# CME Group iBovespa Index Futures
# February 2013

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Product Marketing

# Agenda

**Introduction: Brazil and Ibovespa**

**Indexing or Benchmarking**

**CME Group USD Ibovespa futures**

- **Price Mechanics**
- **Basis**
- **Carry**

**Spread trading opportunity**

**More information, contacts**

# Brazil

5th Largest country in the world.

Largest country in Latin America.

Population of 200 million.


One of the largest AND fastest growing economies in the world…

Source: CIA Factbook

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# Brazil

**GDP: USD 2.4 trillion**
**Inflation: 6.5%**
**Unemployment: 6.2%**
**Discount rate: 7.25%**

**Major exporter of agricultural and industrial commodities.**


**Largest trading partners, China, at 17.3% of exports, followed by US at 10.1%.**

Source: CIA Factbook

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# Brazil

**“From a trader’s perspective, opportunity exists with new liquidity flows.  As local funds will dip into the domestic equities…there will be new order flows to facilitate and arbitrage.”**


TABB GROUP

Source: TABB Group, 2013

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BM&FBOVESPA is a Brazilian company, created in 2008, through the integration of the São Paulo Stock Exchange (Bolsa de Valores de São Paulo) and the Brazilian Mercantile & Futures Exchange (Bolsa de Mercadorias e Futuros).

It is the only securities, commodities and futures exchange in Brazil.

CME Group & BM&F BOVESPA The New Exchange

# CME Group Strategic Partnership

- 5% mutual equity ownership
- Joint multi – asset trading platform
- Order routing
- Cross listing (Ibovespa/S&P 500 for example)
- Sales & marketing efforts

# Why did the 1982 KCBOT Value Line Futures Contract Succeed?

# Benchmarking

# Over $1.25 trillion directly indexed to S&P 500

# Other World Benchmarks…

| Equity Index | Country | Exchange |
|---|---|---|
| FTSE 100 | United Kingdom | NYSE Euronext |
| CAC 40 | France | NYSE Euronext |
| DAX | Germany | EUREX |
| Nikkei 225 | Japan | SGX, OSE, CME |
| Kospi | Korea | KRX |
| Bovespa | Brazil | BM&F, CME |
| IPC | Mexico | MexDer |

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# Equity Index Contracts on CME

## 23 equity index futures contracts listed, 18 options on futures contracts listed

## Major volume indices include:

| | |
|---|---|
| Nikkei 225 (¥) | Nikkei 225 ($) |
| S&P MidCap 400 | E-mini Dow ($5) |
| NASDAQ – 100 | E-mini NASDAQ – 100 |
| S&P 500 (big) | E-mini S&P 500 |
| Select Sector futures… | |

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…and as of October 22, 2012,

US Dollar Denominated Ibovespa Futures.

**CME Group brings the Ibovespa to investors and risk managers around the world:**

- **Listed on Globex**
- **Cleared at CME Clearing**
- **Reduced counterparty risk to OTC products**
- **US Dollar denominated contract**

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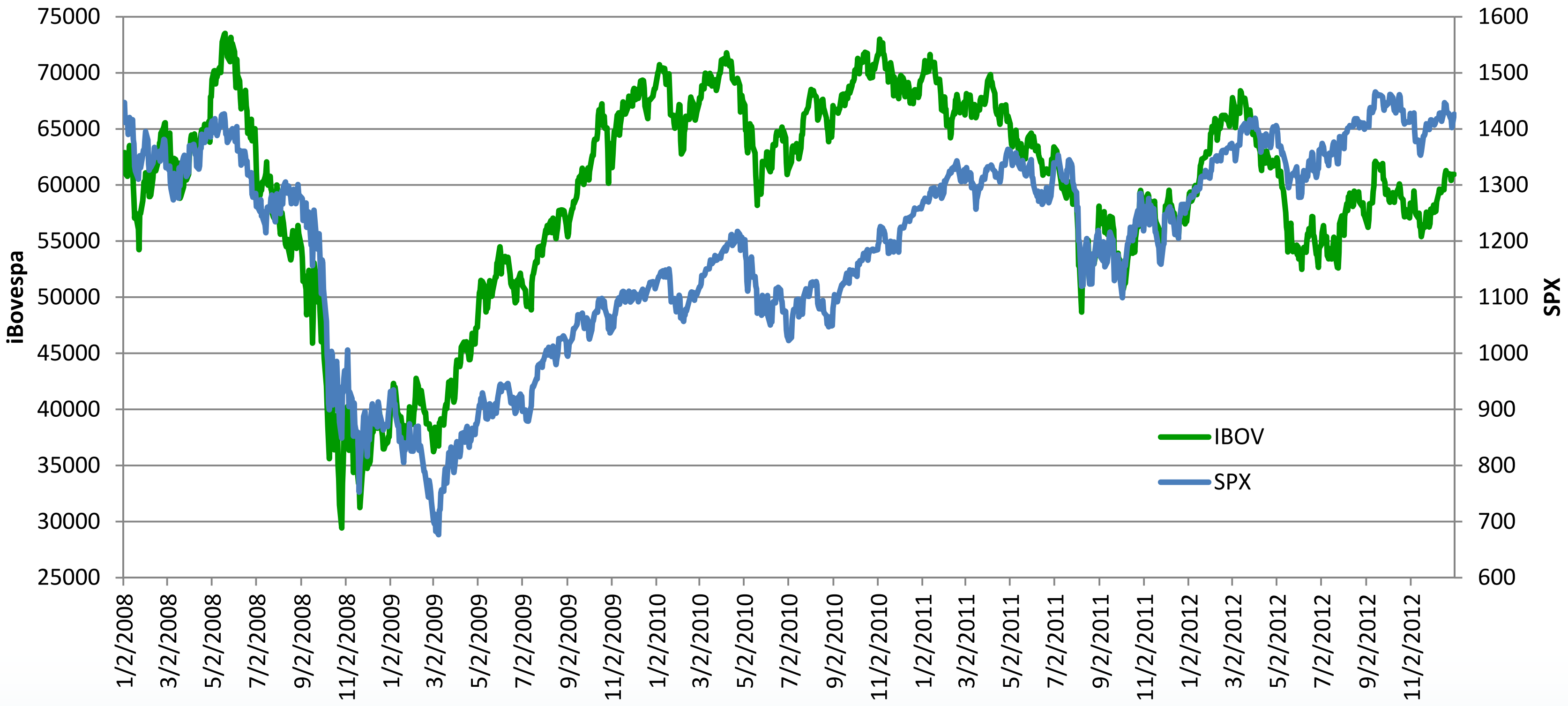
# Salient Features of Futures Contracts

