

Reducing complexity in reporting financial instruments under IFRS Proposed reforms concerning hedge accounting

Kristin Vollrath / Stephan Schöning

**Reducing complexity in reporting
financial instruments under IFRS**
**Proposed reforms concerning hedge
accounting**

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Abstract

In November 2009 the IASB took the 'Project for the replacement of IAS 39' actively on its agenda. The project is intended to reduce complexity of the accounting regulation for financial instruments and hedge accounting. Standard IAS 39 should be completely replaced by a new standard IFRS 9. The IASB split the project into three phases: classification and measurement, impairment methodology and hedge accounting. The paper focuses on the third project phase, which considers hedge accounting.¹

The paper deals with the question how existing hedge accounting regulation can be improved, in order to reduce inconsistencies between financial accounting and economic risk management. The paper focuses on weaknesses of the 'Portfolio hedge of interest rate risk' model which is largely applied by retail banks.

The paper outlines major complexities in applying the model due to existing regulation on eligible portfolio items, eligible hedging instruments and effectiveness assessment and proposes possible amendments to the standard.

The result of the analysis provides evidence that major complexities in applying the model are due to inconsistencies between existing accounting regulation and economic risk management. However, methodology on effectiveness calculation under the 'Portfolio hedge of interest rate risk' model is a further source of complexity.

¹ This paper has been finished in June 2010

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List of abbreviations

ALM	Asset and Liability Management
BCBS	Basel Committee on Banking Supervision
EaR	Earnings at risk
EV	Economic value
EVE	Economic value of equity
ESBG	European Savings Bank Group
FASB	Financial Accounting Standards Board
FTP	Funds transfer pricing
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
EUR	Euro
M	Month
MoU	Memorandum of understanding
NII	Net interest income
OIS	Overnight index swap
PwC	Pricewaterhouse Coopers
USD	US dollar
US GAAP	United States Generally Accepted Accounting Principles
Y	Year

1 Introduction

1.1 Problem statement

IAS 39 establishes the principles for the accounting of financial instruments. The standard refers to a mixed measurement model, meaning that specific categories of financial instruments are measured at amortized cost and others at fair value. Regulation under IAS 39 is very complex in terms of understandability and application, especially the volatility and presentation of unrealised earnings (IASB, 2008a, p. 5-6).

As IFRS are applied globally, there are intentions by the IASB and the FASB to increase convergence between IFRS and US-GAAP. In March 2006 the boards jointly issued a 'Memorandum of understanding (MoU): A roadmap for convergence between IFRS and US-GAAP – 2006-2008' (IASB, 2006). As part of the MoU the boards worked on a research project aiming to reduce the complexity of regulation on financial instruments and to replace IAS 39 by a new standard. The joint effort resulted in the discussion paper 'Reducing complexity in reporting financial instrument', which was published in March 2008 by the IASB for public comment (IASB, 2008b). The discussion paper contains several approaches on improving regulation on financial instruments, including hedge accounting. The FASB issued in June 2008 a separate exposure draft 'Accounting for hedging activities' (FASB, 2008).

During the financial market crisis, governments, regulators and investors raised concerns that the existing accounting models for financial instruments under both accounting standards with their "inherent gaps and inconsistencies are inadequate for today's complex economic environment" (FASB, 2010a, p.1). As a consequence, the IASB took the 'Project for the replacement of IAS 39' actively on its agenda in November 2008 (IASB, 2008a, p. 1). The FASB is working in a separate project on improving the accounting of financial instruments and hedge accounting under US-GAAP (FASB, 2010b).

The IASB aims to replace IAS 39 completely by a new IFRS 9. Reforms will be primarily based on the feedback by respondents to the discussion paper 'Reducing

complexity in reporting financial instruments' (IASB, 2008a, p. 4). The 'Project for the replacement of IAS 39' consists of three phases. The first project phase focuses on reducing complexity on classification and measurement of financial instruments. As a part of this phase the IASB has already finalized amendments to financial assets and published them on November 12th 2009 under the new standard IFRS 9. The board issued an exposure draft on classification and measurement of financial liabilities on May 11th 2010 with a comment period ending on July 16th 2010. The second project phase is intended to improve the amortized cost measurement, in particular the transparency of provisions for losses on loans and for the credit quality of financial assets. The third project phase focuses on hedge accounting. The IASB issued an exposure draft on project phase two on November 5th 2009 which is open for comment until June 20th 2010. There's still no exposure draft on project phase three published per closing date of this paper. The IASB intends to publish an exposure draft in time to allow for finalization by the end of 2010 (IASB, 2010a).

