Commodity Hedging and Hedge Accounting along the industrial Supply Chain

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Universität Duisburg-Essen

Essen, June 21, 2011
Agenda

• Price risk exposure for physical commodities
• Economic hedging along the industrial supply chain
• Accounting treatment of economic hedging schemes (IFRS)
• Commodity hedge accounting framework (IFRS)
• Case study – commodity hedging and hedge accounting
• Summary
Price risk exposure for physical commodities

Purchase of precious metals for production of exhaust gas systems

Market price risk for **car maker** results from monthly price fluctuations for Pt/Pd.
Price risk exposure for physical commodities (II)

Gasoil trading

Market price risk for trader results from spot price fluctuations for gas oil.
Commodity price volatility and its impact

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><img src="image1" alt="Graph" /></td>
<td><img src="image2" alt="Graph" /></td>
<td><img src="image3" alt="Graph" /></td>
<td><img src="image4" alt="Graph" /></td>
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</tbody>
</table>

- Large historic price volatility for commodities leads to fluctuating costs and earnings for industrial companies and energy firms.
- Economic hedging of energy and commodity inventories, firm commitments and forecast transactions using derivatives can be applied to mitigate risks and control and stabilize costs and earnings.
Commodity Hedging and Hedge Accounting along the Supply Chain

**Agenda**

- Price risk exposure for physical commodities
- **Economic hedging along the industrial supply chain**
  - Accounting treatment of economic hedging schemes (IFRS)
  - Commodity hedge accounting framework (IFRS)
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Example: Hedge of gasoil inventory using futures

- Physical purchase of gasoil ($630.00/mt) leads to a long position in gasoil.
- To hedge the physical long position, the owner takes an offsetting short position in gasoil futures ($633.00/mt for delivery in one month).

<table>
<thead>
<tr>
<th>Long physical position</th>
<th>Short futures position</th>
</tr>
</thead>
<tbody>
<tr>
<td>630.00 USD/mt</td>
<td>633.00 USD/mt</td>
</tr>
</tbody>
</table>

16 USD/mt gain on short futures position (617.00 USD/mt)
16 USD/mt loss on long physical position (614.00 USD/mt)
# Overview – commodity derivatives markets

<table>
<thead>
<tr>
<th>Exchange traded</th>
<th>Over the Counter (OTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td>Price transparency</td>
<td>Tailor-made derivatives to fully eliminate full economic risk position</td>
</tr>
<tr>
<td>Trading liquidity due to standardization</td>
<td>Flexible collateralization schemes</td>
</tr>
<tr>
<td>Counterparty risk reduction due to central clearing and netting/margining</td>
<td>Tailoring to existing organization, systems and processes</td>
</tr>
<tr>
<td>Standardized MO/BO processes</td>
<td></td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>Highly standardized contracts can lead to a residual risk position (&quot;basis risk&quot;)</td>
<td></td>
</tr>
<tr>
<td>Additional funding for cash collateral</td>
<td>Flexible collateralization schemes</td>
</tr>
<tr>
<td>Implementation of advanced liquidity risk management concepts and processes</td>
<td>Tailoring to existing organization, systems and processes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Overview – hedging derivatives

**Futures/forwards**

- **Long:**
  - Loss/Gain: Future/FWD
  - Market price: Fixed price

- **Short:**
  - Loss/Gain: Future/FWD
  - Market price: Fixed price

**Swaps**

- **Long:**
  - Spot leg: USD
  - Receive: EUR
  - Pay: USD
  - Time: Market price

- **Short:**
  - Spot leg: EUR
  - Receive: USD
  - Pay: EUR
  - Time: Market price

**Call options**

- **Long:**
  - Loss/Gain: Strike
  - Market price: USD

- **Short:**
  - Loss/Gain: Strike
  - Market price: EUR

**Put options**

- **Long:**
  - Loss/Gain: Strike
  - Market price: USD

- **Short:**
  - Loss/Gain: Strike
  - Market price: EUR
Hedging – basic strategies and economic PnL

**Hedge of inventory**

- Loss/Gain: 
  - Inventory: Market price
  - Cost: Market price

**Hedge of firm commitment**

- Loss/Gain: 
  - Firm comm.: Market price
  - Deal price: Market price

**Hedge of forecast sales**

- Loss/Gain: 
  - Forecast sales: Market price
  - Deal price: Market price
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Hedging – basic strategies and accounting-PnL (IFRS)

