Commodity Exchange Traded Funds

June 2011

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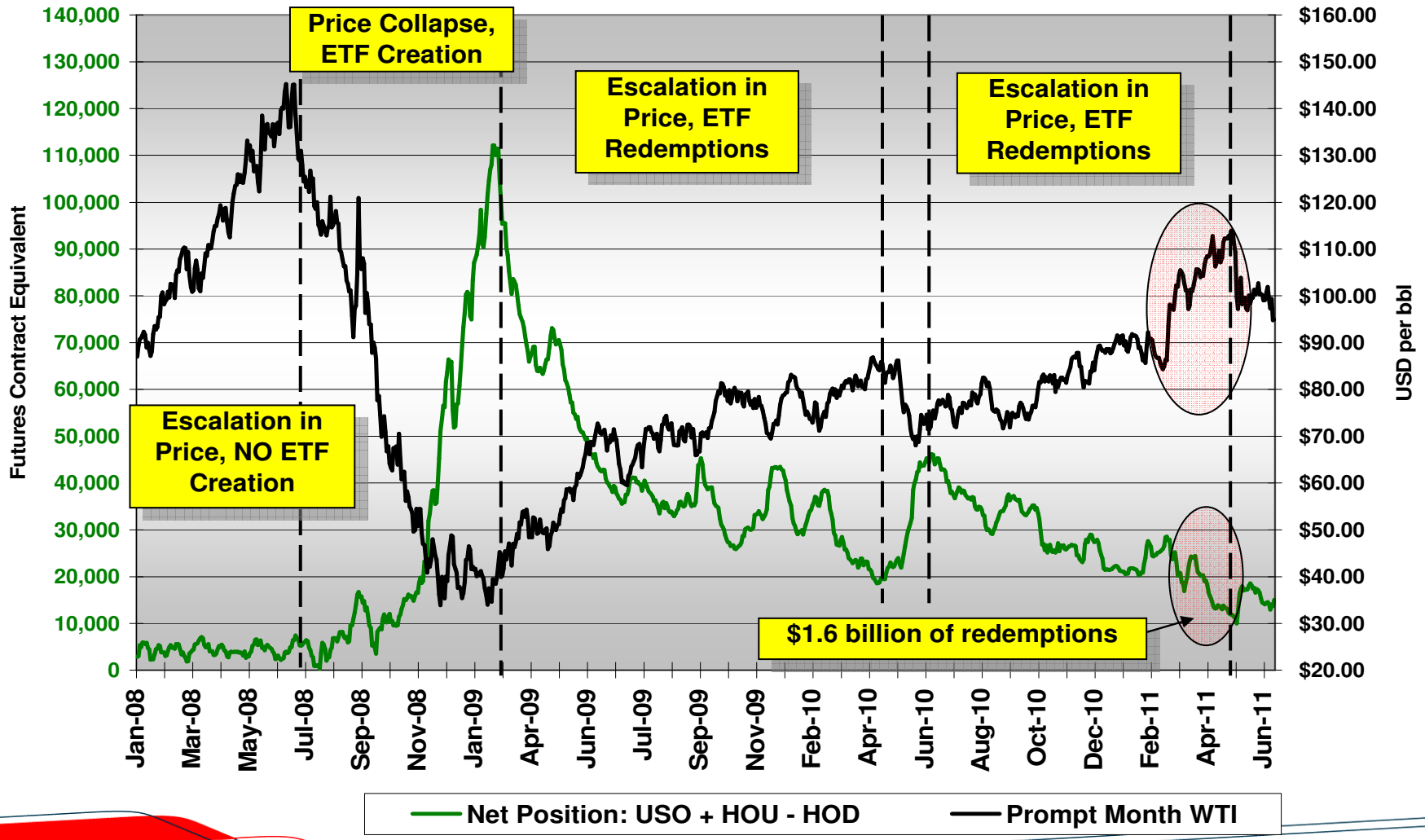
NATIONAL BANK FINANCIAL GROUP