| | CME E-mini S&P 500 Futures | CME USD-Denominated Ibovespa Futures | BM&F BOVESPA Ibovespa Futures |
|---|---|---|---|
| Contract Multiplier | USD $50 | USD $1 | BRL 1 |
| Minimum Price | 0.25 Index points = $12.50 | 25 Index points = $ 25.00 | 5 Index points = BRL 1 |
| Final Settlement | Cash-settled to SOQ of the S&P 500 Index on 3rd Friday of the contract expiry month | Cash-settled at the final settlement price of the BM&F Ibovespa futures with the identical contract month | Cash-settled on the business day following the last trading day at the settlement value on last trading day, as defined by the contract |
| Last Trading Day | 8:30 a.m. on the 3rd Friday of the contract month on Globex | Wednesday closest to the 15th calendar day of the contract month | Wednesday closest to the 15th calendar day of the contract month |
| Contract Months | 6 Quarterlies | 4 bi-monthly contracts (Feb, Apr, Jun, Aug, Oct, Dec cycle) | Even-numbered months as authorized by BM&F |
| Trading Venue | CME Globex | CME Globex | BM&F |
| Position Limits | 100,000 contracts in conjunction with S&P 500 Futures | 3,500 contracts in all months combined | 10,000 contracts or 20% of total positions per contract month, whichever is larger |
| Exchange | Listed on and subject to the rules and regulations of CME | Listed on and subject to the rules and regulations of CME | Listed on and subject to the rules and regulations of BM&F Bovespa |

http://www.cmegroup.com/trading/equity-index/ibovespa.html

# S&P 500 Index versus Ibovespa Index 2008-2012

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# Ibovespa versus other benchmarks

| | S&P 500 | DJIA | S&P MidCap 400 | N100 | S&P SmallCap 600 | R2000 | Brazil Ibovespa | MEX BOL | S&P CNX Nifty | Nikkei 225 | CSI 300 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S&P 500 | 100.00% | | | | | | | | | | |
| DJIA | 96.64% | 100.00% | | | | | | | | | |
| S&P MidCap 400 | 93.37% | 87.29% | 100.00% | | | | | | | | |
| NASDAQ-100 | 92.02% | 84.67% | 86.64% | 100.00% | | | | | | | |
| S&P SmCap 600 | 90.69% | 85.09% | 95.05% | 83.99% | 100.00% | | | | | | |
| Russell 2000 | 91.23% | 85.41% | 95.53% | 84.59% | 99.51% | 100.00% | | | | | |
| Brazil Ibovespa | 69.30% | 69.15% | 64.66% | 63.32% | 62.18% | 62.55% | 100.00% | | | | |
| MEXBOL | 60.21% | 57.25% | 58.76% | 52.94% | 55.22% | 56.06% | 48.12% | 100.00% | | | |
| S&P CNX Nifty | 21.94% | 20.78% | 21.07% | 20.28% | 21.67% | 21.74% | 25.23% | 20.86% | 100.00% | | |
| Nikkei 225 | 14.52% | 12.50% | 16.13% | 14.07% | 11.64% | 12.77% | 12.34% | 11.38% | 27.29% | 100.00% | |
| CSI 300 | 13.70% | 13.00% | 15.99% | 6.30% | 10.53% | 11.40% | 17.61% | 16.70% | 14.27% | 24.96% | 100.00% |

## Index Correlations – YTD December 2012

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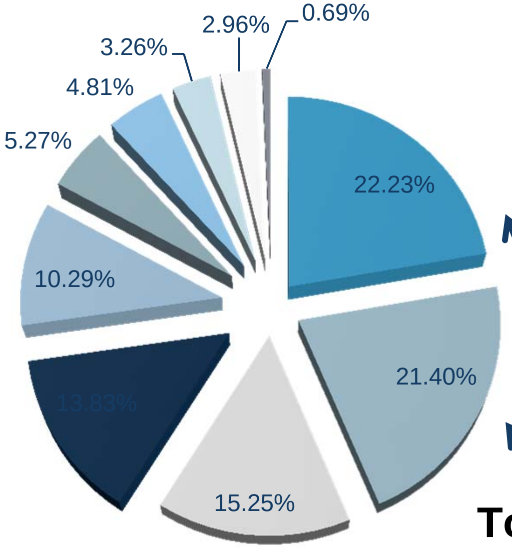
# Decompose the two indexes

