

Trading the spread between Mexican & US 10-Year Note Futures

MexDer 10-Year vs. CMEG 10-Year

Background & Fundamentals

Spread Trading

In futures trading the simultaneous buying and selling of two contracts against each other is known as a “spread” or a spread trade.

- Individual contracts could be from the same commodity but different months. E.g. a calendar spread.
- Different commodities but similar products, e.g. wheat versus corn.
- Similar contracts within a complex, e.g. TUU1 versus USU1 to trade the US Treasury curve.

Background & Fundamentals

Treasury Complex Spreads

Several opportunities available within CMEG Treasury Curve

- Two-Year versus Ten-Year aka “TUT”
- Five-Year versus Bond aka “FOB”
- Ten-Year versus Bond aka “NOB”

Treasury Curve Spreads

Why trade the Treasury Curve using a spread?

- Adjust portfolio duration
- Anticipated shift in slope of yield curve
- Take advantage of perceived price anomalies

MexDer 10-Year / CME 10-Year Spread Example

Valuation of Treasury Futures

Compare apples to apples

When spreading two contracts against each other it is important that they be evaluated in common terms.

With Treasury contracts the common denominator is the contract's cheapest-to-deliver (CTD) value of a basis point (VBP) divided by its conversion factor.

Note: The conversion factors are fixed for each contract month but the VBP of the underlying cash note changes with price/yield.

Therefore the implied VBP of the contract will change with significant moves in price and yield.

Valuation of Treasury Futures

Compare apples to apples

Each Treasury futures contract that is settled by physical delivery normally has a, “basket,” or several Treasury bonds and notes that can be delivered into the contract.

The one that is most efficient to deliver is known as the cheapest-to-deliver, or CTD issue.

Treasury futures tend to price off the price behavior of the contract’s CTD.

Spread analysis begins with calculating the conversion factor adjusted VBP of the futures contract.

