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Subject: Proxy hedge for jet fuel using heating oil options [C]

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Inline-Images: image004.png; image005.png; image002.jpg

Classification: **Confidential**

Jeffrey,

We looked into correlation of Jet Fuel with Brent, WTI and heating oil. See the correlation of weekly returns since Jan-2012 below:

With WTI: 80%

With Brent: 88%

With Heating oil: 82%

Jet Fuel, Heating Oil and Brent Time Series

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Given these results, we priced alternatives in Brent and heating oil. Heating oil vols are lower than Brent, and therefore the option premiums below (as a percentage of swap price) are lower for the heating oil structures versus the Brent structures. The prices below work for 1mm gallons/month of heating oil or 24k barrels/month of Brent crude.

Heating Oil (HO1) Price

(September 2010 – September 2015)

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Options on Heating Oil:

Cal16 swap ref 165 cents/gallon

Cal16 APO (Average Price Option) Calls:

Strike / Premium (in cents per gallon)

165: 19.90

175: 15.95

185: 12.70

Premium Payment Date: Trade Date + 2 business days

Transaction Economics:

Terminal Payout for the K strike APO call above will be:

Calculation Periods: 1-Jan-16 to 31-Jan-16; 1-Feb-16 to 29-Feb-16;; 1-Dec-16 to 31-Dec-16 (12 periods)

Payment Dates: 2 business days after last day of each Calculation Period

For Calculation Period i, DB pays (in USD): Notional * max (0, Average Price of Heating Oil Spot Futures in Calculation Period i – K)

Average Price of Heating Oil Spot Futures in Calculation Period i: Arithmetic average of settlement price of HO1 <comdty> on all commodity business days during Calculation Period i.

Notional: in gallons / Calculation Period (e.g. 1,000,000 gallons per month)

Premium to be paid by option buyer is the total number of gallons (across all months) * premium/gallon quoted above

Single Asianed call, with Asianing period 1-Jan-16 to 31-Dec-16:

Strike / Premium (in cents per gallon)

165: 18.10

175: 14.15

185: 10.95

Premium Payment Date: Trade Date + 2 business days

Transaction Economics:

Terminal payout for the K strike Asianed call above will be:

Calculation Period: 1-Jan-16 to 31-Dec-16

Payment Date: 2 business days after last day of Calculation Period

DB pays (in USD): Notional * max (0, Average Price of Heating Oil Spot Futures in Calculation Period – K)

Average Price of Heating Oil Spot Futures in Calculation Period: Arithmetic average of settlement price of HO1 <comdty> on all commodity business days during Calculation Period.

Notional: in gallons (e.g. 12,000,000 gallons)

Brent (CO1) Historical Prices

(September 2010 – September 2015)

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Options on Brent:

Cal16 swap ref: 55.41

Cal16 APO (Average Price Option) Calls:

Strike / Premium

55: \$7.83/bbl

60: \$5.72/bbl

65: \$4.13/bbl

Single Asianed call, with Asianing period 1-Jan-16 to 31-Dec-16:

Strike / Premium

55: \$7.15/bbl

60: \$5.03/bbl

65: \$3.47/bbl

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