EXCHANGE TRADED FORUM 2011

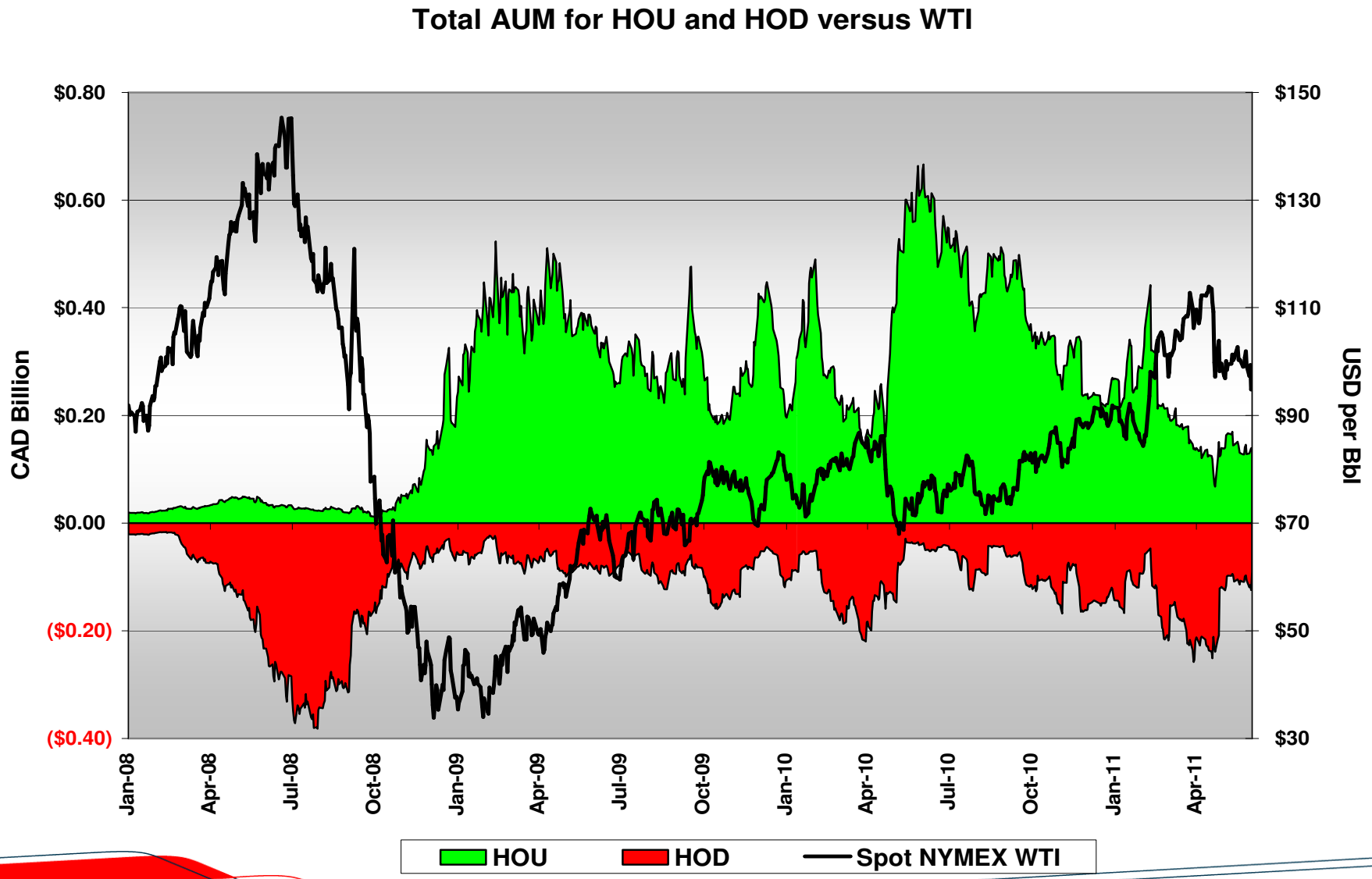
NBC Commodities

- 14-person Calgary-based team running both a client-driven and strategic trading operation
  - Collective team experience in excess of 250 years in the field of energy trading and risk management
  - Primarily energy: crude oil, refined products and both physical and financial natural gas
  - **strategic trading activities largely to support client-driven business**
- Broad base of corporate flow hedging activity
  - 75% oil and gas producers, + utilities and energy consumers
    - Strong lending franchise supports energy hedging business
    - **140+ transactional clients over the past 24 months**
      - Many larger, highly-competitive counterparties
- **Daily commentary circulated to over 1,400 people**
- **Trading desks provide the hedge for all the Horizons BetaPro commodity ETFs:**
  - Crude, natural gas, gold, silver, copper
  - **Largest trader of financial energy derivatives among Canadian banks**
- New activities:
  - **WCS (heavy crude) hedging, NGL hedging**, natural gas storage, metals trading

ETFs are Causing Market Volatility – Huh???



ETFs are Causing Oil Market Volatility – Huh???