Valuation of Treasury Futures

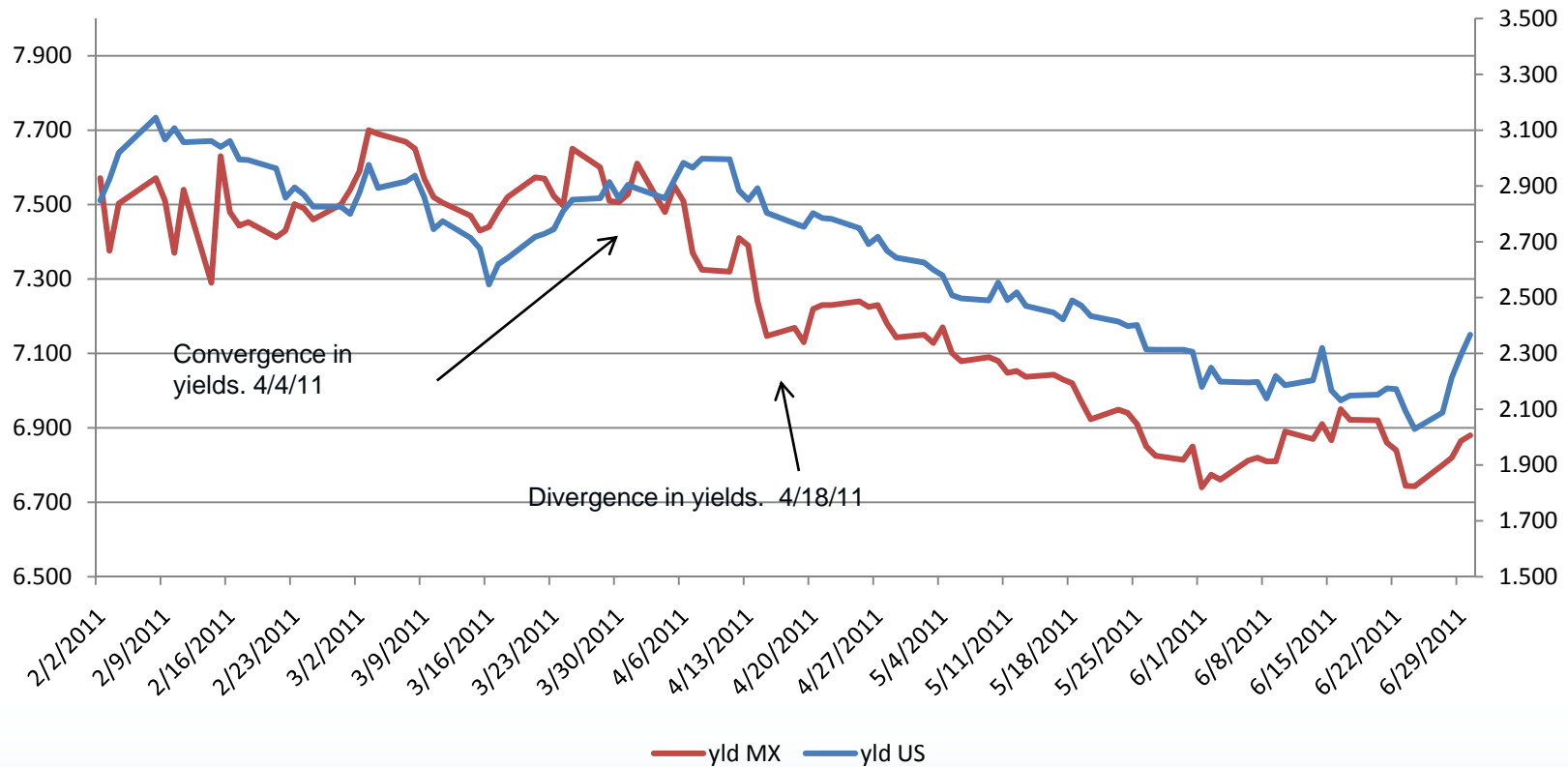
Compare apples to apples

For September delivery:

- The MX 10-Year Note tracks the Mexican 8% 6/11/2020 as its CTD
- The US 10-Year Note tracks the UST 3.875% 5/15/2018 as its CTD
- Notice the difference in maturities. The slope and level of the yield curve determines which issue/s is most efficient
- Currently in the US the issues with the shortest maturities are CTD.
- It is important to understand that even though the contracts may be labeled or implied to be 10-years their underlying asset may not be
- US 10-Year Notes trade with an implied 7-year maturity
- MX 10-Year Notes trade with an implied 9-year maturity

Buying MX/US Note Spread

US/MX 10-Year CTD Yields



Buying MX/US Note Spread

How to calculate the spread ratio?

The trading ratio for a dollar weighted spread is the same as that for a hedge ratio.

We simply take the conversion factor adjusted VBP for each contract and divide one by the other.

$$\text{VBP (ctd US)} / \text{VBP (ctd MX)} = \text{Hedge Ratio (HR)}$$

Assume on 4/4/2011 we decided, based on the narrow yield spreads to buy MX 10-Year and sell US 10-Year.

$$\begin{aligned} \text{VBP (ctd US)} &= \$74.92 \text{ per contract} \\ \text{VBP (ctd MX)} &= \$75.10 \text{ MXN per contract} \end{aligned}$$

Before doing the HR calculation I need to convert the Peso denominated MX VBP to USD equivalent.

Buying MX/US Note Spread

Compare apples to apples

Convert VBP (CTD MX) into USD equivalent amount:

$$\$75.10 \text{ MXN} \times 0.083375 = \$6.26 \text{ USD}$$

Now we can go ahead with the HR calculation:

$$\text{VBP (CTD US)} / \text{VBP (CTD MX)} = \text{Hedge Ratio (HR)}$$

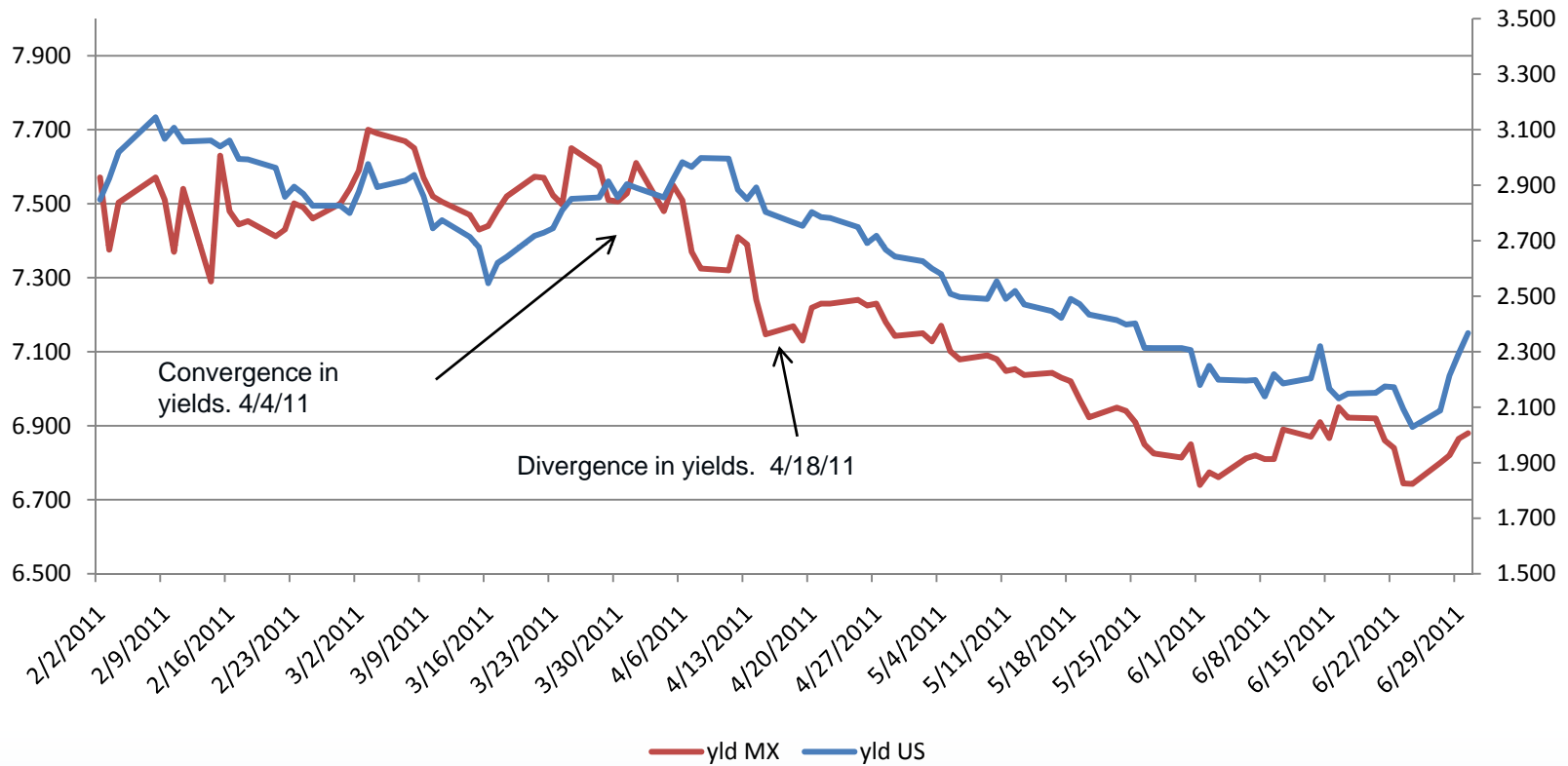
$$\$74.92 / \$6.26 = 11.96 \text{ MX 10-Years per 1 US 10-Year} \\ \text{rounded to 12:1}$$

4/4/2011 Bot 24 MX 10-Years at 108.650
Sold 2 US 10-Years at 117-26

Note: MX 10-Years quoted in decimal form, US 10-Years in 1/32 form

Buying MX/US Note Spread

US/MX 10-Year CTD Yields



Buying MX / US Note Spread

How to evaluate the results?

P&L

4/4/11 Bot 24 MX 10-Year at 108.650
 Sold 2 US 10-Year at 107-26

4/16/11 Sold 24 MX 10-Year at 110.975 = **Gain** of 2.325 points
 Bot 2 US 10-Year at 118-205 = **Loss** of 26.5 ticks

26.5 ticks US 10-Year x \$31.25 x 2 contracts = \$1,656.25 **Loss**
2.325 points MX 10-Year x 1000 MXN x 24 contracts = \$55,800 MXN
 converted at 0.083375 = \$4,652.32 USD

Total **gain** of \$2,996

Valuation of Treasury Futures

Spreads and relative value

Spread trading is about the relative value between two contracts.

Understanding the relative value of a contract requires an understanding of its pricing mechanism.

Mexican 10-Year Note futures available through MexDer provide another tool for fixed income managers and traders.

Spread trading between MexDer and CMEG Treasury futures is another option for risk management and trading opportunities.

Trading the spread between Mexican & US Equity Index futures

MexDer IPC vs. CMEG E-mini S&P

Background & Fundamentals

Equity Index Spreads

Several opportunities available within CMEG Equity Indices

- S&P 500 E-mini versus NASDAQ E-mini
- S&P 500 E-mini versus E-mini Dow
- S&P 500 E-mini versus Nikkei 225

Why trade an equity index spread?

- Normally less volatile
- Normally less directional
- Take advantage of different contract variations
- Take advantage of perceived price anomalies

MexDer Equity Index Futures

IPC Futures

- Underlying asset is the index issued by Bolsa Mexicana de Valores (Mexican Stock Exchange)
- The index is known as the IPC and is market capitalization weighted from stocks selected from different sectors of the Mexican economy
- Quoted in index points, e.g. 35137
- Notional (Face) Value is the index multiplied by MXN \$10.00
- Trades in quarterly maturity months (Mar, Jun, Sep, Dec)
- Cash settled

MexDer Equity Index Futures

IPC Futures

Ticker Symbol: IPC e.g. IPC JN11 = June 2011 IPC futures

On Bloomberg: ISA e.g. ISM1<CMDY> = June 2011 IPC futures

Consult your trading execution platform provider to their symbol for MexDer IPC Equity Index futures symbols.

