



Corporate approach to hedging

Airbus Group as an example

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Major drivers for corporates

Hedged exposure

- Price risks (FX, interest rates, commodities, [equities]) arising from commercial activities in connection with
 - tenders,
 - firm contracts or
 - cashflows expected in the future (anticipative hedging)
 to secure EBIT-margins assumed for commercial activities and to improve transparency on expected profits
- In few cases translatory risks (mainly FX) embedded into a company's balance sheet items are also hedged

Hedging instrument

- Mainly plain vanilla OTC instruments (essentially forwards, few options due to premium charged to EBIT)

Hedge designation

- Typically, corporates apply hedge accounting according to IAS 39, which requires the designation of a hedged exposure to hedging instruments and a prove of hedge effectiveness. Future MtM changes of the hedged exposure and the hedging instrument are not accounted for through the profit and loss account but (netted) through other comprehensive income (OCI) as part of equity. Thus, operational results are not directly affected by price changes in capital markets
- If hedge accounting cannot be achieved, corporates aim at least for the designation of an economic hedge relationship to avoid a cash collateralisation according to EMIR
- Changes to applied hedge designation must be recognised in the notes to the balance sheet

- ⇒ Use of derivatives by corporates is fundamentally different from financial institutions. Typically, there is no hedge without an underlying commercial exposure (no speculation)
- ⇒ Corporates (NFC- according to EMIR) normally aim for the application of hedge accounting or at least the designation of the economic hedge to use the exemption from cash collateralisation of derivatives
- ⇒ The application of hedge accounting supports a buy-and-hold approach rather than an active trading of implemented hedges. Hedge accounting removes volatility from MtM changes from the P&L to OCI. This accounting treatment is beneficial for the calculation of key-ratios applied by the rating agencies and also reflects the typical view of equity analysts

Side effects from hedging

Liquidity risk from cash collateral

- ✓ Counterparty risk of hedging counterparty is neutralised but ...
- ✗ If proper hedge designation cannot be achieved and the nominal amount of hedges exceeds the EMIR threshold, company runs a (conditional) liquidity risk. Larger, adverse MtM moves may hamper the liquidity seriously.
- ✗ Typically, major corporate liquidity is invested into short term instruments up to 3 months for the recognition under cash and cash equivalents. Unlike banks, corporates do not have a wide range of other assets which are accepted as cash collateral. The posting of short term cash is costly, in particular at negative deposit rates.

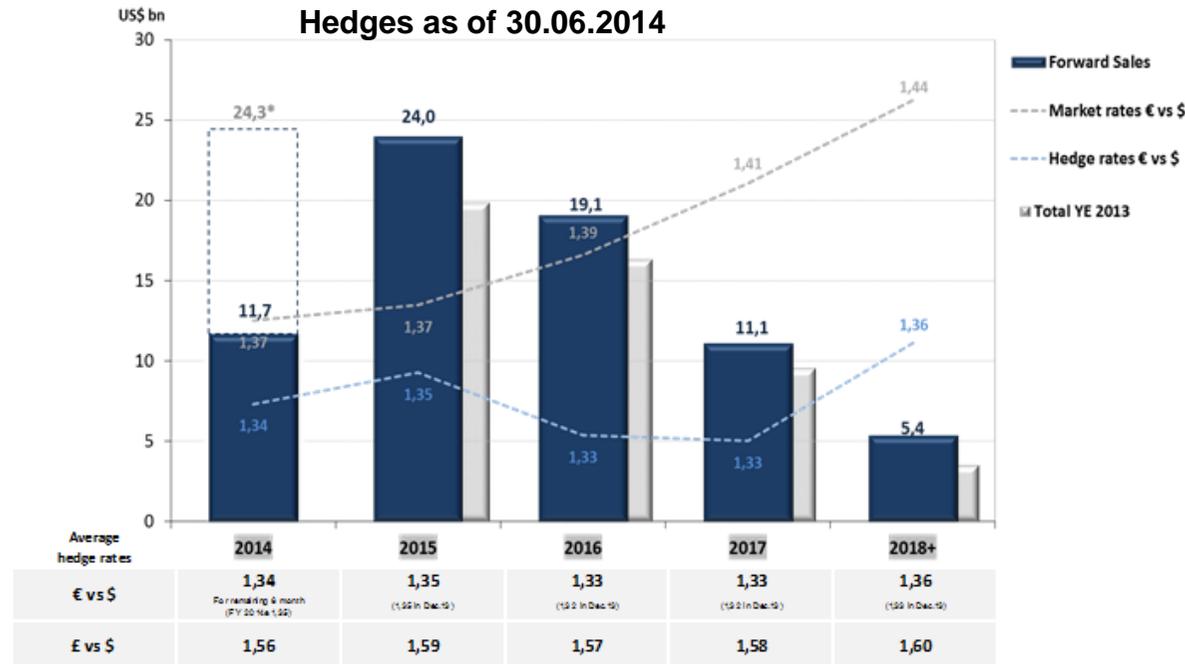
Counterparty risk for uncollateralised exposure

- ✓ No liquidity risk but ...
- ✗ Requires sufficient hedging lines (amount and maturity) with banks
- ✗ Price risk is only converted into (conditional) credit risk