Hedge of inventory

1. **Inventory** (IAS 2.9)
   - Loss/Gain
   - Market price
   - Cost

2. **FWD**
   - Loss/Gain
   - Fixed price

3. **Hedge**
   - Loss/Gain
   - Fixed price

Hedge of firm commitment

1. **Firm comm.** (IAS 37, 39.9)
   - Loss/Gain
   - Market price
   - Deal price

2. **FWD**
   - Loss/Gain
   - Fixed price

3. **Hedge**
   - Loss/Gain
   - Fixed price

Hedge of forecast sales

1. **Forecast sales** (IAS 39.9)
   - Loss/Gain
   - Market price
   - Deal price

2. **FWD**
   - Loss/Gain
   - Fixed price

3. **Hedge**
   - Loss/Gain
   - Fixed price

No application of hedge accounting

IFRS Mixed Model: Non-economic PnL volatility due to asymmetric measurement
Hedging – basic strategies and accounting-PnL (IFRS)

Hedge of inventory (Fair Value Hedge)

Hedge of firm commitment (Fair Value Hedge)

Hedge of forecast sales (Cash Flow Hedge)

Application of hedge accounting
Non-economic PnL volatility compensated
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## Hedge types and hedged items (IFRS)

<table>
<thead>
<tr>
<th>Hedge type</th>
<th>Objective</th>
<th>Hedged item IAS39.86(a)</th>
<th>Hedged item IAS39.86(b)</th>
<th>Hedged item IAS39.86(c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair Value Hedge</td>
<td><strong>Objective:</strong> • Hedging the fair value/market value risk of the underlying</td>
<td>• B/S positions, financial and non-financial assets or liabilities</td>
<td>• Future cash in- and out-flows of B/S positions, financial and non-financial assets or liabilities</td>
<td>• IAS21 hedge of net investment in a foreign entity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Firm commitments</td>
<td>• Highly probable forecast transactions</td>
<td>• Equity volatility reduction related to an FX net investment (similar to cash flow hedges)</td>
</tr>
<tr>
<td>Cash Flow Hedge</td>
<td><strong>Objective:</strong> • Hedging the risk of cash flow volatility of the underlying</td>
<td></td>
<td>• Firm commitments (FX risk)</td>
<td></td>
</tr>
<tr>
<td>Hedge of Net Investment</td>
<td><strong>Objective:</strong> • Hedging the FX risk of a net investment in a foreign operation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hedged item IAS39.86(a) refers to B/S positions, financial and non-financial assets or liabilities, and firm commitments. Hedged item IAS39.86(b) includes future cash in- and out-flows of B/S positions, financial and non-financial assets or liabilities, highly probable forecast transactions, and firm commitments (FX risk). Hedged item IAS39.86(c) involves a hedge of net investment in a foreign entity, equity volatility reduction related to an FX net investment (similar to cash flow hedges).
Hedge accounting process – phases and tasks

**PHASE I**
Hedge designation

I. Formal designation and hedge documentation
II. Homogeneity test

**PHASE II**
Hedge maintenance

I. Prospective hedge assessment
II. Retrospective effectiveness test and hedge measurement
III. Hedge accounting specific CTB postings

**PHASE III**
Hedge termination

I. Documentation of hedge termination
II. Hedge accounting specific termination postings
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### Designation phase – general overview

<table>
<thead>
<tr>
<th>Hedging instruments</th>
<th>Designation of hedge relations</th>
<th>Hedged items</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Derivatives</td>
<td><strong>Objective:</strong></td>
<td>• B/S assets or liabilities</td>
</tr>
<tr>
<td>• For foreign currency risk: Non-derivative financial assets or non-derivative financial liabilities</td>
<td>• Elimination of non-economic PnL</td>
<td>• Firm commitments</td>
</tr>
<tr>
<td></td>
<td><strong>Requirements:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Documentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Effectiveness measurements</td>
<td></td>
</tr>
</tbody>
</table>

#### Hedge types
- Fair Value Hedge
- Cash Flow Hedge
- Hedge of Net Investment
## Hedge relations – classifications based on hedged item