IPC / S&P 500 E-mini Spread Example

Valuation of Equity Index futures

Compare apples to apples

When spreading two contracts against each other it is important that they be evaluated in common terms.

With Equity Index contracts the common denominator is the contract's notional, or face, value.

To calculate an equity index future's notional value is easy:

$$\text{Price of futures} \times \text{contract multiplier} = \text{Notional Value (NV)}$$

Note: The contract multiplier is fixed but the futures price is not. Therefore the NV will change with significant moves in price.

Valuation of Equity Index futures

Compare apples to apples

$$P \text{ futures} \times \text{multiplier} = NV$$

Let's calculate the notional value for S&P E-mini futures when:

P futures = 1296.25
multiplier = \$50.00

$$1296.25 \times 50.00 = \$64,812.50 \text{ per contract}$$

Now will calculate the notional value of the IPC futures when:

P futures = 35137
Multiplier = \$10.00 MXN

$$35137 \times 10.00 = \$351,370 \text{ MXN per contract}$$

Valuation of Equity Index futures

Compare apples to apples

Convert IPC futures notional value to equivalent \$USD terms

Assume a USD/MXN rate of 0.083375 or \$12.00 Pesos to USD

IPC notional value x exchange rate = IPC USD NV

351,370 MXN x 0.083375 = \$29,295 USD

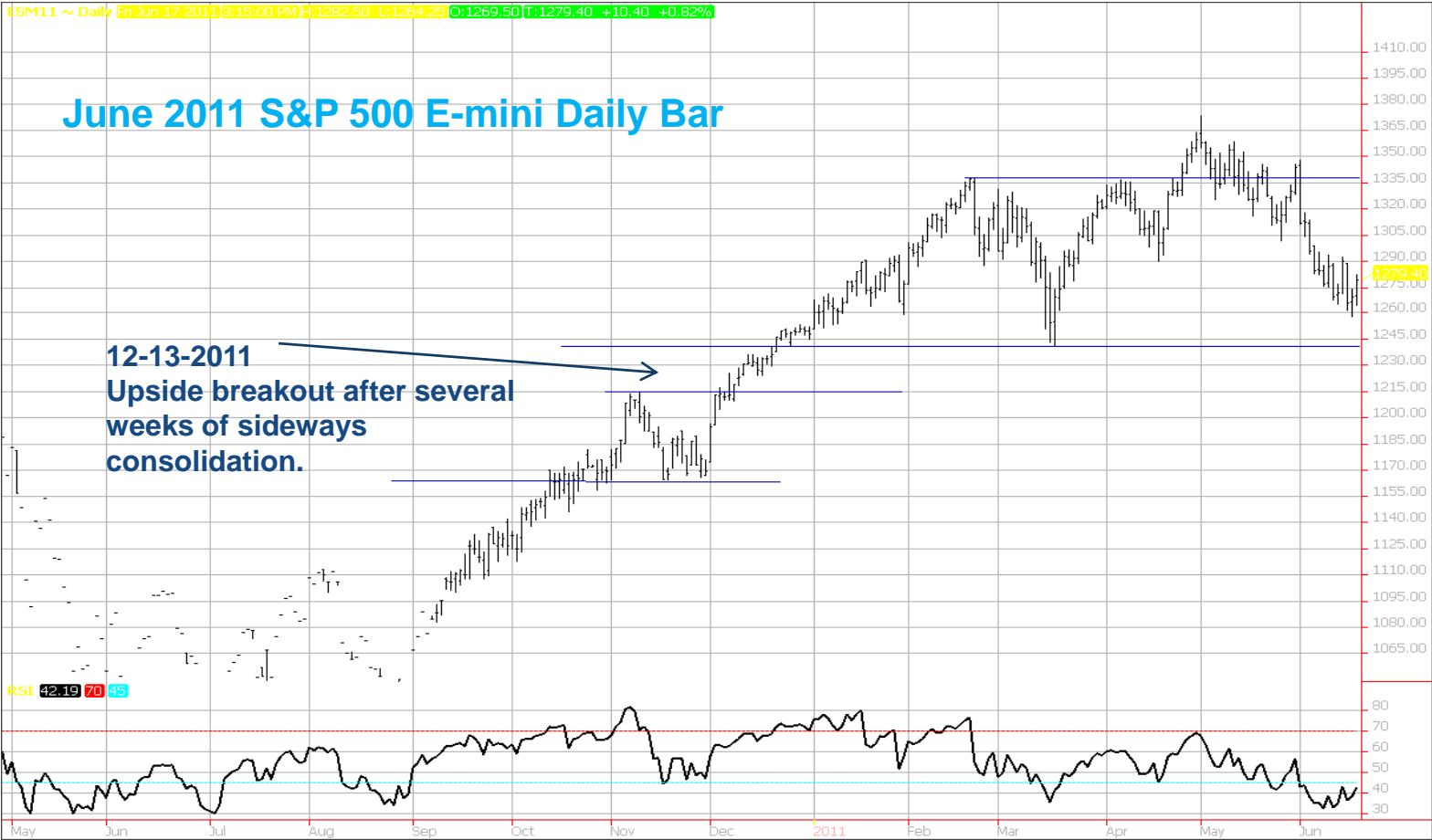
Now we can compare that to the NV of S&P E-mini's and calculate the proper hedge ratio/spread ratio.