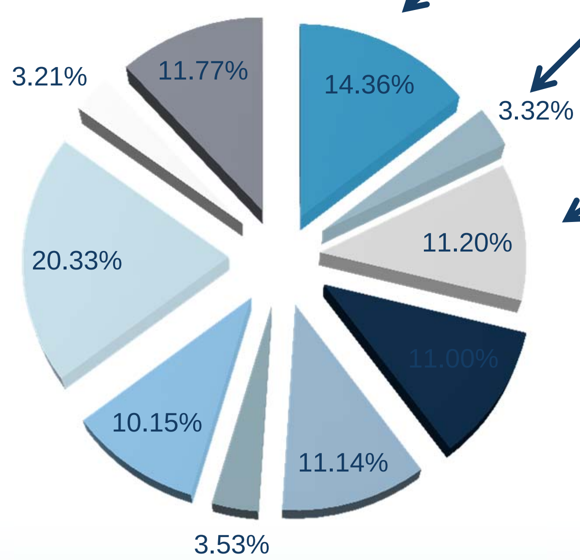
## Sector Weightings of Ibovespa Index




**Top 3 sector (Financials, Materials, Energy) total weights:**

**59%**

## Sector Weightings of S&P 500 Index




**Financials Materials and Energy sectors total weights:**

**29%**

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# Multiple users and uses …

**Users**

- Asset managers - mutual funds, investment advisors, hedge funds, ETF sponsors, commodity trading advisors (CTAs)
- Arbitrageurs and market makers
- Insurance companies, pension funds
- Proprietary traders
- Private investors

**Uses**

- Arbitrage or program trading
- Cash equitization
- Beta adjustment
- Long/short strategies
- Sector rotation strategy
- Conditional rebalancing
- Portable alpha strategies
- Outright price speculation

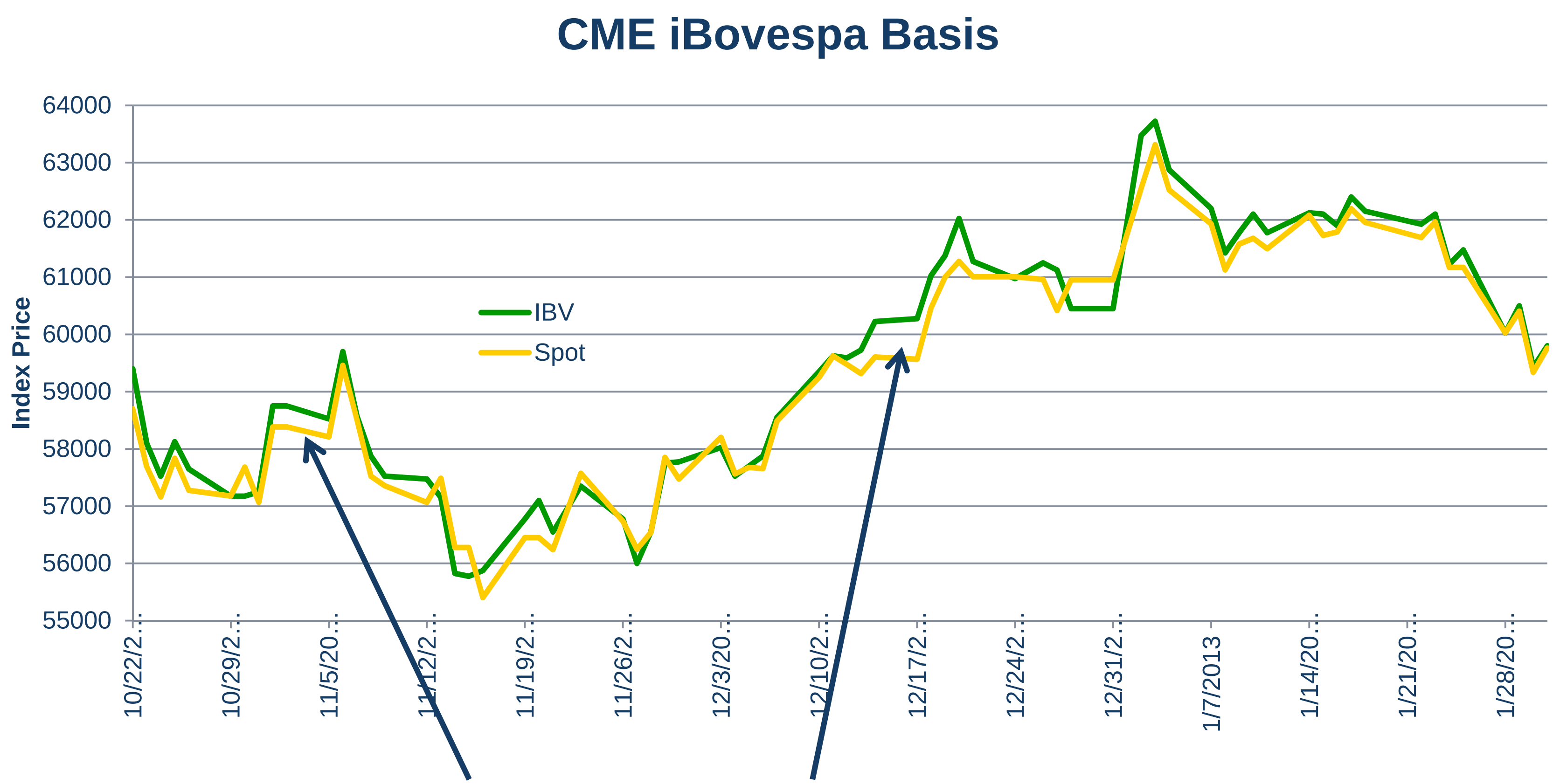
# Price Mechanics

## Fair value (FV) of futures contract …

$$\text{Futures Price} = \text{Spot Index Value} + \underbrace{\text{Finance Charges} - \text{Dividends}}$$

