

CONTENTS

- *Hedging Tools* (slides 2-5)
- *Swap* (slides 7-17)
- *Call / Put* (slides 18-22)
- *Collar (Cap / Floor)* (slides 23-26)
- *Options* (slides 27-30)
- *Basis Risks* (slides 31-33)
- *Volume & Value Sensitivity* (slides 34-37)
- *Account Management Solutions* (slide 38)

HEDGING TOOLS

Swaps:

- Paper (not physical) transactions
- Buy fixed price / Sell variable price
- Buy fixed Basis Risk value /
Sell variable Basis Risk value

Basis Risk Examples:

- Buy Jet Fuel versus NYMEX heating oil
- Buy NYMEX heating oil versus NYMEX crude oil
(this is the Heating Oil Crack Spread)

HEDGING TOOLS

Call (Cap) Options:

- Buy Calls (End-User hedge)
 - Premium risk only
 - Unlimited upside *profit*
- Sell Calls (OTC Calls utilizes credit line)
 - Premium revenue only (use to purchase Puts or buy-down lower priced purchased Caps)
 - Unlimited upside *loss*

HEDGING TOOLS

Put (Floor) Options:

- Buy Puts (Producer hedge)
 - Premium risk only
 - Unlimited downside *profit*
 - Used as hedging tool for inventory control
- Sell Puts (OTC Puts utilizes credit line)
 - Premium revenue only (use to purchase Calls or to lower fuel costs)
 - Unlimited downside *loss*

HEDGING TOOLS

Collar (Cap/Put) Options:

- Buy Calls (Cap) and at the same time
Sell Puts (Floor)
- If the Call and Put Premiums are the same (and volumes the same) it is a *Costless Collar (ZCC)*
- Selling the Put finances the cost of the Call
(Selling a Put option has unlimited downside risk, so be willing to buy the commodity at the strike price of the Put)

COLLARS NEUTRALIZES VOLATILITY

HEDGING TOOLS

-Mixed Collars (Cap/Put) Options

- Uses different Commodities (Heat and Crude)

-Call Spreads (Cap/Cap) Options

-3 Way Collars (2xCap/Put) Options

-Leg Collars (Buy Call – if/when prices are lower then Sell Put)

-Extendables (Buy in 2 periods-High Vol)

SWAP

Buy Fixed:

- Fixed price for commodity
- Relationship (Basis Risk hedge)
 - Jet Fuel vs NYMEX heating oil
 - NYMEX heating oil vs ICE crude oil
(Heating Oil Crack Spread)

Sell Variable:

- Variable price - Platt's monthly average

SWAP



Risk:

- Unlimited *loss* as the market moves against the fixed price during the variable pricing period
- Margin requirements
 - OTC (Over-The-Counter) utilizes credit lines
- Performance of Counterparty is at risk
 - Continuously monitor counterparties' credit

SWAP



Reward:

- Unlimited *profit* as the market moves in favor of the fixed price during the variable pricing period
- Paper transaction does not affect physical deliveries
- Apply fixed cost against budget

SWAP EXAMPLE (1)

*Fixed Price Swap: Buy 25,000 bbl. of Jet Fuel
for calendar month May'12*

- Price: \$3.00 per gallon
- U.S. Gulf Coast delivery
- FOB Pasadena, Texas
- Colonial Pipeline 54 grade

SWAP (1) RESULTS

- If the monthly average Platt's Jet Fuel price for the delivery month is:
 - \$3.05 / gal. = \$.05 profit = \$52,500 profit
 - \$3.00 / gal. = \$0 profit
 - \$2.95 / gal. = \$.05 loss = (\$52,500) loss

SWAP EXAMPLE (2)

*Fixed Price Swap: Buy 25,000 bbl. of Crude
for calendar month May'12*

- Price: \$110 per barrel
- OTC (over-the-counter) ICE/Brent Crude
- Monthly Average APO
 - (APO –average price option)