Hedge Ratio = NV (E-mini) / NV (IPC)

HR = 64,812.50 / 29,295

=2.2124, or rounded to 2:1 IPC to E-mini

Selling the IPC/E-mini spread



Selling the IPC/E-mini spread

How to calculate the spread value?

Rather than use a price differential to calculate spread value use a weighted notional value differential calculation.

$$NV (IPC) \times 2 / NV (E-mini) = \text{Spread Value}$$

Assuming on 12/13/2010 we:

Sold 20 June IPC at 38475 and

Bought 10 June E-mini at 1231.25

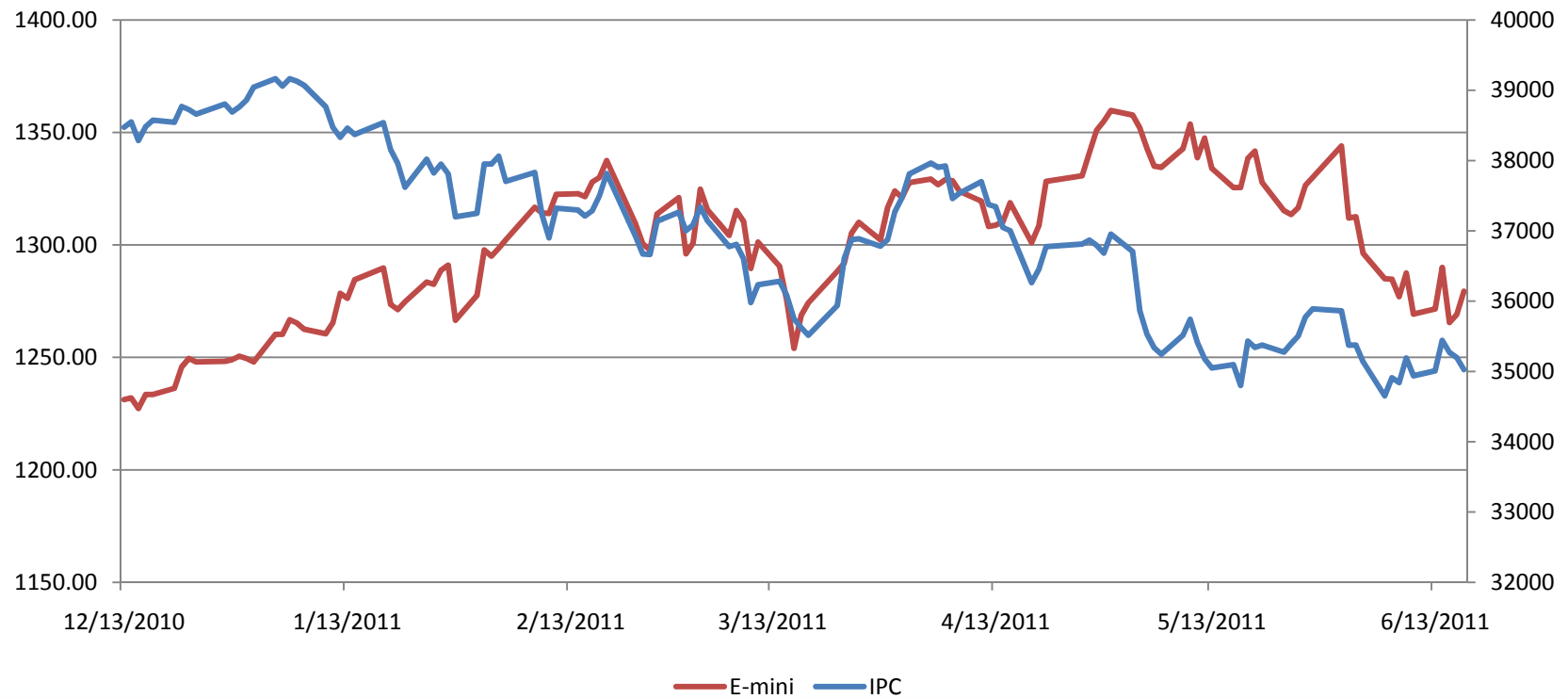
$$NV (IPC) = (38475 \times 10.00 \text{ MXN}) \times 0.08333 = 32061.22 \times 2 = \mathbf{64122.44}$$

$$NV (e-mini) = 1231.25 \times 50.00 = \mathbf{61562.50}$$

$$64122.44 / 61562.50 = \mathbf{1.0416 \text{ spread level}}$$

Selling the IPC/E-mini spread

June IPC / June E-mini



Selling the IPC/E-mini spread

How to evaluate the results?