<table>
<thead>
<tr>
<th>Micro hedge</th>
<th>Portfolio hedge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hedged item:</strong></td>
<td><strong>Hedged item:</strong></td>
</tr>
<tr>
<td>• Single asset, e.g. share, FX loan</td>
<td>• IAS39.83 portfolio/group of similar assets or similar liabilities where the individual assets or individual liabilities share the risk exposure that is designated as being hedged</td>
</tr>
<tr>
<td>• Single liability, e.g. bond issue</td>
<td>• Changes in fair value for each individual item in the group is approximately proportional to the overall change in fair value attributable to the hedged risk of the group of items</td>
</tr>
<tr>
<td>• Single firm commitment, e.g. commodity procurement or sales contract</td>
<td>• Portfolio homogeneity test for every reporting period required (except IR portfolio hedge)</td>
</tr>
<tr>
<td>• Single forecast transaction, e.g. commodity procurement or sales contract</td>
<td></td>
</tr>
</tbody>
</table>
### Hedged risks – designation rules

<table>
<thead>
<tr>
<th>Financial instrument IAS39.81,81(a)</th>
<th>Non-financial item IAS39.82</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hedged risk of the hedged item:</strong></td>
<td><strong>Hedged risk of the hedged item:</strong></td>
</tr>
<tr>
<td>• Overall hedge: Complete changes in fair value or cash flows</td>
<td>• Overall hedge: Complete changes in fair value or cash flows</td>
</tr>
<tr>
<td>• Portion hedge: Percentage of changes in fair value or cash flows</td>
<td>• Portion hedge: Percentage of changes in fair value or cash flows</td>
</tr>
<tr>
<td>• Component / term hedge: Changes in fair value or cash flows related to selected contractual cash flows (benchmark or risk free interest rate, FX risk)</td>
<td>• Foreign currency risk</td>
</tr>
<tr>
<td></td>
<td>• No component hedge allowed due the difficulty of isolating and measuring the appropriate portion of the cash flows or fair value changes attributable to specific risks other than FX</td>
</tr>
</tbody>
</table>
### Hedging instruments – qualification

<table>
<thead>
<tr>
<th>Qualifying instruments</th>
<th>Non-qualifying instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In general derivative contracts (IAS39.72)</td>
<td>• (Net) written options, e.g. collars (IAS39.72)</td>
</tr>
<tr>
<td>• Non-derivative financial assets or non-derivative financial liabilities may be</td>
<td>• Internal (derivative) instruments with no one-to-one correspondence to external</td>
</tr>
<tr>
<td>designated as hedging instrument only for a hedge of foreign currency risk (IAS39.72)</td>
<td>transactions (IAS39.73)</td>
</tr>
<tr>
<td></td>
<td>• Derivatives whose fair value cannot be reliably measured (IAS39.AG96)</td>
</tr>
<tr>
<td></td>
<td>• Entity’s own equity instruments (IAS39.AG97)</td>
</tr>
<tr>
<td></td>
<td>• Concurrent offsetting swaps, i.e. back-to-back deals with the same counterparty (IAS39.IG F.1.14)</td>
</tr>
</tbody>
</table>
Hedging instruments – designation rules

**General principle**

Hedging derivative instruments are measured at full fair value, i.e. no splitting of compounds

**Options**

IAS39.74(a), IAS39.IG.F.1.10

Fair value of option can be split into time value and intrinsic value

Only the intrinsic value is designated, whereas the time value is classified as HfT

**Exemption (optional use)**

**Forwards**

IAS39.74(b), IAS39.IG.F.1.10

Fair value of forward can be split into „IR“ component and remainder

Only the remainder is designated, whereas the IR component is classified as HfT
Hedge accounting process – phases and tasks

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Hedge-life cycle
Hedge accounting process – phases and tasks

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**Hedge maintenance phase – general overview**

<table>
<thead>
<tr>
<th>Prospective effectiveness test</th>
<th>Retrospective effectiveness test</th>
<th>Regular CtB postings</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The hedge is expected to be highly effective in achieving offsetting changes in fair value or cash flows attributable to the hedged risk, IAS39.88(b) and IAS39.AG105-AG113.</td>
<td>• The hedge is assessed on an ongoing basis and determined to actually have been highly effective throughout the financial reporting periods for which the hedge was designated, IAS39.88(e).</td>
<td>• FVH – basis adjustment for carrying amount if hedged item is measured at cost, IAS39.89(b)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FVH – OCI reclassification to profit and loss if hedged item is “available for sale”, IAS39.89(b)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CFH – changes in fair value of the hedging instrument are recognized in OCI (not in profit and loss)</td>
</tr>
</tbody>
</table>
Hedge effectiveness – general requirements

**Hedge effectiveness:**
The degree to which changes in the fair value or cash flows of the hedged item that are attributable to a hedged risk are offset by changes in the fair value or cash flows of the hedging instrument.