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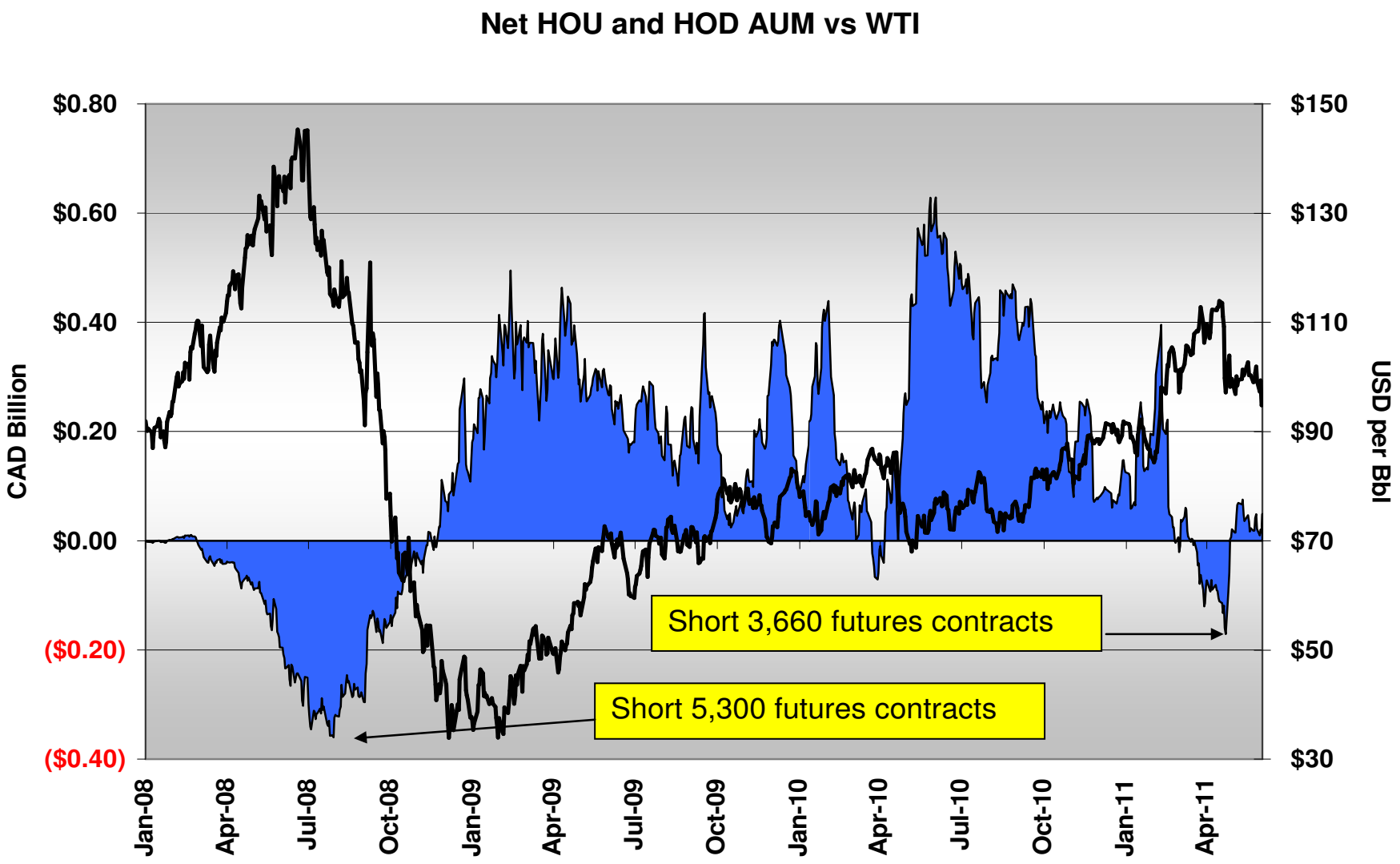