SWAP (2) RESULTS

- If the monthly average ICE Crude price for the delivery month is:
 - \$114 / bbl. = \$4.00 profit = \$100,00 profit
 - \$110 / bbl. = \$0 profit
 - \$106 / bbl. = \$4.00 loss = (\$100,000) loss

SWAP EXAMPLE (3)

Basis Risk Hedge: Buy 25,000 bbl. of Jet Fuel versus NYMEX heating oil for calendar month May'12

- Pay a premium of \$.09 per gallon over the NYMEX heating oil price

SWAP RESULTS (3)

- If the difference between the monthly average Platt's Jet Fuel price for the delivery month and the monthly average NYMEX heating oil settlement price is:
 - plus \$.12 / gal. = \$.03 profit = \$31,500 profit
 - plus \$.09 / gal. = \$0 profit
 - plus \$.06 / gal. = \$.03 loss = (\$31,500) loss

SWAP EXAMPLE (4)

Basis Risk Hedge: Buy 25,000 bbl. of Jet Fuel versus ICE crude (Jet Crack Spread) for calendar month May'12

- Pay \$12.00 per barrel over the ICE crude oil price for jet fuel

SWAP (4) RESULTS

- If the difference between the monthly average Platt's Jet Fuel price for the delivery month and the monthly average ICE crude settlement price is:
 - \$14.00 / bbl. = \$2.00 profit = \$50,000 profit
 - \$12.00 / bbl. = \$0 profit
 - \$10.00 / bbl. = \$2.00 loss = (\$50,000) loss

CALL / PUT



Buy Call (End-User hedge):

- Pay Premium

Buy Put (Producer hedge):

- Pay Premium

CALL / PUT



Risk:

- Premium cost
- “Style of Option” as defined later
- Performance of counterparty
- Physical Delivery

CALL / PUT



Reward:

- Unlimited upside protection – Buy Call
- Unlimited downside protection – Buy Put
- Limit loss to the cost of insurance (Premium)
- Premium is the only financial risk
- Unlimited Downside (Call) or Upside (Put) participation in the market
- Apply fixed cost against budget

CALL EXAMPLE (1)

Basis: Buy a calendar May'12 crude Call option (25,000 bbl.) at a \$120 strike price for a \$5.00 per barrel Premium

- Pay \$5.00 per barrel
- Contract expires 5-31-12
- Asian style (cash settlement)
- OTC calendar month \$120 Call

CALL RESULTS (1)

- The monthly average price for May ICE crude on 5-31-12 is:
 - \$129 / bbl. = \$9.00 profit - \$5.00 cost
equals net \$100,000 profit
 - \$125 / bbl. = \$5.00 profit - \$5.00 cost
equals net \$0 profit (*All-In Price*)
 - \$110 / bbl. = \$5.00 cost equals (\$125,000) loss
 - \$80 / bbl. = \$5.00 cost equals (\$125,000) loss

COLLAR

- Buy Call (Cap)
 - Unlimited upside *profit*
- Sell Put (Floor)
 - Unlimited downside *loss*
- Neutralizes volatility
- Very bullish transaction (both positions favor upside)

Costless COLLAR EXAMPLE (1)

Buy an May'12 Jet Fuel Call (25,000 bbl.) at \$3.20 per gallon

- Pay a Premium of \$.05 per gallon
(offset by the sale of the Put)
- Expires on 5-31-12
- Asian style (cash settlement)
- U. S. Gulf Coast Jet Fuel
- Colonial pipeline 54 grade quality
- Physical delivery (Option)

and

Costless COLLAR EXAMPLE (1)

Sell an May'12 Jet Fuel Put (25,000 bbl.) at \$2.80 per gallon

- Collect a Premium of \$.05 per gallon
(offset by the purchase of the Call)
- Expires on 5-31-12
- Asian style (cash settlement)
- U. S. Gulf Coast Jet Fuel
- Colonial pipeline 54 grade quality
- Physical delivery (Option)