The paper concentrates on the third project phase of the 'Project for the replacement of IAS 39' by the IASB. According to an analysis of the feedback to the IASB's discussion paper 'Reducing complexity in reporting financial instruments' users' main interest is "to be able to clearly understand an entity's risks as well as the risk management strategies being employed to manage such risks". Preparers of financial statements noted, that under existing hedge accounting requirements common risk management practice cannot or can only partially be reflected in financial accounting. The main reason on inability to achieve hedge accounting is referred to today's regulation on eligible hedge relationships and hedge effectiveness assessment (IASB, 2009a, p. 3). The paper should answer the question, how hedge accounting regulation under IFRS can be improved, in order to reduce inconsistencies between financial accounting and economic risk management.

Hedge accounting is largely applied by Asset and Liability Management (ALM) in retail banks. Bank's balance sheets include large volumes of client loans and deposits, which are measured at amortized cost. Due to different repricing terms, the client transactions are exposed to interest rate risk. Banks hedge open risk exposures usually with derivative products. The 'Portfolio hedge of interest rate

risk' model was established by the IASB in 2004 as an hedge accounting approach, which considers the specifics of hedging activities in retail banks. However, the model is not fully able to mirror economic risk management. The purpose of the paper is to analyse complexities in applying the 'Portfolio hedge of interest rate risk' model and to propose possible amendments to existing hedge accounting regulation in order to reduce inconsistencies between financial accounting and economic risk management.

1.2 Structure of paper

The first chapter gives a brief introduction to the topic of the paper.

Chapter two provides an insight into interest rate risk management in ALM, including typical risk positions, target variables and the purpose of funds transfer pricing (FTP) systems. The research further includes common risk management methodologies and requirements by banking supervision, because the reforms have to comply with these regulations.

Chapter three outlines the basic conditions of existing hedge accounting requirements under IAS 39, especially the scope of hedge accounting and restrictions on hedge relationships. The section further discusses possible types of hedges and clarifies the term of hedge effectiveness.

Chapter four is dedicated to the 'Portfolio hedge of interest rate risk'. The section gives some background information on the model, outlines requirements on hedge relationships, effectiveness assessment as well as documentation and reporting.

Chapter five includes an analysis on complexities in applying the 'Portfolio hedge of interest rate risk' model and proposals on improved hedge accounting regulation. The analysis concentrates on eligible portfolio items, eligible hedging instruments and requirements on effectiveness assessment.

Chapter six contains the conclusion of the analysis.

2 Interest rate risk management in a retail bank's balance sheet

2.1 Risk positions

Interest rate risk is the exposure of a bank's financial condition to adverse movements in interest rates. It arises from differences between the timing of rate changes and the timing of cash flows (repricing risk), from imperfect correlation in the adjustment of the rates earned and paid on different instruments with otherwise similar repricing characteristics (basis risk), from changes in the slope and shape of the yield curve (yield curve risk) and from interest rate related options embedded in a bank's reported earnings and book capital by changing interest income and expenses, such as mortgage servicing fees (BCBS, 2004, p. 5).

Interest rate risk in a retail banks' balance sheet arises in terms of mismatch risk. Figure 1 shows a typical balance sheet of a retail bank.

Figure 1: Typical balance sheet of a retail bank

Numbers in EUR billion

<p>Fixed rate assets (80) Mortgages, Commercial loans, Personal loans</p>	<p>Equity (20)</p>
<p>Variable rate assets (20) Overdrafts</p>	<p>Fixed rate liabilities (20) Deposits</p>
	<p>Variable rate liabilities (50) Savings accounts, Current accounts</p>
	<p>Liquidity gap (10)</p>

Source: Referred to Marrison, 2002, p. 170-180

Typical assets in a retail bank's balance sheet include fixed rate mortgages, commercial loans, personal loans and overdrafts. Typical liabilities are fixed rate and non-maturing deposits (so-called core deposits) such as current accounts and savings accounts. The bank's equity is usually included in the balance sheet as it is considered as permanent funding resource (PwC, 2006, p. 34). The balance sheet normally contains a liquidity gap due to volume imbalances between assets and liabilities. This gap may be closed by interbank borrowing/lending.