***This difference reflects the expected premium or discount at which futures are expected to trade relative to the spot index value … often referred to as "Fair Value"***

# Basis




**Basis is the price difference between the futures and the spot index. Ibovespa futures tend to trade at a premium to the spot index.**

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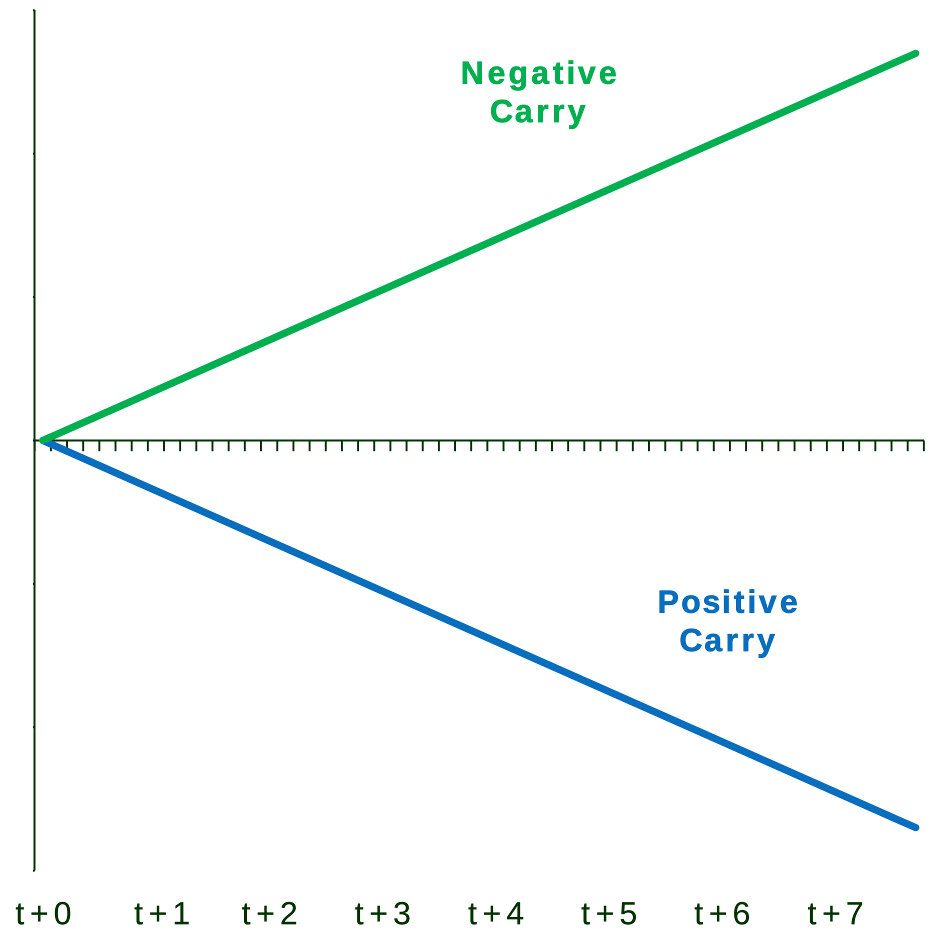
# Cost of Carry

- If dividend stream < finance costs ➔ negative carry
  - Futures at higher levels in deferred months … reflecting costs incurred carrying stock portfolio

- If dividend stream > finance costs ➔ positive carry
  - Futures at lower levels in deferred months … reflecting dividend earnings carrying stock portfolio

**Positive and Negative Carry**



# Convergence

Ibovespa is a "total return" index.

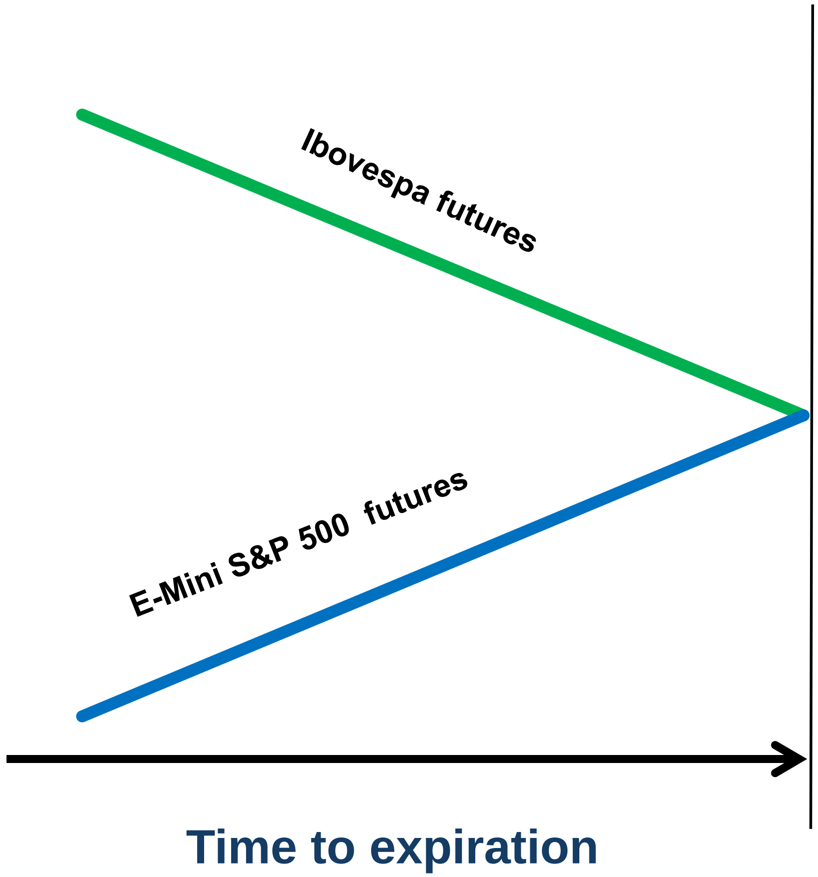
Its price includes reinvested dividends.