The hedging relationship must be highly effective: 80% - 125%

- **Over-hedge:** Cash flow hedge accounting; ineffectiveness posted to P&L
- **Under-hedge:** Hedge accounting termination
- **Hedge accounting termination**

Qualified
- **Over-hedge:** Cash flow hedge accounting; ineffectiveness posted to P&L
- **Under-hedge:** Hedge accounting termination
- **Hedge accounting termination**

Non-qualified
- **Over-hedge:** Cash flow hedge accounting; ineffectiveness posted to P&L
- **Under-hedge:** Hedge accounting termination
- **Hedge accounting termination**
Ex-ante hedge effectiveness

Prospective hedge effectiveness methods

- Qualitative test
  - Applicable only for vanilla hedges
- Critical terms match
- Sensitivity analysis
  - Simple calculation
  - Limited significance for the complete hedge-life cycle

- Advanced calculation
  - Data requirements
  - Full significance for the complete hedge-life cycle
- Historical simulation
- VaR analysis
  - Standard risk measure
  - Limited significance for the complete hedge-life cycle

Prospective assessment
Ex post hedge effectiveness

### Retrospective hedge effectiveness methods

- **Short cut**
  - Inappropriate according to IAS39.IG.F.4 (US GAAP only)

- **Dollar offset**
  - Simple calculation
  - Periodic vs. cumulative approach
  - “Small number” problem

- **Retrospective assessment**
  - Advanced calculation
  - Qualified despite sporadic outliers
  - Minimum number of data points needed

- **Variance reduction**
  - Advanced calculation
  - Qualified despite sporadic outliers
  - Minimum number of data points needed

- **Regression analysis**
Retrospective HE – Dollar-offset

- Hedge key figures are in general changes in „market value“ (fair value)
- Hedge effectiveness
  \[ \varepsilon = \frac{\Delta FV_{\text{Derivative}}}{\Delta FV_{\text{Underlying}}} \]
- Periodic (cumulative) assessment is based on changes in hedge key figures of the current reporting period (since hedge inception)
- If changes in hedge key figures are small, hedge is considered non-qualified

Diagram:
- Dollar-offset non-qualification area
- Dollar-offset non-qualification area
- ΔFV_{\text{Derivative}}
- ΔFV_{\text{Underlying}}
- -5/4
- -4/5
Retrospective HE – modified Dollar-offset

- Resolution of “small number problem“
- Static thresholds
  a) Nominal, i.e. qualified hedge if hedge key figure changes smaller USD 10.000
  b) Percentage, i.e. qualified hedge if hedge key figure changes smaller Nominal x 5‰
- Dynamic thresholds
  \[
  \varepsilon = \frac{\Delta FV_D \cdot \left( \sqrt{\frac{\Delta FV_D^2 + \Delta FV_U^2}{n \cdot N}} \right)^3 + \Theta(\Delta FV_D) \cdot n \cdot N}{\Delta FV_U \cdot \left( \sqrt{\frac{\Delta FV_D^2 + \Delta FV_U^2}{n \cdot N}} \right)^3 - \Theta(\Delta FV_D) \cdot n \cdot N}
  \]
  \[\Theta(x) = +1, \text{ if } x > 0, \text{ otherwise } \Theta(x) = -1;\]
  \[N = \text{Nominal}, \; n = \text{Noise-Term} = 1\%, \; s = \text{speed} = 1/2\]
**Retrospective HE – regression analysis**

<table>
<thead>
<tr>
<th>Regression analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hedge key figures are in general changes in „market value“ (full fair value)</td>
</tr>
<tr>
<td>• Data points based on periodic changes in hedge key figures</td>
</tr>
<tr>
<td>• Requirements:</td>
</tr>
<tr>
<td>– Minimum of 25 data points</td>
</tr>
<tr>
<td>– Slope $\beta_1$ of the regression line within $[-5/4; -4/5]$</td>
</tr>
<tr>
<td>– Intercept $\beta_0$ smaller than nominal x 5%</td>
</tr>
<tr>
<td>– Regression coefficient $R^2 \geq 0.8$</td>
</tr>
<tr>
<td>• t-/F-test passed with 95% confidence</td>
</tr>
</tbody>
</table>