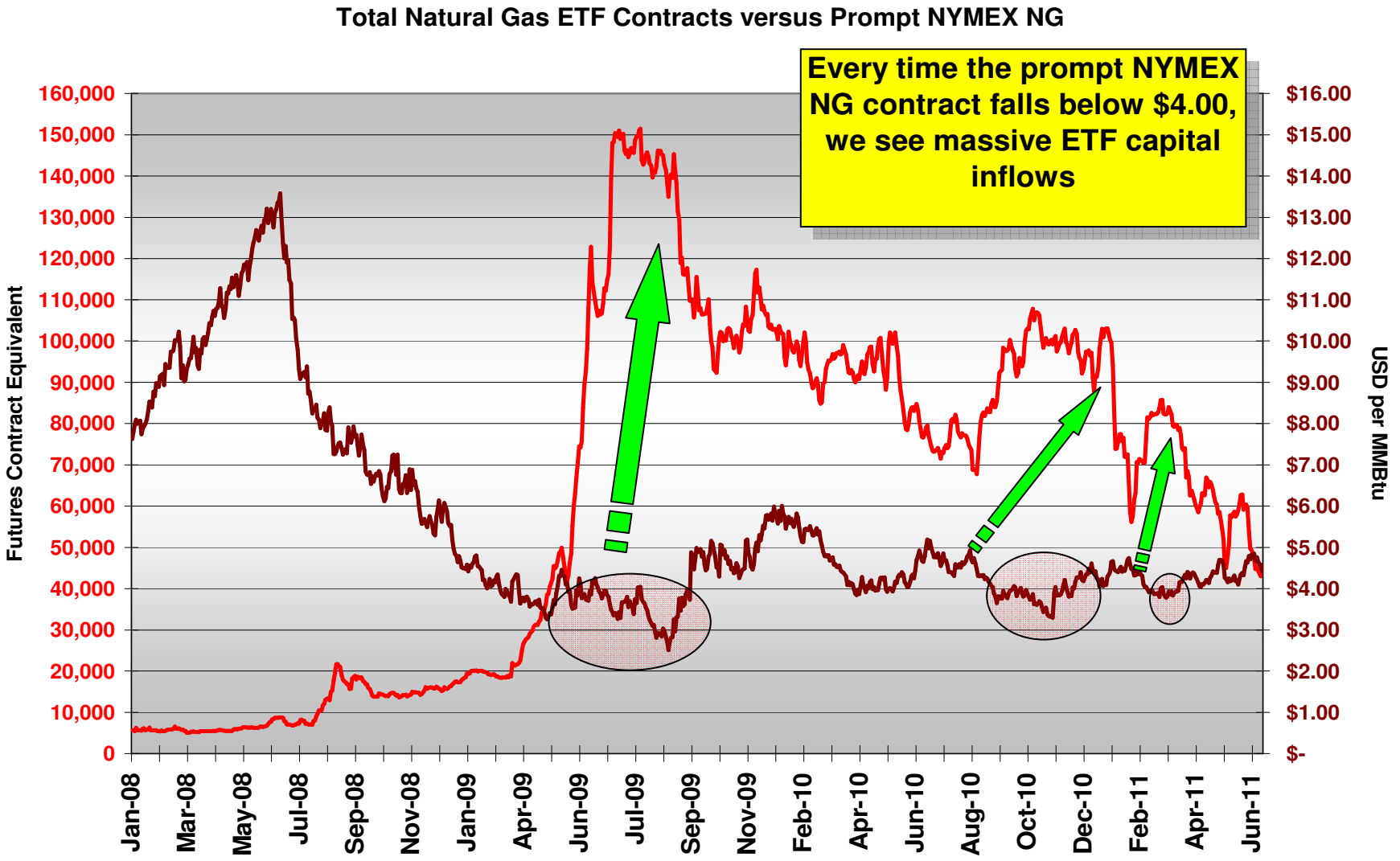
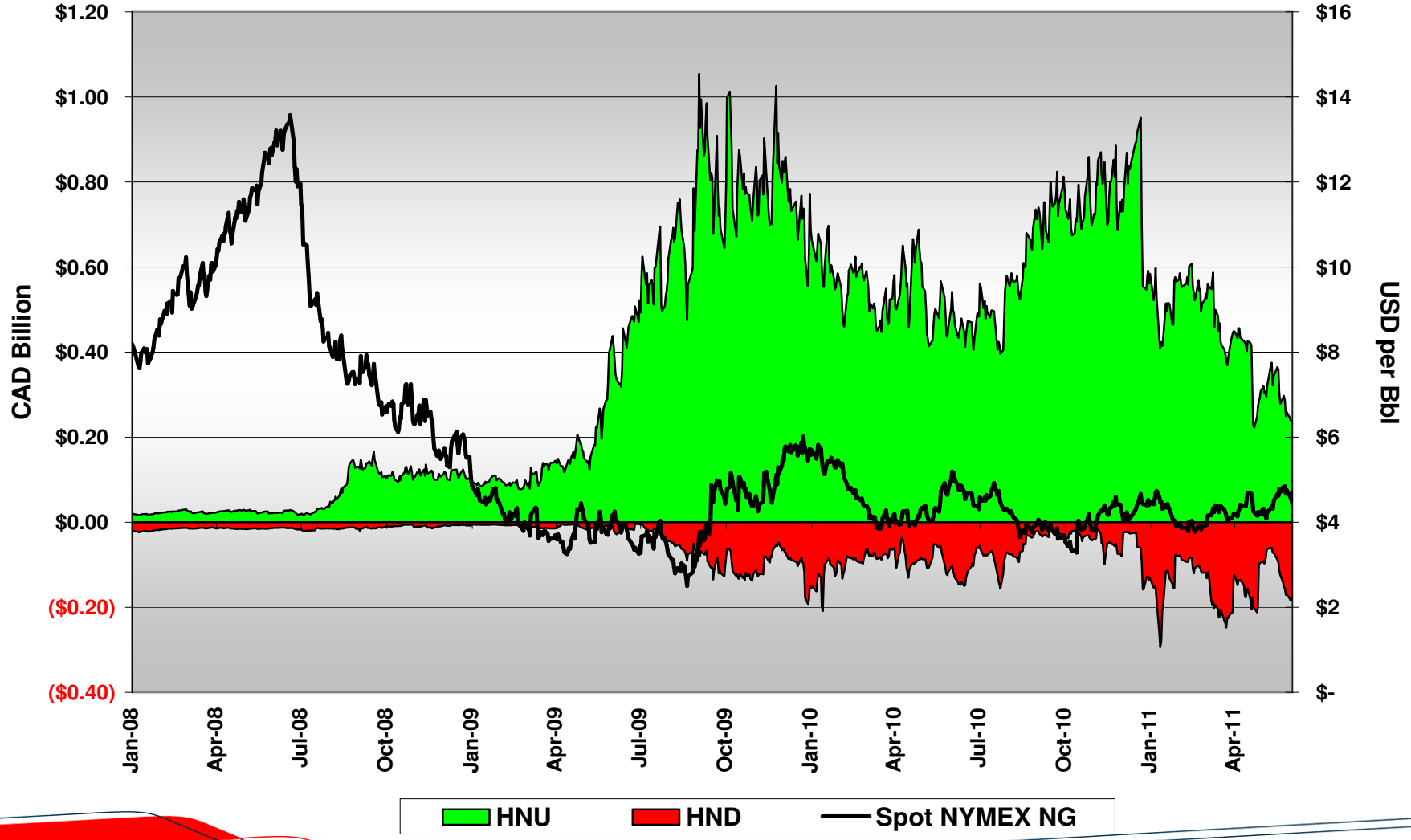