P&L

12/13/10 Bot 10 E-mini at 1231.25
Sold 20 IPC at 38475
Dollar weighted spread = 1.0416

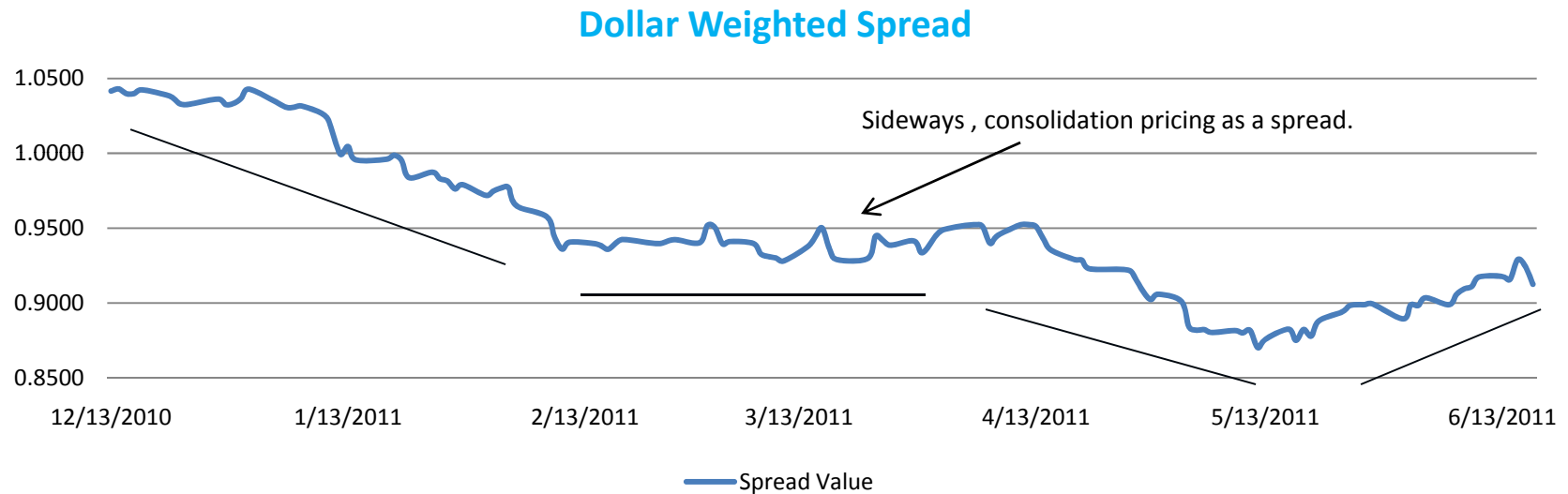
2/08/11 Sold 10 E-mini at 1316.75 = **Gain** of 88.50 points
Bought 20 IPC at 37830 = **Gain** of 645 points
Dollar weighted spread = 0.9576

88.50 points E-mini x \$50.00 x 10 contracts = \$44,250
645 points IPC x 10.00 MXN x 20 contracts = \$129,000 MXN
converted at 0.083375 = \$10,755 USD

Total **gain** of \$55,005 versus an outright long ESM1 gain of \$44,250.