As the contract approaches expiration the futures premium converges to the spot index.

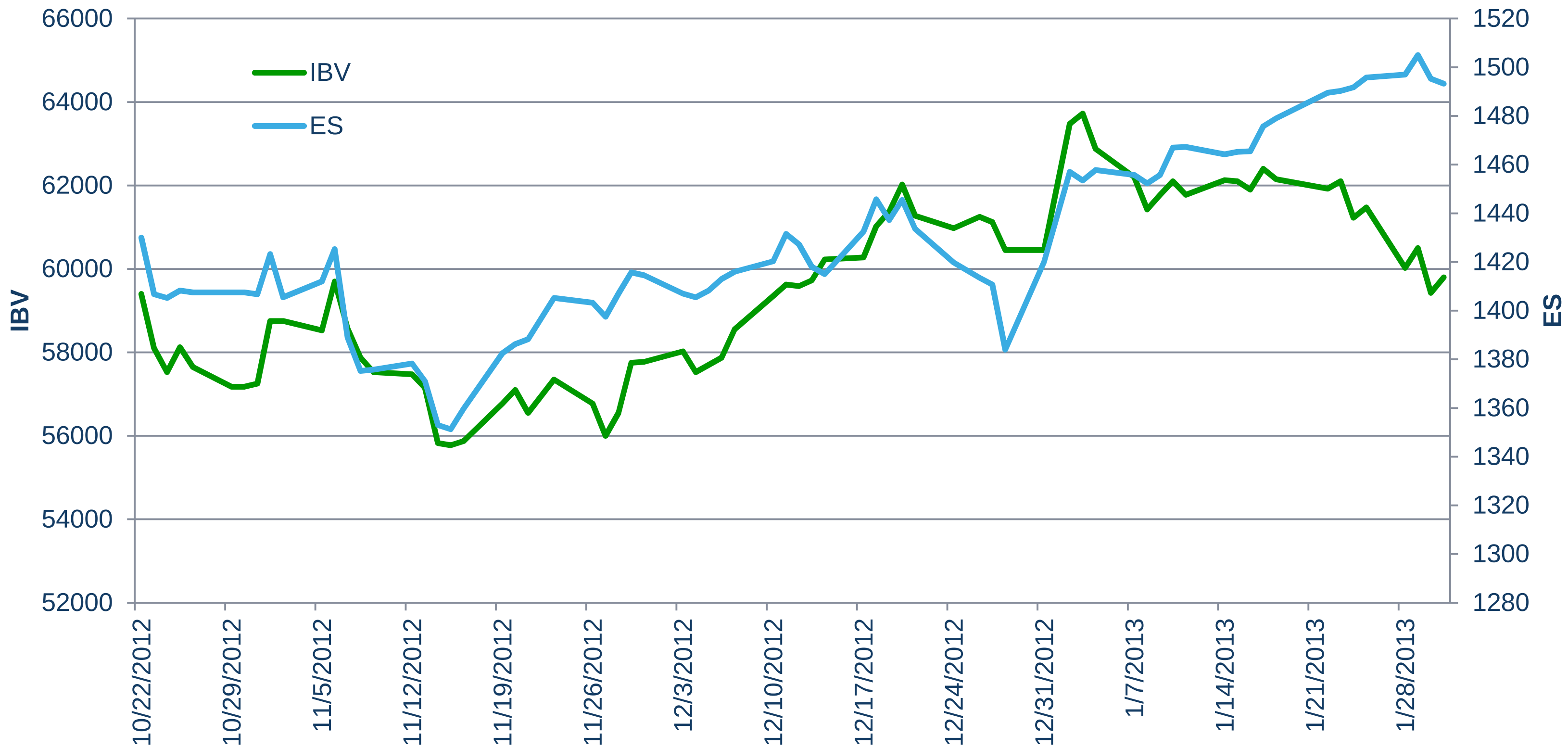
S&P 500 is a "capitalization-weighted" index.

Its price does not include dividends.

As the contract approaches expiration the futures discount converges to the spot index.



