Commodity Hedge Accounting – An Introduction

Risk Management Breakfast

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Agenda

Commodity Hedge Accounting

- Introduction & Motivation
- IAS 39 Financial Instruments – Basics
- Hedge Accounting – Process Model
- Commodity Hedge Accounting – Specific Aspects
- Commodity Hedge Accounting – Example
- Prospects
- Summary
Introduction & Motivation – Economic Trend

Economic hedging of commodity inventory, firm commitments, and/or forecast transactions using derivatives due to strong increases and high volatility of commodity prices.
IAS 39 Financial Instruments – Basics

Hedging instruments are in general commodity derivatives

Differentiation: Own-use contracts vs. financial instruments according to IAS 39

- Own-use contracts: Changes in fair value are not recognised in PnL
- IAS 39 financial instruments: Measurement according to classification

Financial commodity derivatives have to be classified as “Held for Trading”
Hedge Accounting – Process Model

Aim of specific hedge accounting rules: Elimination of accounting mismatches (reduction of non-economic PnL-volatility)

Accounting mismatches due to asymmetric treatment of economic hedges

- IAS Mixed Model Approach, i.e. fair value vs. amortised cost measurement, and
- Off-balance non-financial hedged items/underlyings

General hedge accounting process – 3 Phase Model
Phase I – Hedge Designation

Phase I.I : Formal designation and documentation of hedge

- Risk management objective/strategy for undertaking the hedge
- Type of hedge, i.e. fair value, cash flow, or portfolio hedge
- Risk being hedged
- Specification of hedged item/underlying
- Specification of hedging instrument/derivative
- Designation date
- Assessment of effectiveness testing, i.e. specification of prospective and retrospective method, testing frequency

Phase I.II : Prospective test at inception of the hedge
Phase II – Hedge Maintenance

Phase II.I : Retrospective hedge assessment/measurement

- Performed at each reporting date using the formally documented method ► verification of high effectiveness

Phase II.II : Generation of specific hedge accounting entries

- Fair value hedges: Compensation of the derivative PnL-volatility via hedge fair value/basis adjustment of the underlying
- Cash flow hedges: Effective part of derivative fair value changes recognised in equity, other comprehensive income (OCI), ineffective part in PnL

Phase II.III : Assessment of prospective effectiveness at each reporting date
Phase III – Hedge Termination

Phase III.I : Specifying the cause for the hedge termination

- Non-qualified hedge, retrospective hedge effectiveness failed
- Expiration or close-out of the hedging instrument
- Expiration or close-out of the hedged item
- Forecast transaction is no longer expected to occur
- Designation is revoked by management decision

Phase III.II : Generation of specific termination postings

- Fair value hedges: Discharge vs. amortisation of cumulative basis adjustment
- Cash flow hedges: Discharge vs. release of OCI to PnL
Commodity Hedge Accounting – Specific Aspects (I)

Commodity risk is generally linked to non-financial instruments which can only be hedged in its entirety or for FX risk only according to IAS 39

Type of hedging depends on the hedged item/underlying

- Commodity inventory: Fair value hedge
- Commodity firm commitment: Fair value hedge for “own-use” contract
- Commodity forecast transaction: Cash flow hedge

Commodity cash flow hedges based on forecast transactions

- Commodity exposure based on information of planned operation in business units
- Generation of highly probable forecast transaction: Transformation of exposure into cash flow equivalents using actual sale or purchase contracts
Commodity Hedge Accounting – Specific Aspects (II)

Critical points regarding commodity cash flow hedges

- Economic hedging strategy for multi-variable commodity exposure, e.g. car battery
- Availability and quality of market data, e.g. commodity forward curves
- Setup of robust hedge effectiveness methods based on statistical analysis
- Modelling of OCI-release
  - Immediate release: Modification of inventory via basis adjustment
  - Delayed release: PnL recognition when hedge asset affects PnL
- Back-testing of exposure to validate highly probable forecast transactions
- Validation of economic hedging strategy for portfolio hedges
Commodity Hedge Accounting – Example (I)

Hedging a highly probable purchase of platinum with a forward contract

Nature of Risk: Company A is purchasing platinum (XPT) for its operating units. The purchase price for XPT will vary on the London Platinum and Palladium Market (LPPM) fixing. Therefore, company A is exposed to market fluctuation in the LPPM prices over time.

Objective: Protection of the USD value of a highly probable physical XPT purchase.