Valuation of Equity Index futures

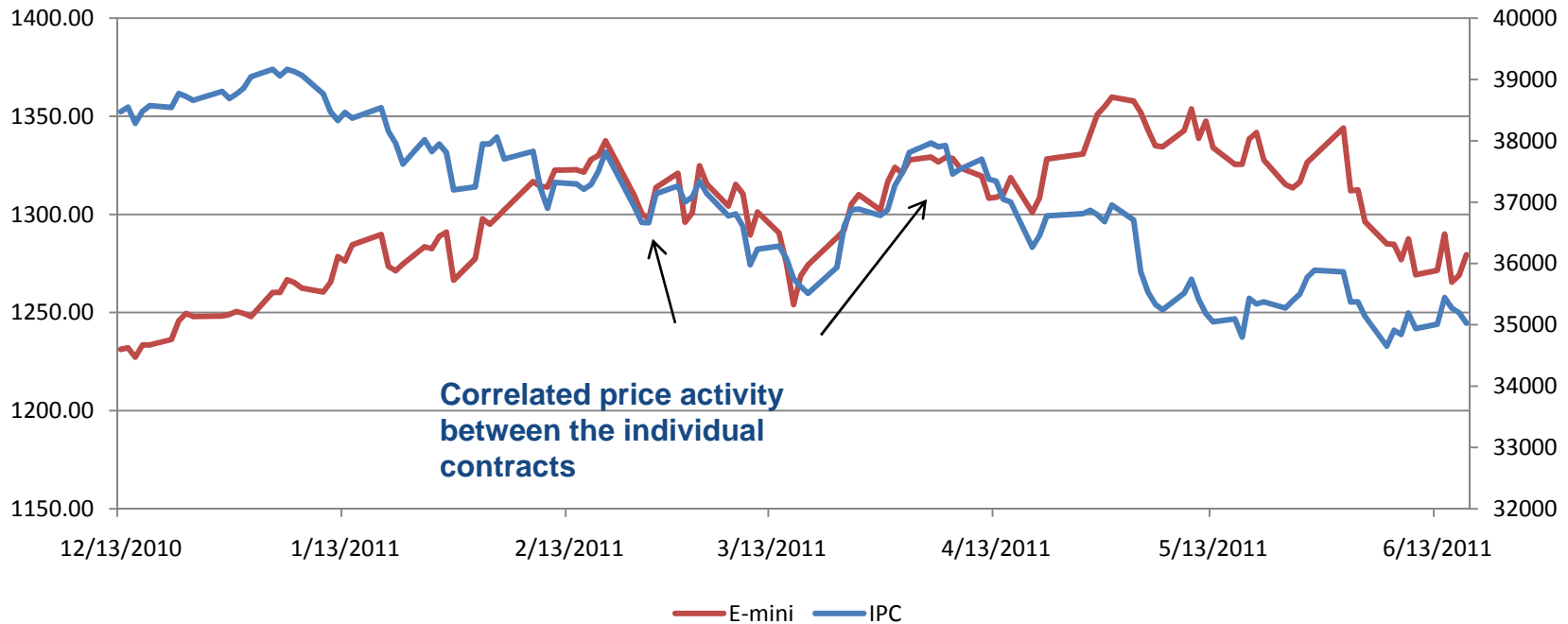
When to get in and out of the spread?