ETFs are Causing Natural Gas Market Volatility – Huh???



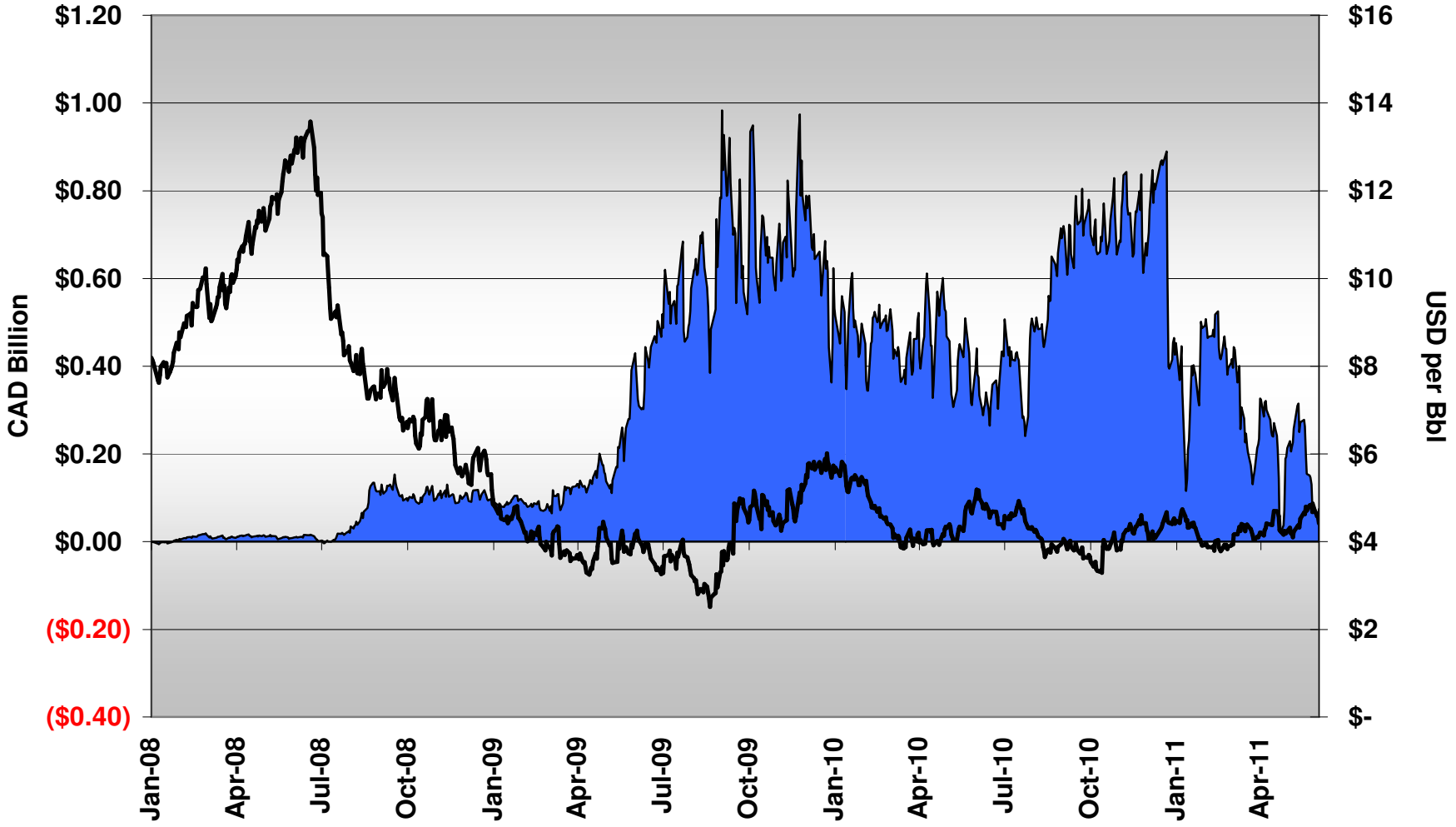
ETFs are Causing Natural Gas Market Volatility – Huh???