Costless COLLAR RESULTS (1)

- If the May monthly average settlement price for Jet Fuel U.S. Gulf Coast on 5-31-12 is:
 - \$3.30 / gal. = \$.10 Call profit = \$105,000 profit
 - \$3.10 / gal. = \$.00 profit
 - \$2.90 / gal. = \$.00 profit
 - \$2.65 / gal. = (\$.15) Put loss = (\$157,500) loss

“STYLE OF OPTION”



European

- One day Expiration
- Typically used in NYMEX/ICE look-alike quotes
- Medium cost

“STYLE OF OPTION”

Asian (APO - Average Price Option)

- Each day of the pricing period determines the value
- Each day of the pricing period reduces the hedging volume
- Low cost
- Effective to offset Contract (Prior Weekly Average) physical purchases

“*STYLE OF OPTION*”



American

- Buyer can exercise the option anytime before expiration
- Highest cost (greatest risk to seller)
- NYMEX/ICE options are this style

“STYLE OF OPTION”



Option Issues

- Volatility
- Time value

Market Issues

- Contango
(prompt prices are lower than forward)
- Backwardation
(prompt prices are higher than forward)

BASIS RISKS



Highest Liquidity = Lowest Premium Cost

- Highest to lowest liquidity as follows:
 - NYMEX crude oil
 - ICE Brent crude oil
 - NYMEX heating oil
 - ICE Gasoil
 - U. S. Gulf Coast Jet Fuel

BASIS RISKS



Logistics – Arbitrages

Buy one location and sell the other:

- Los Angeles vs Gulf Coast
- New York vs Gulf Coast
- New York vs Europe
- Pacific Rim vs United States
- Pacific Rim vs Europe

BASIS RISKS



Jet Fuel Basis Risks

- Relative value to NYMEX heating oil
 - Jet Fuel versus NYMEX heat
- Relative value to ICE crude oil
 - Jet Fuel versus ICE crude
(Jet Fuel crack spread)

VOLUME & VALUE SENSITIVITY



Volumes

- Hedge at least 60% of monthly demand

Total Working Volume

- Hedge at least 90-180 days of demand with high percentage volume at all times
- Hedge forward based on fixed/budget prices
 - Target at least 24 months, consider 3-5 years

VOLUME & VALUE SENSITIVITY

Continue to Participate

(no one can accurately forecast the market)

- Is it better to own \$3.20 Jet Fuel in a \$2.60 market ? (You are short and can buy more)

or

- Is it worse to not own \$3.20 Jet Fuel in a \$3.80 market ? (You are still short but your entire unhedged volume is priced higher)

VOLUME & VALUE SENSITIVITY

Determine Value Sensitivity relative to Hedged Volume

- If prices are at \$2.50, be aggressive and hedge a minimum of 80% of your demand (especially prompt volumes)
- Extend hedging period longer when prices are low, volatility is low, and the forward curve is flat

VOLUME & VALUE SENSITIVITY

Volume versus Value

The incremental cost relative to the percent of monthly hedged volume on total demand:

- $\$.02 \text{ /gal on } 10\% = \$.002 \text{ /gal on total}$
- $\$.01 \text{ /gal on } 30\% = \$.003 \text{ /gal on total}$
- $\$.02 \text{ /gal on } 50\% = \$.01 \text{ /gal on total}$
- $\$.01 \text{ /gal on } 100\% = \$.01 \text{ /gal on total}$

Account Management Solutions

- *Asset Management*
 - (*Assets - Monetize and Maintain*) (AMM)
- *Manage Profit in Hedge Program*
 - *Monetize Hedge Position and Maintain Hedge Protection*
- *Actively Manage Program (AMP)*
 - *Manage Downside Risk in Hedge Program*
 - *Manage Existing Hedge Position with AMM*