## iBovespa (IBV) vs. E-mini S&P 500 (ES)




**The Ibovespa and S&P 500 are similarly but not exactly correlated in price behavior. Expect regular divergence.**

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# Fitting it together…

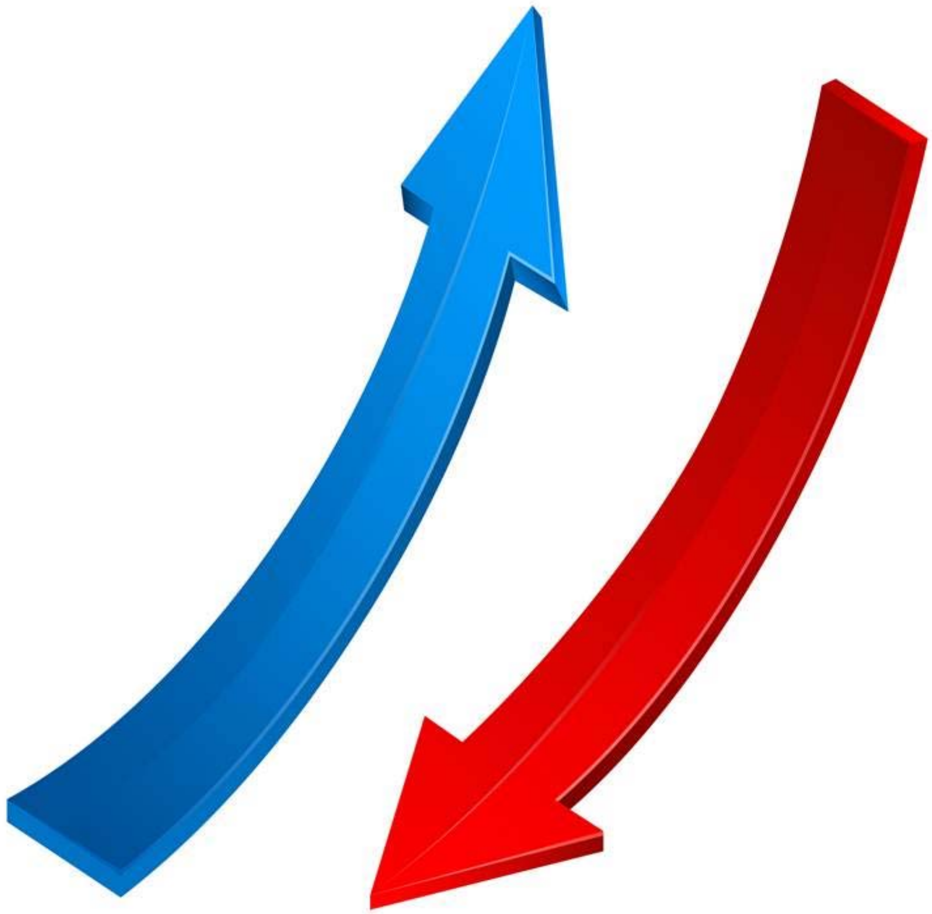
# Spreads:

Normally less volatile

Normally less directional

Take advantage of different contract valuations

Take advantage of perceived price anomalies



# Practical Applications

**Normal price divergence due to macro economic news, national economic differences, and differences in index configuration may provide opportunities for spread trading between Ibovespa and E-mini S&P 500 futures.**

**How would you weight the spread?**

# Practical Applications

**How would you weight the spread?**

**Spread Ratio = $NV_{S\&P500} \div NV_{Ibovespa}$**

**Notional Value (NV) of E-mini S&P 500 is simply the index value x $50.**

**Notional Value (NV) of Ibovespa is simply its index value x $1.**

# Practical Applications

**Spread Ratio = $NV_{S\&P500} \div NV_{Ibovespa}$**

**On October 22, 2012 the contracts NVs based on settlement prices were:**

**ESZ2 (E-mini S&P 500, Dec-12) = $71,500.00**

**IBVZ2 (Ibovespa, Dec-12) = $59,400.00**

**SR = 71500 ÷ 59400 = 1.2037**

**Or 10 ESZ2 versus 12 IBVZ2**

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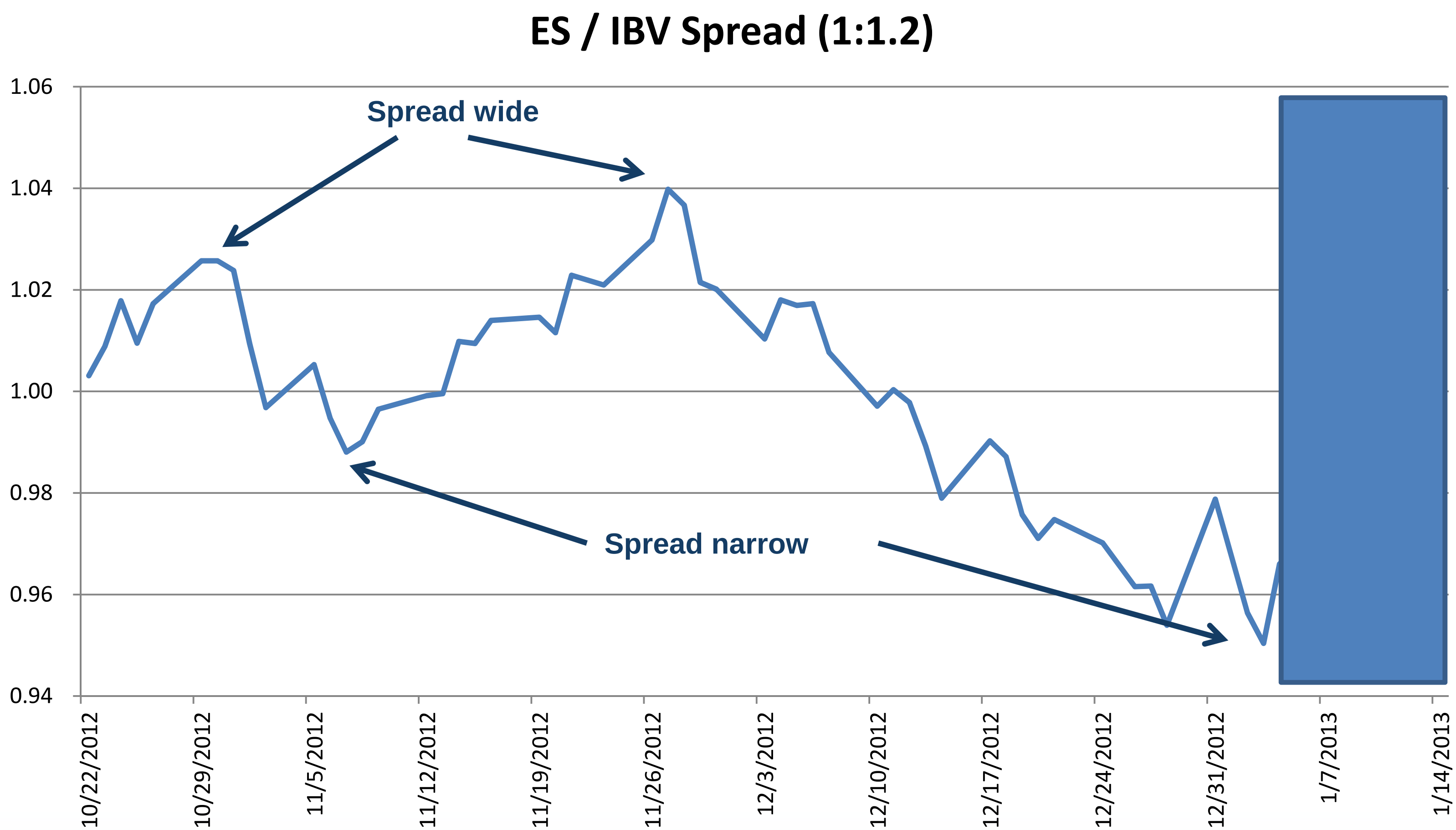
# Practical Applications