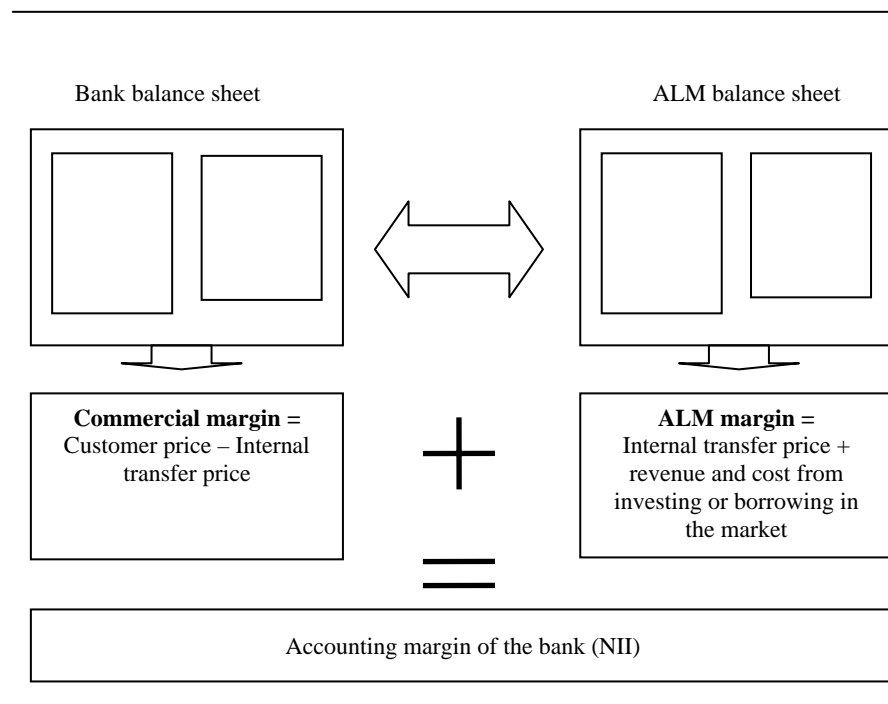
The retail balance sheet is part of the banking book, which contains instruments that are intended for a longer-term investment purpose². Interest rate risk management in the retail balance sheet is commonly conducted by the Asset and Liability Management (ALM) department. The ALM function is largely centralized in banks, meaning that interest rate risk is managed on a consolidated basis (PwC, 2009, p. 9).

2.2 Target variables

ALM's main target variables in terms of interest rate risk management are the net interest income (NII) and the economic value (EV) of the bank's balance sheet.

- The *NII* is the accounting margin of the bank. NII is equal to the sum of the commercial interest margin and the ALM margin. The commercial margin is the spread between the customer price and the internal transfer price (section 2.3); the ALM margin results from the volumes exchanged combined with the spreads between internal transfer prices and the market prices used for borrowing and lending in the capital markets. If internal transfer prices change, they transfer income from ALM to the business units, but they do not change the banks' overall NII (Bessis, 2010, p. 364).

² Instruments held for short-term trading are included in a second portfolio: the trading book (Howells/Bain, 2008, p. 569)

Figure 2: Components of NII

Source: Bessis, 2010, p. 363

- The *EV* of a bank's balance sheet can be defined as the present value of the bank's expected cash flows on assets minus the expected cash flows on liabilities (Bessis, 2010, p. 335).

$$EV = PV \text{ assets} - PV \text{ liabilities}$$

The sensitivity of a bank's *EV* to fluctuations in interest rates is an important consideration of shareholders, management and supervisors (BCBS, 2004, p. 7).

2.3 Funds transfer pricing

Funds transfer pricing (FTP) systems are a key element within an ALM framework (PwC, 2009, p. 11). FTP systems facilitate the exchange of funds between business units and ALM. The basis of a FTP system is the definition of an economic transfer price, which represents the internal cost of funds. The main reasons for an FTP system are risk transfer and profitability measurement of each business unit.

- FTP allows the *transfer of risks* (e.g. interest rate risk) from the business units into ALM. Hence, the business units are isolated from these risks. In order to capture the overall risk related to a single transaction, the funding should mirror the time profile of flows and interest rate (Bessis, 2010, p. 373). Banks usually recognize client transactions at their effective maturity, which incorporates assumptions about client behaviour instead of their contractual maturity in risk management (section 2.4).
The BCBS (2008, p. 54) states that many banks move structural interest rate risk via FTP into a central risk management unit within the organisation. A centralized risk management supports the netting of flows, which is necessary in order to optimize both funding and hedging costs by minimizing external trades (PwC, 2006, p. 47-49).
- The FTP system allows *profitability measurement of each business unit* by separating the commercial margin from the ALM margin (section 2.2). Hence, FTP facilitates to measure the profitability of each business unit (Merchant/Van der Stede, 2007, p. 277).

There are several methods on determination of an internal transfer price. Common FTP approaches are the single pool method, the multiple pool method and the matched FTP method.

- The *single pool method* is based on the concept, that there is one pool which buys and sells funds and the charges are based on one rate. The transfer price is either an average of the income or expense related to the pool or a marginal rate, which is based on market rates such as T-Bills and can be a point in time or an average rate (Kawano, 2000, p.1-3).
- The *multiple pool method* distinguishes between two pools: one for users and one for providers of funds, therefore the approach is more flexible than the single pool method and allows for more objective performance measurement. Transfer prices are based on an average or marginal rates like in the single pool method (Kawano, 2000, p. 2).
- The *matched FTP method* is based on current market marginal funds costs with repricing characteristics matching those of the funds.