Total AUM for HNU and HND versus NYMEX NG



ETFs are Causing Natural Gas Market Volatility – Huh???

Net HNU and HND AUM vs NYMEX NG



The Contango/Backwardation Issue

- Contango – forward prices trading at a premium to spot prices
- Backwardation – forward prices trading at a discount to spot prices
- "theoretically", forward prices represent the consensus market view of future spot market prices
  - At times there can be a structural imbalance between buyers and sellers in the forward curve
- Unlike many other forward curves (equities, FX, interest rates), frequently arbitrages are not possible to construct a predictable forward curve (especially in a backwardated scenario)
  - E.g. backwardation should never exist
- Long commodity investors view contango as a "cost", backwardation as a "benefit"

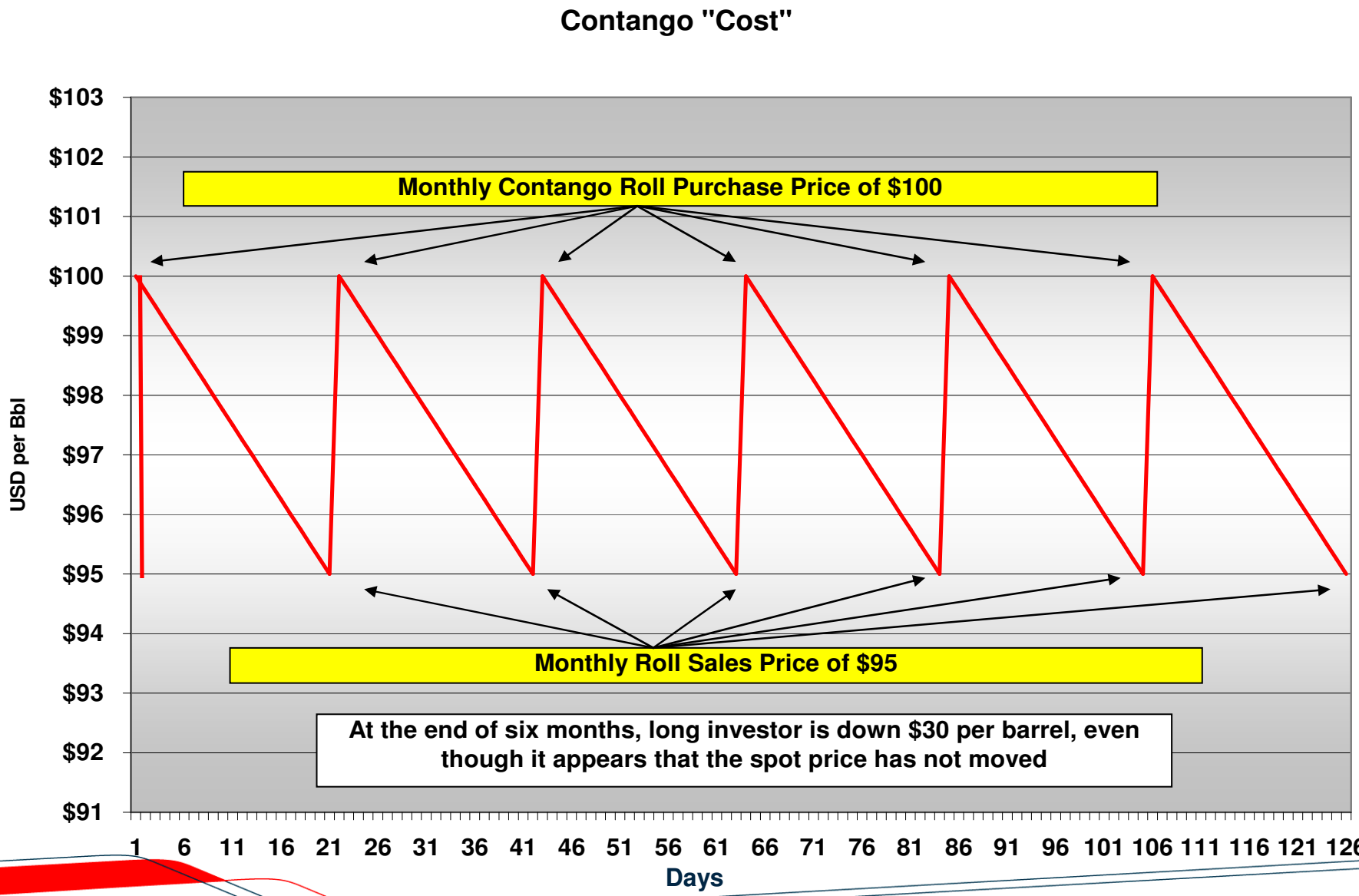
The Contango Arbitrage

- Assume July crude is trading at $90 and August crude is trading at $100
- Trader borrows $90 and buys July barrels at $90, injects those barrels into storage at Cushing, Ok., and simultaneously locks in the sales price one month later at $100
- Borrowing cost at 3% for one month approximately $0.20 per bbl
- Storage costs approximately $0.40 per bbl per month
- Net arbitrage profit: $100 - $90 - $0.60 = $9.40
- Traders would continue to buy July and sell August until the arbitrage disappears – the July-August market in $0.60 contango
- What can cause the contango to widen out more than the cost of storage + interest costs?
  - No more storage availability at the delivery point of the futures contract
  - Happened in crude oil in early 2009
    - Contango moved so wide that traders were incentivized to book tankers and store crude from month-to-month offshore – “floating storage”

The Backwardation Arbitrage

- Assume July crude is trading at $100 and August crude is trading at $90
- Trader borrows a barrel of crude for the month of July
- Trader sells the barrel for delivery in July at $100, and simultaneously enters into a forward purchase in August so he can return the barrel to the lender
- Trader invests the $100 proceeds and receives interest for the month
- Assume the cost to borrow the barrel is $1 per bbl
- Net arbitrage profit: $100 - $90 - $1.00 + $0.20 = $9.20
- In this scenario, traders will continue to sell July and buy August until the premium to the July contract falls to $0.80
- Major problem: when the market is tight, there is no borrowing market for crude oil
  - There is utility associated with holding the barrel of crude so that it can be consumed
  - E.g. would a Northeast homeowner lend his heating oil when the temperature is -40 degrees?
- As a result, there is no theoretical maximum to the potential backwardation in the market
    - Spot month crude could be trading at $200 with the 2nd month trading at $100

The Contango/Backwardation Issue



Investors Cannot Completely Avoid the Contango Effect

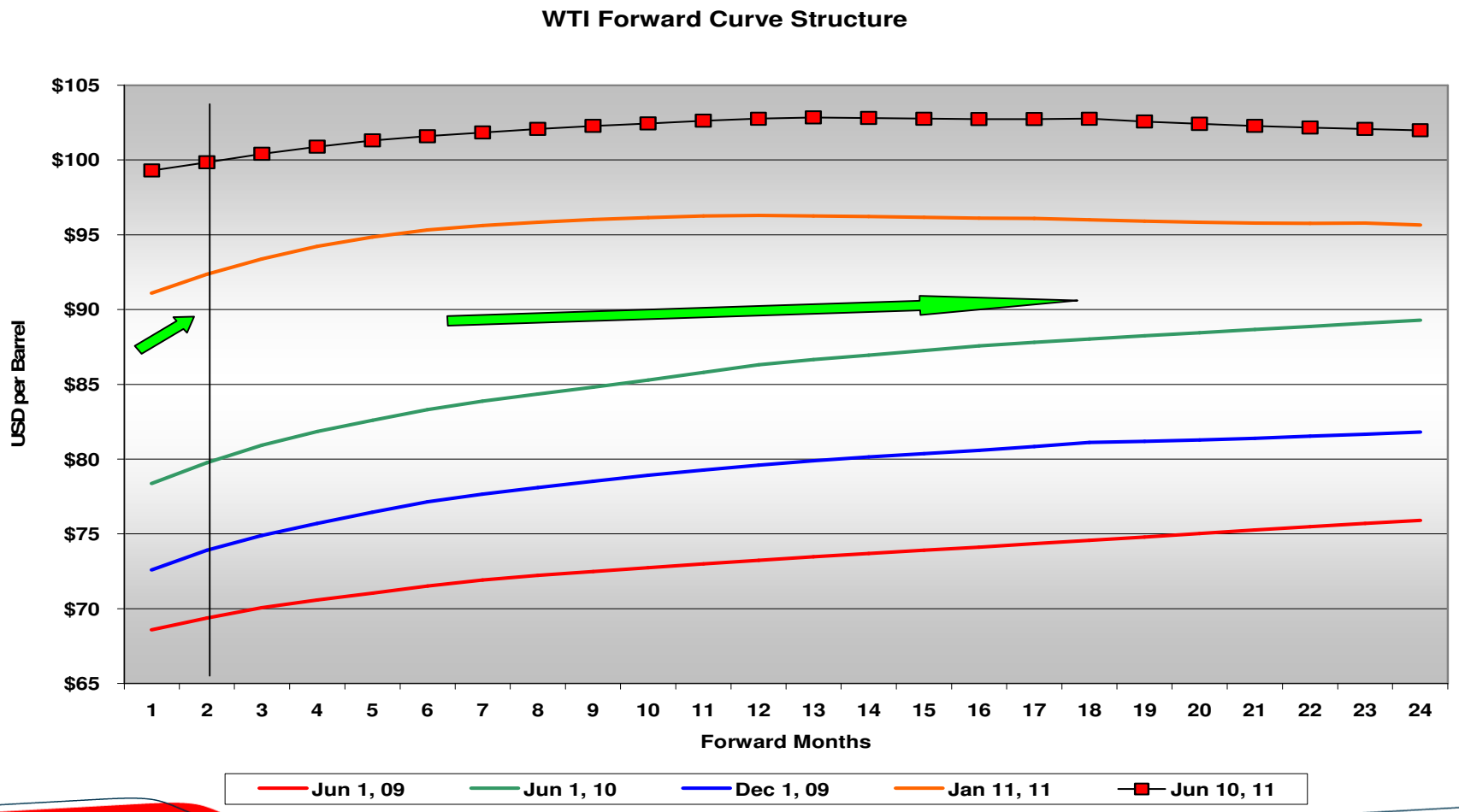
- The physical purchase alternative:
  - Buy crude today and store it until you want to sell it
  - Cost of term storage $0.40 - $0.50 per bbl
  - If you wanted to buy and hold crude for 5 years, buy crude at $100, pay storage costs of $24 - $30 per bbl
    - Price in 5 years' time would have to be greater than $130 to make money!
    - 5-year premium in the oil forward market has never been as high as $30 per bbl
- The oil producer alternative:
  - Today's share price for an oil producer should be based on price he will receive in the future for his oil
    - E.g. if spot crude is at $100, but the rest of the forward curve out for five years is trading at $110, is the producer's NAV based on $100 or $110?
  - In this scenario, if one purchases the producer's shares based on the $110 forward price and the price ends up actualizing at today's spot price of $100, you should lose money on the equity investment