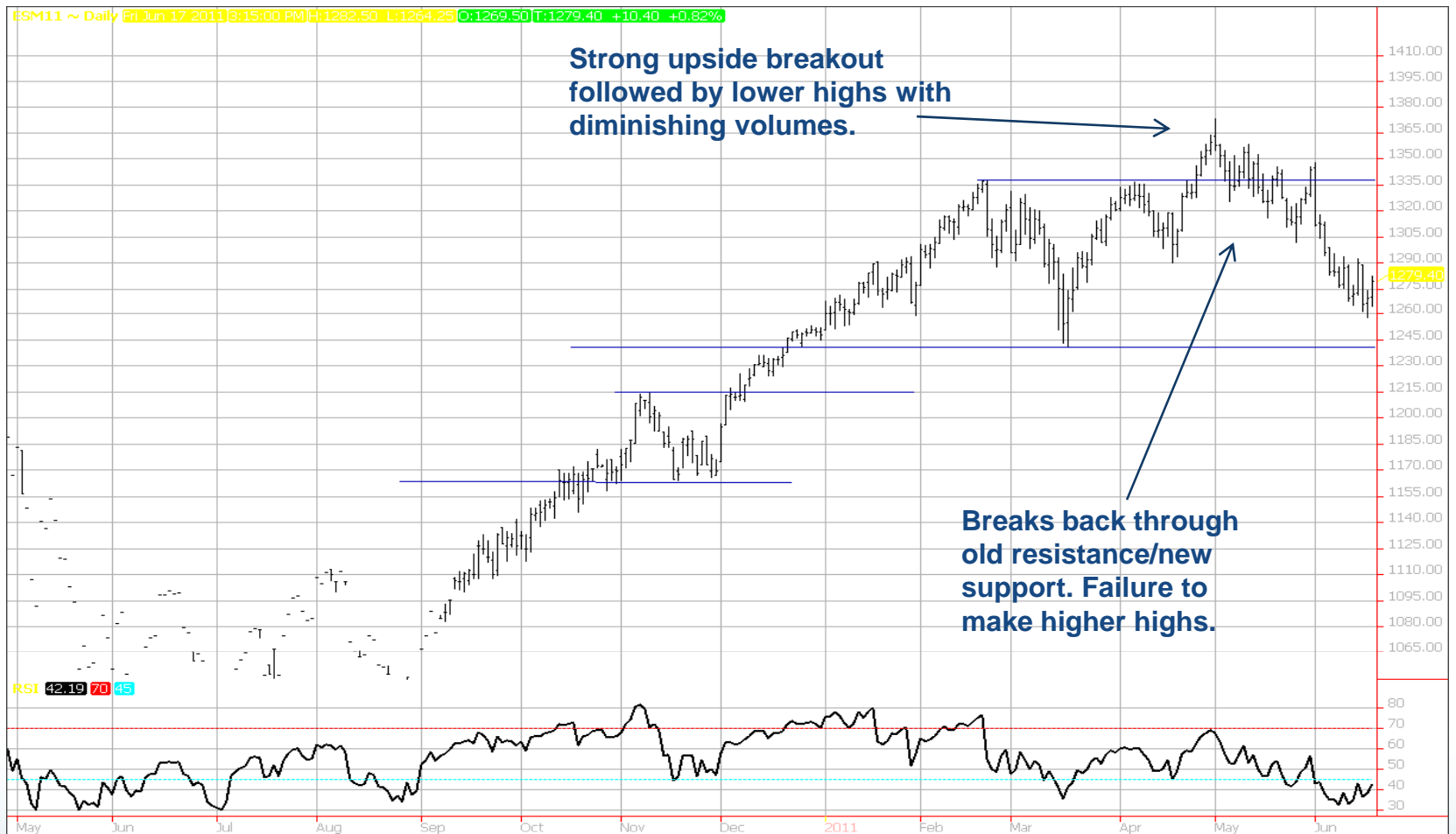
Valuation of Equity Index futures

When to get in and out of the spread?

June IPC / June E-mini

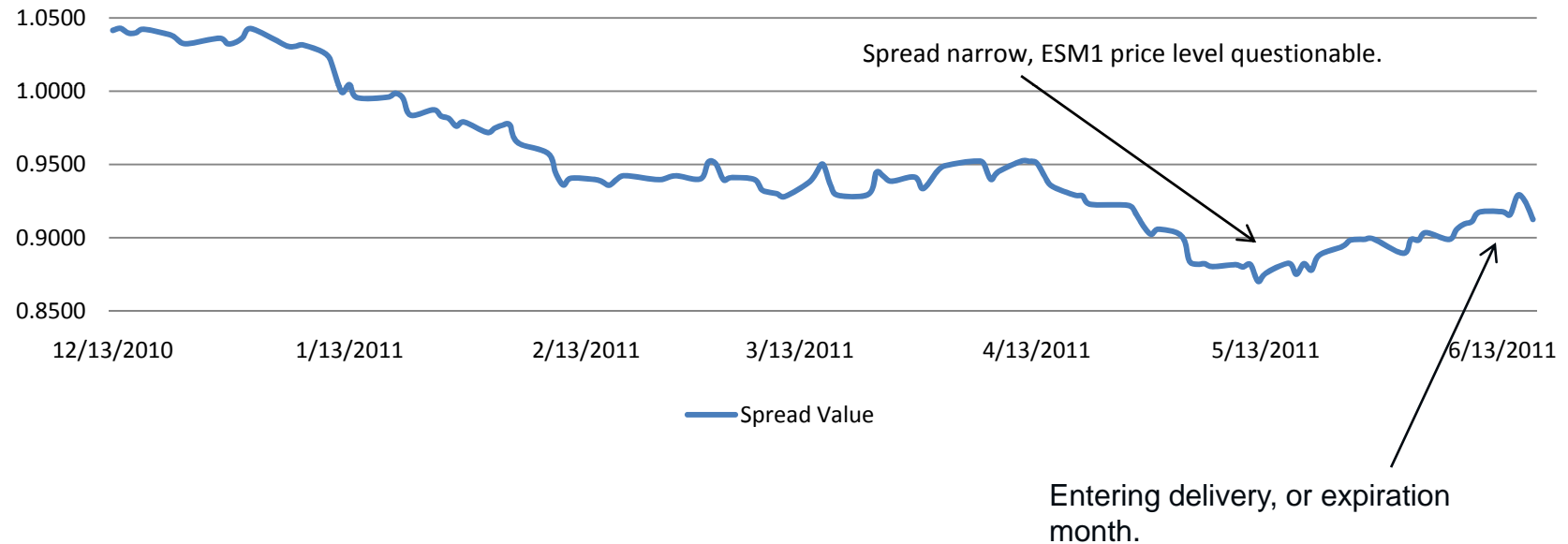


Buying the IPC/E-mini spread



Buying the IPC/E-mini spread

Dollar Weighted Spread



Valuation of Equity Index futures

Spreads and relative value

Spread trading is about the relative value between two contracts.

- Understanding the relative value of a contract requires an understanding of its pricing mechanism.
- IPC futures available through MexDer provide another tool for equity managers and traders.
- Spread trading between IPC and S&P 500 E-mini futures is another option for risk management and trading opportunities.