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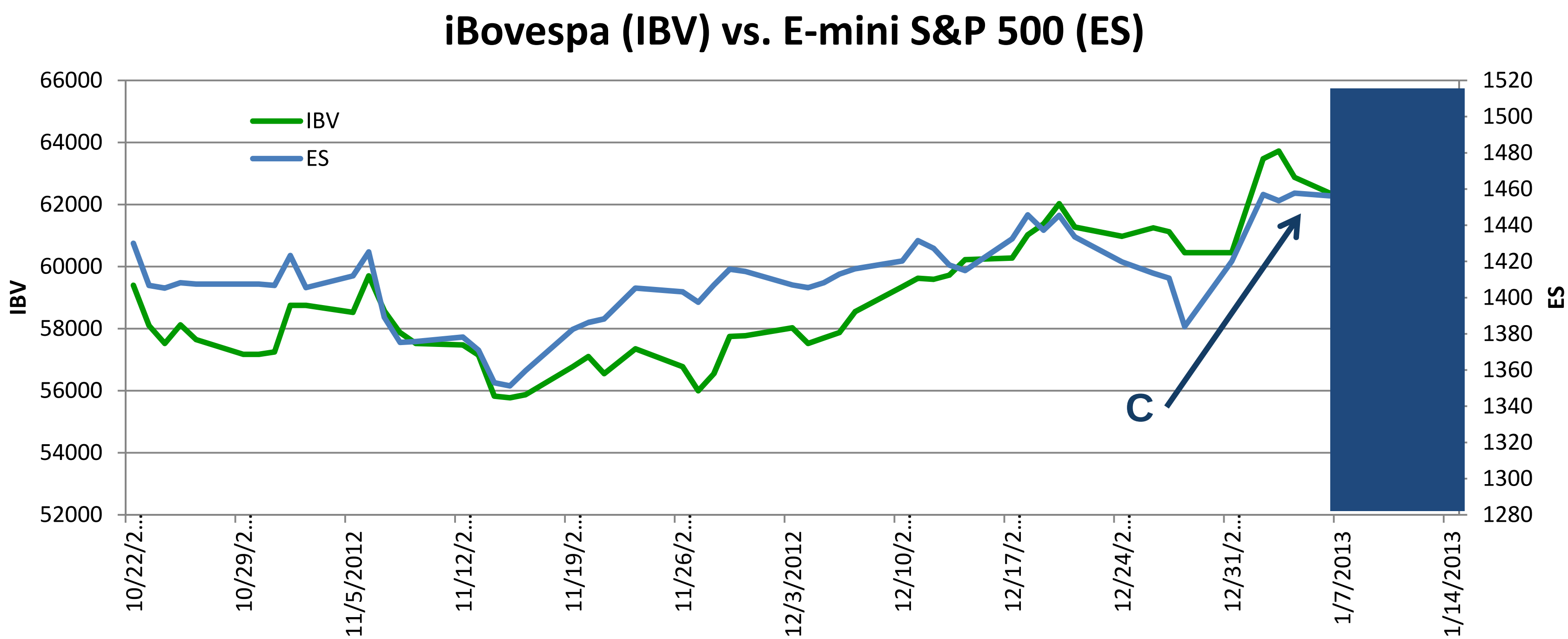
# Practical Applications

**iBovespa (IBV) vs. E-mini S&P 500 (ES)**


**After the launch of CME Ibovespa futures in October 2012 the spread relationship narrowed (A). By late November it had widened (B). In early January it reached its narrowest point to date (C).**

# Practical Applications




**In early January it reached its narrowest point to date (C). Assuming a relatively neutral bias to the both stock markets but understanding the convergence properties of the futures contracts let's assume we buy the spread at the narrow level established on Jan 3, 2012 anticipating a widening of the spread before expiration.**