Type of Hedge: Cash flow hedge.

Risk being Hedged: The USD variability of a very likely future cash flow.

Designation Date: Trade date of the hedging instrument 11-April-2008.
Commodity Hedge Accounting – Example (II)

**Hedged Item:** Highly probable XPT purchase – notional amount: 2.500 Oz., purchase date: 05-April-2010, purchase price: Monthly average LPPM a.m. fixing in USD

\[
FV_{USD/SM} (t_0 : T) = DF (t_0 : T + t_s)_USD \left[ \frac{1}{N} \sum_{i=0}^{N-1} f_{USD/XPT} (t_0 : T - i) + \Delta_{XPT} \right] \cdot \text{Exposure}_{XPT}
\]

**Hedging Instrument:** XPT cash settled commodity forward – notional amount: 2.500 Oz., trade date: 11-April-2008, maturity date: 05-April-2010, deal rate: 1.400 USD/Oz.

\[
FV_{Forward} = DF(t_0,T + t_s)_{USD} \left[ \frac{1}{N} \sum_{i=0}^{N-1} f_{USD/XPT}(t_0,T - i) - K_{Contract,USD} \right] \cdot \text{Nominal}_{Contract,XPT}
\]

\(t_0\) valuation date, \(T\) plan period, \(t_s\) spot days, \(N\) business days of fixing month, \(f_{USD/XPT}\) XPT forward rate, \(DF_{USD}\) discount factor using USD IR curve, \(K_{Contract,USD}\) USD deal rate, \(\Delta_{XPT}\) fixed additional charge.
Prospective hedge effectiveness assessment: Regression analysis – hedge is effective

- Regression slope is within the range of -0.8 and -1.25,
- The R-squared of the regression is equal or greater than 80%, and
- The F-statistic is significant at the 95% confidence level
Commodity Hedge Accounting – Example (IV)

*Retrospective hedge effectiveness assessment:* Dollar-offset method with threshold

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<th>CTB02</th>
<th>CTB03</th>
<th>Maturity Date Forward</th>
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<tbody>
<tr>
<td>ΔFV_Underlying</td>
<td>(100)</td>
<td>(10.000)</td>
<td>5.000</td>
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<tr>
<td>ΔFV_Forward</td>
<td>150</td>
<td>9.000</td>
<td>(5.500)</td>
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<td>Effectiveness</td>
<td>Threshold</td>
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<td>110%</td>
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<tr>
<td>Effective ΔFV_Forward</td>
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<td>9.000</td>
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<tr>
<td>Ineffective ΔFV_Forward</td>
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<td>-</td>
<td>(500)</td>
</tr>
</tbody>
</table>

**CTB01:**
- Future (Asset) 150
- Cash Flow Hedges (Equity) 150

**CTB02:**
- Future (Asset) 9.000
- Cash Flow Hedges (Equity) 9.000

**CTB03:**
- Cash Flow Hedges (Equity) 5.000
- Hedge Gain & Loss (PnL) 500
- Future (Asset) 5.500

**Maturity Date Forward:**
- Future (Asset) 5.350
- Cash Flow Hedges (Equity) 5.350
- Cash (Asset) 9.000
- Future (Asset) 9.000

**Reclassification Date:**
- Cash Flow Hedges (Equity) 9.500
- Hedge Gain & Loss (PnL) 9.500

PnL Impact of Commodity Forward

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Prospects

*Exposure Draft of Proposed Amendments to IAS 39 Financial Instruments: Recognition and Measurement – Identification of Exposure Qualifying for Hedge Accounting*

- Comment letters – discussion related to portion, one-sided risk of cash flows of non-financial items or partial-term hedges

*First stage in IAS 39 replacement project: Discussion Paper: Reducing Complexity in Reporting of Financial Instruments*

- Approach 3: Simplifying hedge accounting rules – reclassification to earnings of deferred gains and losses based on hedge documentation
Summary

Reduction of non-economic PnL-volatility by setting up a commodity hedge accounting solution for highly probable forecast transactions

- High automation due to bulk business
- High quality models and market data
- Definition of robust hedge effectiveness test methods – hedge effectiveness is limited by economic hedging strategy for multi-variable commodity exposure
- Modelling of OCI release – immediate release: Interface between Treasury sub-ledger and commodity inventory management system necessary
- New regulatory development regarding measurement and representations of financial instruments
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