Mitigating the Roll Effect – Roll Where the Curve is Flatter

- Horizons Beta Pro in June 2009 launched two single bull energy ETFs:
  - HBP Winter-Term NYMEX Crude Oil ETF (HUC)
  - HBP Winter-Term NYMEX Natural Gas ETF (HUN)
- Designed to appeal to longer-term buy-and-hold investors
- Crude ETF (HUC) tracks the first nearby December contract, rolling once a year in June to the following December
- Natural gas ETF (HUN) tracks the first nearby January contract, rolling once a year in November to the second nearby January contract
- Selection of index meant to maximize liquidity while minimizing the contango/backwardation phenomenon
  - December crude contracts the most liquid along the forward curve
  - Rolling from the 6th month to the 18th month typically in a flatter part of the curve
- Largely insulated from movements in the CAD/USD exchange rate

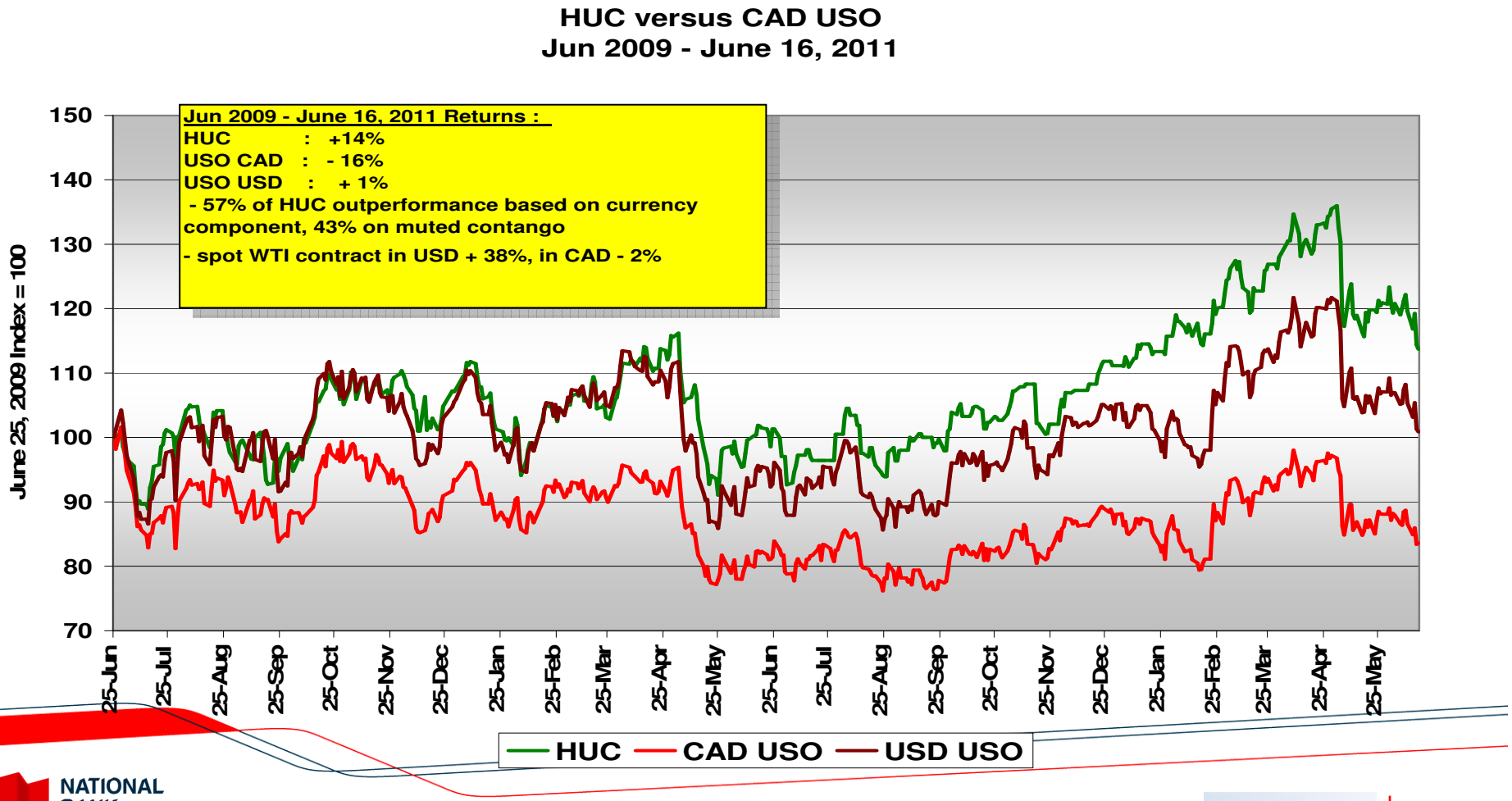
Rolling in a Flatter Part of the Curve

- Current first-versus second month spread $0.65
- HUC is rolling with a 12-month spread of $1.20, so just $0.10 per bbl per month