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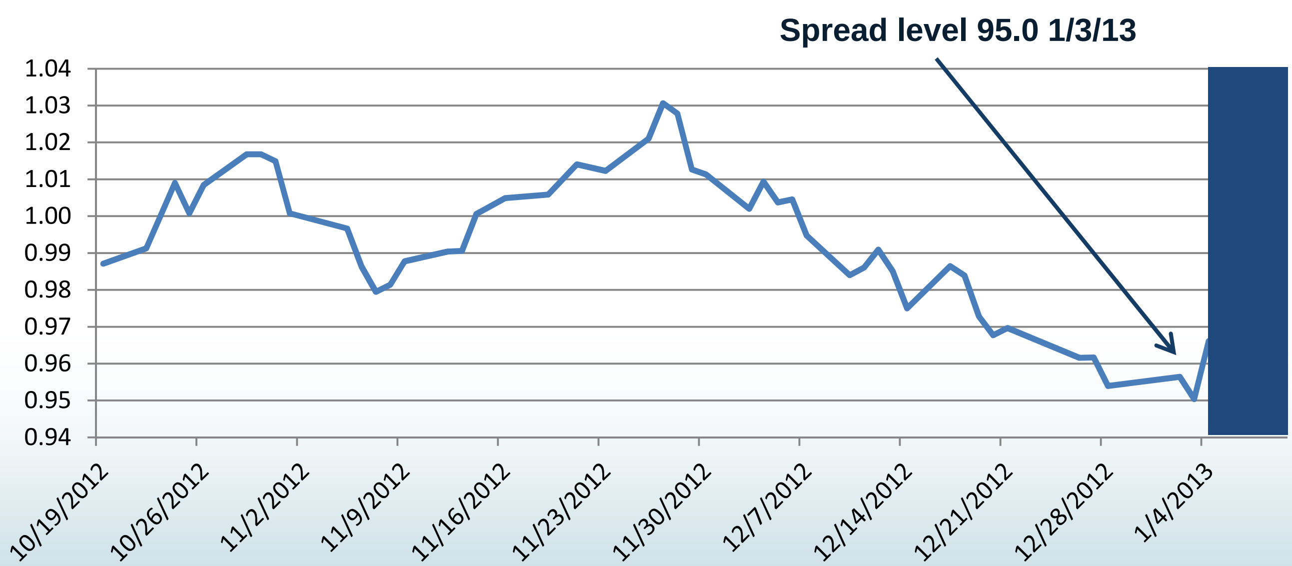
# Practical Applications

**January 3, 2013 buying the spread means buying ESH3 and simultaneously selling IBVG3 contracts.**

**ESH3 = 1453.50 = 72675 NV**
**IBVG3 = 63725 = 63725 NV**
**SR = 72675 ÷ 63725 = 1.1404**
**Ibovespa spot index = 63312 Basis = 413 points**
**Spread level = 95.0, Buy 7 ESH3 and sell 8 IBVG3**

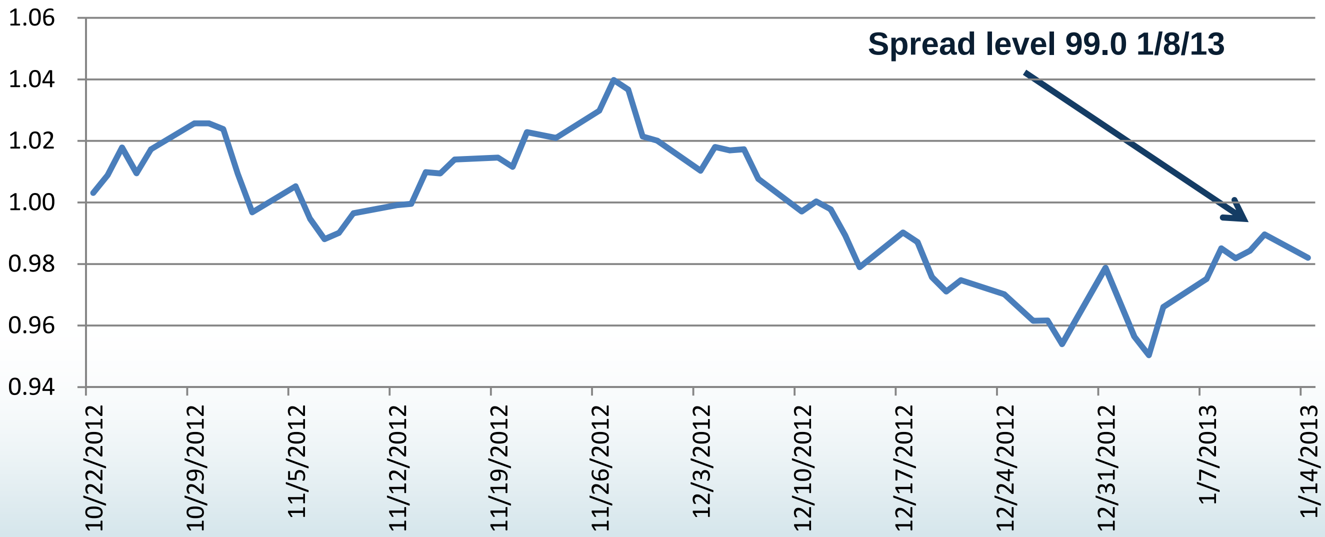


# Practical Applications

**By January 8, 2013 the contracts converged closer to their respective spot indexes and the spread widened. Unwind.**

**ESH3 = 1452.25**
**IBVG3 = 61425**

**Ibovespa spot index = 61128 Basis = 297 points**
**Spread level = 99.0, Sell 7 ESH3 and Buy 8 IBVG3**

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# Practical Applications

**Bot 7 ESH3 1453.50 Sold 7 ESH3 1452.25**
**1453.50 – 1452.25 = 1.25 x $50 x 7 = $437.50 loss**

**Sold 8 IBVG3 63725 Bot 8 IBVG3 61425**
**63725 – 61425 = 2300 x $1 x 8 = $18,400 gain**

**Resulting: 18400 – 437.50 = $17,962.50 gain before fees & commissions**

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# Spread Trading

**Takes in account the relative value between two or more contracts.**

**Understanding the pricing mechanism of individual contracts helps determine relative value.**

**Traders should investigate their options and apply their own models of evaluation prior to trading.**

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