![Graph showing the regression analysis](image_url)
Regular CtB hedge accounting postings (CF HA)

Hedging instrument:
For qualified hedges full fair value changes are split into a effective and in-effective component

Hedged item:
Hedged item is posted according to basic rules

B/S impact:
Effective portion is recognized in equity (OCI)

P&L impact:
Ineffectiveness (over-hedge)

Balance Sheet
- Derivative fair value
- OCI effective FV changes

Profit and Loss
- Ineffective FV changes
Hedge accounting process – phases and tasks

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Hedge-life cycle

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Hedge-life cycle
Termination phase – events

Regular

- De-recognition, i.e. expiry or sale, termination or exercise of hedging instrument
  - FVH – IAS 39.91(a)
  - CFH – IAS 39.101(a)

Irregular

- Non-qualification:
  - FVH – IAS 39.91(b)
  - CFH – IAS 39.101(b)
- Exposure reduction, i.e. forecast transaction is no longer expected to occur, IAS 39.101(c)

Management decision

- Revocation, i.e. entity revokes hedge designation by management decision
  - FVH – IAS 39.91(c).

Accounting impact

Amortization  →  Re-classification  →  Discharge
Cash flow hedge termination

**OCI discharge**
- The cumulative gain or loss on the hedging instrument recognized in other comprehensive income from the period when the hedge was effective shall be discharged immediately from equity to profit and loss.

**OCI reclassification**
- Amounts recognized in OCI are reclassified from equity to profit or loss in the same period or periods during which the underlying affects profit or loss, IAS39.97, 98(a),100.
- OCI reclassification modifies the initial cost or other carrying amount of the non-financial asset/liability, IAS39.98(b).
## Termination postings

**Accounting impact depends on hedge type and termination event**

<table>
<thead>
<tr>
<th>Termination event</th>
<th>Fair Value Hedge</th>
<th>Cash Flow Hedge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 De-recognition of hedged item</td>
<td>De-recognition of basis adjustment line item vs. PnL</td>
<td>Discharge of cumulative OCI to PnL/basis adjustment (BA)</td>
</tr>
<tr>
<td>2 De-recognition of hedging</td>
<td>Amortization of basis adjustment according to hedged item</td>
<td>OCI-freeze and subsequent reclassification to PnL/BA</td>
</tr>
<tr>
<td>instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Non-qualification</td>
<td>Amortization of basis adjustment according to hedged item</td>
<td>OCI-freeze and subsequent reclassification to PnL/BA</td>
</tr>
<tr>
<td>4 Exposure reduction</td>
<td></td>
<td>Discharge of cumulative OCI to PnL</td>
</tr>
<tr>
<td>5 Not (highly) probable forecast</td>
<td></td>
<td>OCI-freeze and subsequent reclassification to PnL/BA.</td>
</tr>
<tr>
<td>transactions</td>
<td></td>
<td></td>
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</tbody>
</table>
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CS: Oil refinery – procurement and sales

Economic background

- Company A (refiner) has to purchase *crude oil* on a regular basis to serve its production needs
- From its current production and inventory planning, A anticipates a need of 70,000 bbl of *Brent* in 6 months time from today to produce an equivalent output (gasoil etc.)

Physical supply chain (simplified)
CS: Oil refinery – procurement and sales (II)

- A expects rising crude oil prices, but relatively stable product prices for the coming months
- In order to support its refinery margins, A has the possibility to effectively fix the price for a delivery of 50,000 bbl of Brent in 6 months time from today
- Alternatively, A may directly secure its refinery margin for an equivalent of 50,000 bbl of Brent in 6 months time
- Both strategies can be achieved by different economic hedging schemes based on derivatives
- Hedge accounting can be flexibly applied to a variety of economic hedging schemes given the related requirements are fulfilled
CS: Hedge of crack spread using futures contracts

- Refiner A takes a long position in gasoil crack spread using futures (i.e. purchase of crude oil, sales of the equivalent amount of gasoil produced)
- **Example***: ICE Gasoil Futures Crack
  - **Brent leg**: long position of 30,000 bbl or approx. 4,000 metric tonnes (30 lots); net cash settlement
  - **gasoil leg**: short position of 4,000 metric tonnes (40 lots); physical delivery, closed out before expiry
  - Crack spread locked in: 10 USD / bbl
  - Due to the characteristics of the Brent and gasoil futures, the Brent leg expires earlier than the gasoil leg

*Alternatively, separate long (short) positions in Brent (gasoil) can be taken.
Hedging scheme (II)

- Refiner A arranges with its **supplier B** for the delivery of 30,000 bbl of **Brent** in 6 months time from today on a floating price basis which refers to the Brent future’s settlement price at expiry.
- Refiner A arranges with its **customer C** for the delivery of 4,000 mt of **gasoil** in 8 months time on a floating price basis which refers to the gasoil future’s settlement price at expiry.

