Part 37:

IFRS 13: Fair Value Measurement
IFRS 13: Fair Value Measurement

- Scope of Standard:
  - Provides a definition of Fair Value
  - Concentrates in one single standard the measurement that has to be applied for all other standards, where fair value is called for
  - Defines the disclosures which are required about the measurement of fair value
  - Replaces the previous definition, to be found in the “framework”

- IFRS 13 applies when another IFRS requires or permits fair value measurement, such as IAS 39, IFRS 9 etc, even in “combined measurements” (such as fair value less costs to sell, IFRS 3)
IFRS 13: Fair Value Measurement

- Exception: IFRS is explicity not applicable on
  - Share-based payment transactions (IFRS 2)
  - Leasing transactions (IAS 17)
  - Measurements that have some similarities to fair value, but are not fair value, such as “net realizable value” (IAS 2)

- Here the “old” definition has to be applied:
  - Fair value is a price, that two knowing and willing partners will agree on a transaction on arms length

- Definition of fair value according to IFRS 13:
  - The price that would be received to sell and asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (i.e. exit price)
IFRS 13: Fair Value Measurement

- **Conclusion:** This requires an active market
  A market in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis (which is the case only on a small minority of the markets of the world)

- **Other definitions within the scope of IFRS 13**
  - Highest and best use: The use of a non-financial asset by market participants, that would maximise the value of the asset (e.g. a business) within that asset would be used
  - Most advantageous market: the market that maximises the amount that would be received to purchase an asset (minimizes the amount that would be paid to transfer a liability) after taking into account transaction and transport costs
  - Principal market: biggest market
IFRS 13: Fair Value Measurement

- **Aim of IFRS 13:** achieve consistency and comparability in fair value measurement, through creating a fair value hierarchy
- **This categorizes the inputs used in valuation techniques into three levels**
- **If different levels are used to measure fair values, it has to be indicated, that the lowest level of categories is used (example: compound or structured capital market products)**
- **Level 1 inputs:**
  - Quoted prices at active markets for individual assets or liabilities that can be accessed at measurement date
  - Provides the most reliable source for fair value and can be used without adjustments
  - If the active market would be too small to absorb the total quantity of an asset, held by an entity, nonetheless the market price shall be applied (Balkan, Caucasus, East Africa ???)
IFRS 13: Fair Value Measurement

- **Level 2 inputs:**
  - Inputs other than quoted market prices
  - Must be observable, either direct or indirect
  - Includes:
    - Quoted prices for similar assets and liabilities in active markets
    - Quoted prices for identical or similar assets or liabilities in markets, that are not active
IFRS 13: Fair Value Measurement

- **Level 2 inputs:**
  - Inputs other than quoted prices that are observable for the asset or liability, for example
    - Interest rates and yield curves, observable at commonly quoted intervals
    - Implied volatilities
    - Credit spreads
  - Inputs that are derived principally from or corroborated by observable market data by correlation or other means
    (Example: pricing hub of the central bank)
IFRS 13: Fair Value Measurement

- **Level 3 inputs:**
  - Unobservable inputs
  - Used in case, that observable inputs are not available
  - Allowed for circumstances, where little if any market activity is available
  - Development of unobservable inputs by the entity, using best information available under the given circumstances
  - May include
    - Entity’s own data
    - Information about market participants assumptions
    - Everything that is reasonably available
IFRS 13: Fair Value Measurement

- Overview of fair value measurement approach
  - Estimate the price, at which an orderly transaction would take place
  - Requires entities to determine all of the following:
    - Particular asset or liability that is subject of measurement
    - For non-financial asset the valuation premise that is appropriate for the measurement (consistently with it’s highest and best use)
    - Principal (or most advantageous) market for the asset or liability
    - The valuation techniques (see next slide) appropriate for the measurement, considering availability of data, to generate assumptions of market participants appreciations
    - Level of hierarchy (level 1 to 3) within which the inputs are categorized
IFRS 13: Fair Value Measurement

- Guidance on measurement
  - Taking into account the characteristics of the asset/liability like a market participant would do (e.g. Condition, location, restrictions on the sale, further use of the asset)
  - Assumption of an orderly transaction at measurement date under current market conditions
  - Assumption, that the transaction takes place on the principal market, in absence of that, most advantageous market is taken
  - In case of non-financial assets, the highest and best use to be taken into account
  - Measurement of fair value of financial or non-financial instrument as well as equity instrument assumes it is transferred to a market participant without settlement, extinguishment or cancellation at the measurement date
IFRS 13: Fair Value Measurement

- **Guidance on measurement**
  - Thus transaction costs cannot be part of the market price, but must be considered separately.
  - Fair value of a liability must include non performance risk, including entity’s own credit risk, assuming same non performance risk before and after the transfer of the liability (i.e. no change of value after successful completion).
  - Optional exception: Financial liabilities and assets with offsetting positions in market risk, counterparty risk (Hedge accounting).
  - However: as a observation only very few markets are sufficiently active and have the sufficient size.
Valuation techniques:

- Entity uses valuation techniques appropriate in the circumstances given.
- For which sufficient data are available to measure fair value.
- Maximizing use of observable inputs and minimizing input of unobservable inputs.
- Objective of using a valuation technique is to estimate the price at which an orderly transaction would take place.
- Three widely used valuation techniques are accepted:
  - Market approach: uses prices and other relevant information generated by market transactions involving identical or comparable assets / liabilities.
  - Cost approach: reflects the amount that would be necessary to replace the service capacity of an asset / liability.
Valuation techniques:

- Three widely used valuation techniques are accepted:
  - Income approach: Converts future amounts (cash flows, income, expenses) to a single amount (discounted) reflecting current market expectations about the future.
  - What does that mean: Calculation of discounted cash flow taking into consideration the current yield curve
  - Market expectation of the future: Does that include expected inflation development???
IFRS 13: Fair Value Measurement

- Disclosure requirements:
  - Separation of recurring and non recurring fair value measurements of assets and liabilities
    - Recurring: Disclosures that other IFRSs require as well
    - Non-recurring: Disclosures, that other IFRSs require in particular circumstances
  - That means: As fair value accounting is required in numerous standards, not only financial assets and liabilities are concerned, but valuation of non-financial assets and liabilities as well
IFRS 13: Fair Value Measurement
Special issue: CVA and DVA

- Covering the area of Credit Risk, related to (OTC) derivatives
- In case of Receivables and Fixed Income Securities, Counterparty Risk is included in Fair Value (Market Price)
- In case of Derivatives which are traded on organized markets, the Margin covers counterparty risk
- However for derivatives, especially OTC, no recognition of counterparty risk, tendency of overvaluing of Financial Instrument
- Basel II clearly requires the consideration of counterparty risk, however no consideration of own counterparty risk
In practice development of different approaches to cover counterparty risk:

- Calculation of Counterparty Risk via yield curve and/or exchange risk
  However, Counterparty Risk is very specific and requires individual consideration for every market participant

- Calculation of Counterparty Risk according to credit spread
  However, systemic risk (i.e. correlation) is not properly accounted. In reality, expected loss according to credit spread is 2 to 1000 times smaller than a properly calculated CVY.
Therefore use of potential exposure approach, 4 steps:

1. Development of sufficient number of scenarios by variation of interest rates, exchange rates and margins (according to the nature of exposure), can be hundreds of scenarios of each period

2. Calculation of Fair Value of derivative for each scenario and for each moment within the periods

3. Calculation of mean value out of all scenarios, as a result we get expected value of the exposure.
Therefore use of potential exposure approach, 4 steps:

3. Calculation separately for positive and negative scenarios
   - Expected positive exposure (EPE)
   - Expected negative exposure (ENE)

4. Pricing of expected values by multiplication with credit spreads and discounting

Potential exposure approach has two results:

- Positive exposure = Credit Value Adjustment (CVA)
- Negative exposure = Debit Value Adjustment (DVA)
This is only valid in case of “Bilateral Approach”
Consideration of Credit Risk of the counterparty AND of own credit risk
Calculation, both, of CVA and DVA

In “Unilateral Approach” (as a required by Basel II), consideration of counterparty risk only. Therefore only CVA possible only

IFRS 13 requires “Bilateral Approach”
Example: Calculation of 160 positive and negative scenarios of a 10 year interest rate swap:
Example: Calculation mean value of all scenarios
IFRS 13: Fair Value Measurement
Special issue: CVA and DVA

- **Example: calculation of exposures in time**

![Diagram showing calculation of exposures in time with EPE and ENE lines.](image-url)
Calculation of cash flows as difference between fixed and variable leg. Creation of positive and negative scenarios

If own creditworthiness is better than counterparty’s, entity is “net looser” as it has to consider discount for the investment (CVA). In opposite case “net winner”, has to consider add-on for investment (DVA)

In course of time, even if creditworthiness does not change, consideration of real existing exposure instead of theoretical exposure, especially if FV of Swap is not zero.
### Example: Calculation of CVA, at beginning of transaction

<table>
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<th>Period</th>
<th>potential exposures</th>
<th>Credit Spread</th>
<th>credit charges with 50% probability</th>
<th>Discount Factor</th>
<th>Cash value</th>
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### As a result: Initial accounting entry

**Discounting expense on Swap CVA: 0,338**
IFRS 13: Fair Value Measurement
Special issue: CVA and DVA

- Example: Rise of FV to 9, however, value is overstated

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</table>

- As a result: consecutive accounting entry:

Fair Value – CVA = 9 – 0,554 = 8,446 (adjusted FV)
IFRS 13: Fair Value Measurement
Special issue: CVA and DVA

- IFRS suggests the creation of "Credit Risk Management Framework"

**Step 1: Determine unit of Credit Risk Measurement**
- Entity specific credit spreads or bond yields
- Sector specific credit spreads or bond yields
- Other market information

**Step 2: Apply market participant perspective to available information**
- Value already incorporates non-performance risk

**Step 3: Calculate Credit Risk Adjustment**

**Step 4: Allocate Credit Risk Adjustment to individual FV measurements**