Cost of hedging

- ✗ Beside higher administrative cost for the implementation of EMIR reporting and reconciliation as well as corporate's own liquidity cost, there are numerous cost elements applied by banks mainly judged by regulatory requirements
 - CVA - Credit value adjustment (remuneration of corporate's credit risk, not applicable to collateralised trades)
 - DVA - Debt value adjustment (hedging counterparty's own credit risk, not applicable to collateralised trades)
 - FVA – Funding value adjustment (hedging counterparty's estimated cost for the cash collateral to be posted to hedge back the entered position)
 - Remuneration of bank's economic capital employed (not applicable to collateralised trades)
- ✗ CVA, DVA and FVA are applied as upfront fee which can typically not be recovered if the trade is unwound prior to maturity
- ✗ Calculation of applicable CVA, DVA and FVA is fairly intransparent and differs strongly from bank to bank. All components are a function of the expected credit exposure. According to Basle 3, banks are allowed to use their own market risk models for the calculation of the expected exposure

Airbus Group's hedging activities



Approximately 50% of AIRBUS' revenues are naturally hedged by US\$ procurement. Graph shows US\$ Forward Sales.

(*) Total hedges maturing in 2014

(**) Total hedge amount contains \$/€ and \$/£ designated hedges

- 66% of Airbus Group's turnover of in total EUR 59.3 bn in 2013 were contributed by commercial aircraft. Aircrafts are typically invoiced in USD, of which ca. 50% is naturally hedged by sourcing in USD. The remaining 50% is to a large extent EUR and to a lower extent GBP denominated costs
- The order book is in excess of 8 times the annual group turnover
- The hedge portfolio at the end of 06/2014 amounted to USD 71.3 bn (vs. USD 75.9 12/2013). Hedging policy authorises FX hedges up to 8 years.
- Airbus Group is in terms of its long term hedging needs, size of hedge portfolio and low diversification potential (mainly USD seller) perhaps not fully comparable to other corporates but provides a good example for the complexity of hedging
- Airbus Group's other hedging activities are smaller (EUR 5.8 bn interest rate and USD 0.7 bn commodity derivatives)

Airbus Group's hedging implementation

- All divisions other than Airbus Commercial Aircraft hedge the exposure (net of natural hedges) mainly for each project milestone by milestone (no discretionary factors)
- Airbus Commercial Aircraft applies an anticipative hedging in accordance with the expected delivery schedule for firm contracts. As FX rates are unpredictable, the hedge implementation is spread over time to benefit from a cost averaging effect. A monthly 'Speed Grid' is applied to determine the implementation volumes depending on different achievable forward rates including some level of discretion
- Implementation volume is derived from the desired minimum hedge ratio per year applied to the eligible exposure for such year. The remaining volume is equally distributed over the remaining weeks for such year at prevailing forward rates in the center of the Speed Grid. Implementation volume will be accelerated if forward rates move to more favorable levels up to the max. desired hedge ratio for such year and decelerated to maintain room for better opportunities
- The long term visibility of Airbus' order book is clearly an asset and provides for a conditional improvement potential at limited risk
- Speed Grid falls short in a longer trend of EUR appreciation. As the current and subsequent year are fully hedged, Airbus has time to launch appropriate industrial measures to mitigate an adverse move from FX effects

Limitations to Airbus' hedging approach

Liquidity risk

- Although a mitigation of counterparty risk from hedging would be desirable, posting of collateral imposes an unmanageable funding risk to Airbus Group. MtM of the current exposure at a EURUSD forward rate at 1.00 amounts to EUR 18 bn (EUR 6 bn already at 1.20). Airbus Group must insist on uncollateralised derivative trading
- Breach of EMIR threshold or a single bilateral CSA with one hedging counterparty (breach of pari passu) would form a major threat for Airbus Group
- Uncollateralised trading requires massive hedging capacity with banks. Airbus Group arranged hedging lines of in total EUR 21 bn credit equivalent with 47 banks (equals a hedging capacity of USD 64 bn forward sales with a maturity of 3 years at current spot and volatility)

Counterparty risk

- Uncollateralised FX hedges require a disciplined business allocation strategy to diversify the risk and complex counterparty analysis
- MtM of current exposure at EURUSD forward rate at 1.55 results in a EUR 7 bn credit risk on top of the exposure risk from short term treasury investments and liquidity management

Cost of hedging

- Based on an average USD 25 bn implementation volume, the theoretical credit- and funding charges (excluding bank's cost of equity) amount to EUR 49.7 m¹ at current market conditions. The incurred charges for implemented hedges are still slightly lower due to the competition between the banks (but the need to diversify the counterparty risk sets limits for competition)
- Upon full application of Basle 3 in 2019 with an equity ratio at 10.5% of RWA, the required amount of charges could nearly double under current market conditions²
- As the expected exposure (=RWA) is a function of spot level, slippage from interest rate differential and volatility, cost can vary strongly

⇒ Airbus has to decrease its dependency on FX hedging by the implementation of industrial measures (e.g. higher USD sourcing, US assembly line)

⇒ Despite of strong competition between banks for FX flow business, charges for hedging become an essential cost element. Potential impacts from FTT not yet taken into account

¹ based on calculations with Bloomberg pricer for 3Y forward at current market levels and Airbus Group's CDS

² assuming a 15% RaRoC pre tax and banks' cost-income ratio for FX at 50%