<table>
<thead>
<tr>
<th>Brent leg</th>
<th>Gasoil leg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier B</td>
<td>Customer C</td>
</tr>
<tr>
<td>Clearing house</td>
<td>Clearing house</td>
</tr>
</tbody>
</table>

- **Physical transactions**
- **Futures position (net cash settled / closed out)**
- **Physical delivery**
- **Fixed payment**
- **Floating payment**
CS: Hedge of crack spread using futures contracts (III)

Reasoning – application of hedge accounting

- Accounting treatment without application of hedge accounting:
  - The *futures position* meets the IFRS criteria for derivatives (IAS 39.9)
    - Fair value changes are recognized directly in PnL
  - The *physical purchase and sales transactions* are considered as forecast transactions
    - No recognition in balance sheet or PnL*
- Consequence: non-economic PnL fluctuations due to accounting mismatch
- Application of (cash flow) hedge accounting leads to the recognition of fair value changes in equity (OCI)

*Due to the floating price basis, the contracts are unlikely to become onerous (IAS 37.66).*
CS: Hedge of crack spread using futures contracts (IV)

**Hedge accounting setup**

- **Hedged items (forecast transactions):**
  - The future purchase of Brent on a floating price basis
  - The future sales of gasoil on a floating price basis

- **Hedging instrument:** The long futures position offsetting the risk of crack spread changes

- **Hedge life-cycle:**
  - Upon initial recognition of the hedging instrument, the Brent leg* (gasoil leg) of the futures position is designated to the forecast Brent purchase (gasoil sales)
  - Hedge effectiveness has to be demonstrated separately for both legs
  - Each one of the two hedging relationships for the Brent and gasoil legs is de-designated separately upon expiry of the underlying futures leg

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*The futures position has to be designated in its entirety (IAS 39.74).*
CS: Hedge of crack spread using futures contracts (V)

Hedge accounting and related processes: Brent leg

- Economic hedging / hedge accounting
- Expiry / de-designation of Brent leg
- Initiation / designation of futures position
- OCI (Brent)
- Brent storage
- Production
- Product storage
- Product sales (affects PnL)
- Physical supply chain
- Exposure planning
- Purchase price settlement for physical Brent
- Physical delivery
- Finish of production cycle
- Alternatives
  - Basis adjustment (deferred effect on PnL)
  - OCI reclassification (affects PnL)
CS: Hedge of crack spread using futures contracts (VI)

Hedge accounting and related processes: *gasoil leg*

- **Economic hedging / hedge accounting**
  - OCI (gasoil)
  - Initiation / designation of futures position
  - Expiry / de-designation of *gasoil leg*

- **Alternatives**
  - Basis adjustment

- **OCI reclassification**
  - affects PnL

- **Physical supply chain**
  - Exposure planning
  - Brent storage
  - Production
  - Finish of production cycle
  - Product storage
  - Sales price settlement: gasoil
  - Product sales (affects PnL)

(time)
Agenda

• Price risk exposure for physical commodities
• Economic hedging along the industrial supply chain
• Accounting treatment of economic hedging schemes (IFRS)
• Commodity hedge accounting framework (IFRS)
• Case study – commodity hedging and hedge accounting

• Summary
Summary

• Large historic price volatility for commodities leads to fluctuating earnings and cash flows for industrial companies and energy firms.

• Economic hedging of energy and commodity inventories, firm commitments and forecast transactions using derivatives can be applied to control and stabilize earnings and cash flows.

• Due to the requirement to measure derivatives at their fair values (IFRS), economic hedging tends to increase the volatility of the (unrealized) PnL.

• Hedge accounting (IFRS) provides a means to transfer the economic hedging effect to the PnL statement, but comes at the cost of increased process complexity and effort.