MITIGATING CONTANGO & CAD/USD HAS LED TO HUC OUTPERFORMANCE

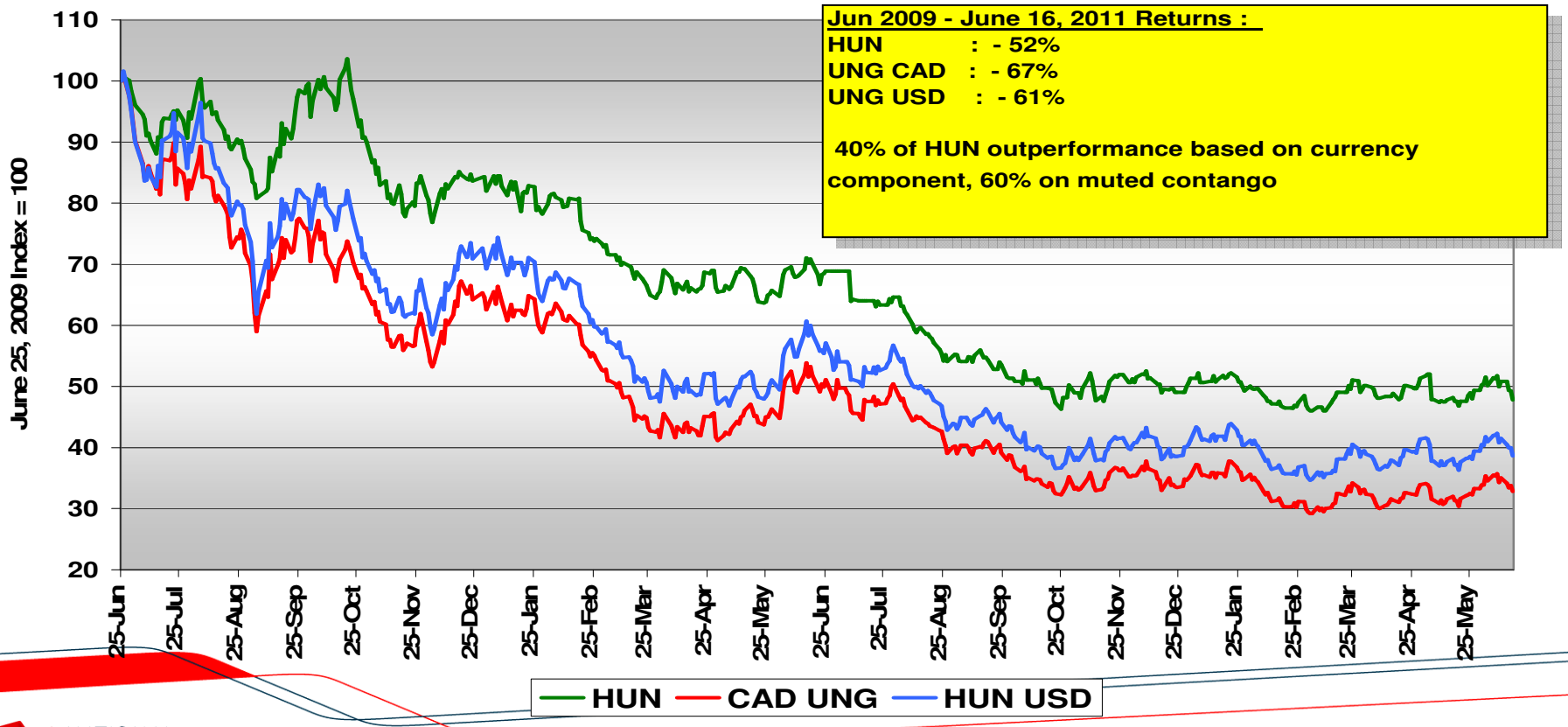
- Since the launch of HUC, performance of HUC is + 14% and performance of CAD-denominated USO is – 16%, an outperformance of 30%
- Performance of USD-denominated USO is +1%
- Therefore 57% of the total outperformance is attributable to the currency effect, 43% is attributable to the contango mitigation



MITIGATING CONTANGO & CAD/USD HAS LED TO HUN OUTPERFORMANCE

- Since the launch of HUN, performance of HUN is – 48.0%, and performance of CAD-denominated UNG is – 66.1%, an outperformance of 18.1%
- Performance of USD-denominated UNG is -58.6%
- Therefore 45% of the total outperformance is attributable to the currency effect, 55% is attributable to the contango mitigation

HUN vs. CAD UNG vs. USD UNG
June 2009 - June 16, 2011



LIQUIDITY: ETF VOLUME/UNITS OUTSTANDING IS NOT A TRUE MEASURE OF ETF LIQUIDITY!

- HUC and HUN were designed specifically to minimize the effect of contango while maximizing liquidity
- Bid/offer quoted by HUC/HUN market-makers is driven by the bid/offer on the underlying futures contract that the market-makers will use in automated fashion to hedge their ETF transaction with you
- NYMEX WTI December contracts underlying HUC represent the greatest liquidity on the strip (outside of nearby contract months)
  - $10 million tranche involves approximately 100 NYMEX futures contracts
  - Price impact of executing 100 Dec contracts during trading day typically less than $0.15 per bbl, or about 0.15%
- Similar driver on the NYMEX NG January contracts underlying HUN

Concluding Comments

- **Energy ETF investors have served to reduce price volatility rather than exacerbate price volatility**
- **Contango "cost" effect is unavoidable in the energy markets, although some ETFs are structured better than others in terms of managing this effect**
  - **Contango/backwardation not an issue for short-term hold positions**
  - **Important issue for longer-term buy-and-hold strategies**

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