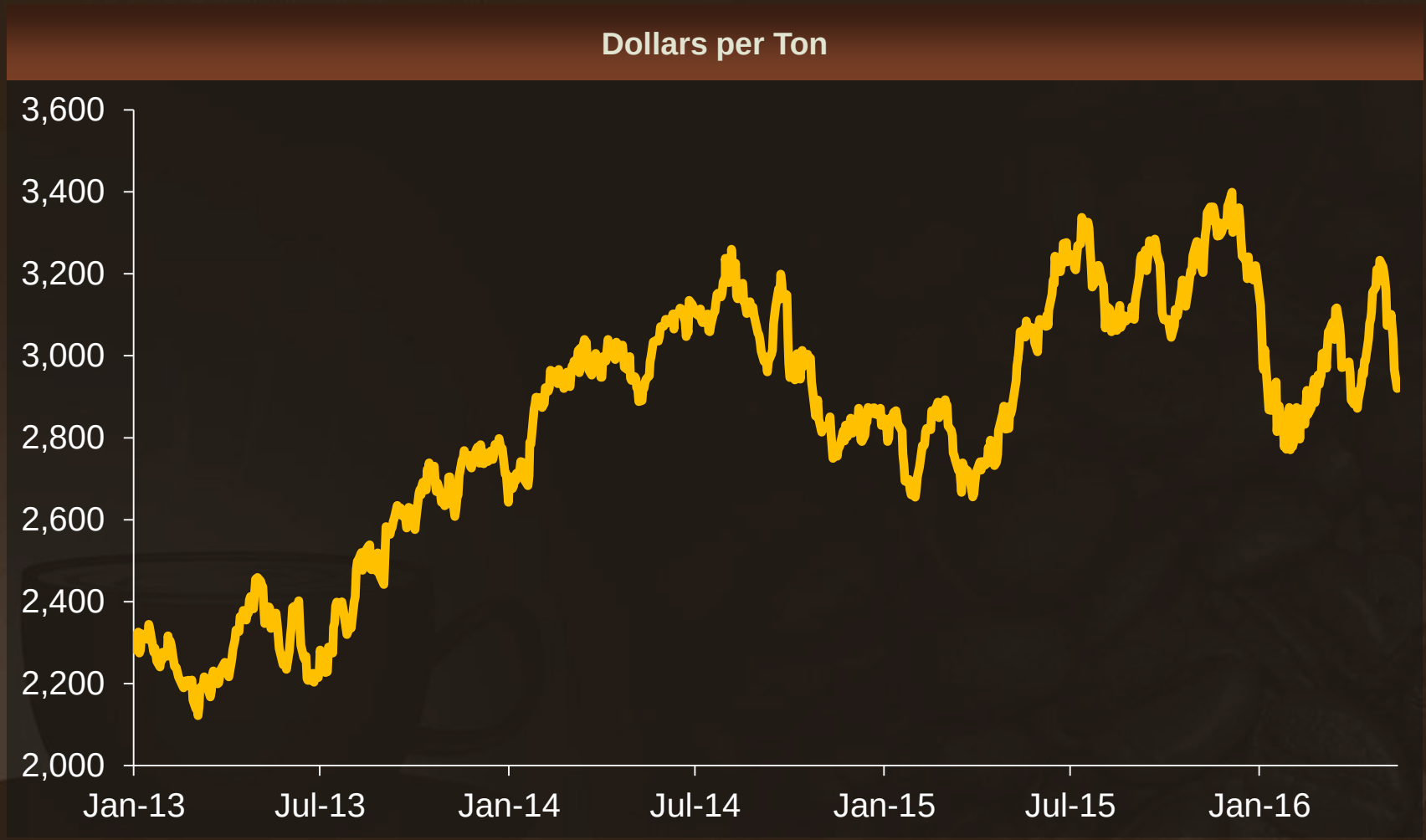
Hedge Funds Provide Liquidity

- 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.

Understanding Volatility

- ***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

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

Source: Moore Research Center Inc

Cocoa seasonal patterns: Outright selling

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

Source: Moore Research Center Inc

Cocoa seasonal patterns: spreads

Strategy	Entry Date	Exit Date	Win/Loss (years)	Average Profit ($)
Buy Dec/ Sell May	Feb 27	Mar 31	13/2	293

Source: Moore Research Center Inc

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