As internal transfer prices under the single and multiple pool method do not mirror current market prices of the respective funding transactions, both methods might lead to artificial stimuli in selling specific products (PwC 2006, p. 48). Merchant/Van der Stede (2007, p. 280) state that in order to avoid arbitrage by business units and therefore support managers decisions that are optimal from the firm's perspective internal transfer prices should be based on current market rates. Example: When a business unit buys resources at a lower price than the market, it can dump client lending and trading units can carry portfolios of market assets at lower price than the market (Bessis, 2010, p. 368). Another argument in favour of a internal transfer price, which is based on current market rates, is the fact that the risk management unit can only hedge risks transferable to financial markets (ESBG, 2010, p. 5).

PwC (2006, p. 48) states, that the type of transfer price chosen by a bank depends strongly on the nature of the products in the ALM balance sheet. According to a survey by PwC carried out in 2009 among 43 leading financial institutions around the world the matched FTP method is the most common approach. The BCBS (2008, p. 54) states that many banks use matched FTP. 95% of the respondents to the survey by PwC use interbank money market and swap rates to determine their FTP rates. About half of the respondents update the FTP rates on a daily basis and about 16% on an intra-day basis (PwC, 2009, p. 27).

2.4 Methodologies

Banks manage interest rate risk in the retail balance sheet within risk limits set by senior management. Excess risk impacts an institution's earnings and capital adequacy (BCBS, 2008, p. 54). Banks apply hedging in order to keep the banks' interest rate risk exposure within the respective limits. Hedging means "the offset of a given position by an equal and opposite position, in which the effect of the offset reduces or eliminates the effects of a value change in both" (Shoup, 1998, p. 187). Central management of interest rate risk optimizes the natural hedging capacity of the balance sheet through netting of flows with similar risk characteristics. If the balance equals zero, there won't be any interest rate risk. However, banks usually hedge remaining interest rate risk exposures via the derivative mar-

ket. Common hedging derivatives for interest rate risk include swaps, swaptions, forward-rate agreements, caps, floors and collars (Cusatis, 2005, p. 3). Due to the large number of transactions in the retail balance sheet, banks usually hedge interest rate risk on a macro basis. According to PwC, interest rate swaps are the most common hedging instruments used by ALM. The use of currency swaps depends on the presence of net FX positions. Non-linear products such as swaptions are used more frequently among large banks rather than small and medium size banks (PwC, 2006, p. 43).

Bank's interest rate risk measurement systems should assess the effects of rate changes on both earnings and economic value (BCBS, 2004, p. 14). Measurement of interest rate risk in the banking book is commonly based on repricing schedules and simulation approaches.

- *Repricing schedules* are useful for an intuitive appreciation of the overall risk position (Marrison, 2002, p. 191) and to generate indications of the interest rate risk sensitivity of both NII and EV to changing interest rates (BCBS, 2004, p. 27). There are two common approaches on repricing schedules: gap analysis and duration analysis.

Banks apply *gap analysis* in order to analyse the exposure to earnings (table 1).

Table 1: Gap analysis

	1M	3M	6M	12M	2Y	5Y	10Y	Total
Assets	95	50	30	40	10	30	20	275
Liabilities	-80	-40	-20	-20	-30	-40	-30	-260
Net Gap	15	10	10	20	-20	-10	-10	
Equity								15
Change in rates	0,50%	0,50%	0,50%	0,50%	0,50%	0,50%	0,50%	
Change NII	0,08	0,05	0,05	0,10	-0,10	-0,05	-0,05	0,08

Numbers in EUR million

Source: Referred to OCC, 1998, p. 49

Interest rate sensitive liabilities in each time band are subtracted from the corresponding interest rate sensitive assets to produce a repricing gap for the time band. The gap can be multiplied by an assumed change in interest rates to yield and approximations of the change in NII that would result

from such an interest rate movement (BCBS, 2004, p. 27). Given fixed interest rates the bank would profit from rising interest rates in the case of an asset surplus. In the case of a liability overhang, the bank would profit from declining interest rates. In the case of a zero gap, the bank is immunized against changes to interest rates (Van Rensburg, 2008, p. 126).

According to Resti/Sironi (2007, p. 42) the duration of a financial instrument is an indicator that synthesizes the sensitivity of its EV to changes in interest rates. *Duration analysis* compares the duration of banks assets with the duration of bank liabilities and examines the percentage change in the EV of equity. (Armeanue/Balue/Obbreja, 2008, p. 4, table 2).

Table 2: Duration analysis

	Rate	Duration	EV t0	Δ Rate	Δ EV	EV t1
Cash	0,0%	0,0000	2.000	0,5%	0	2.000
Commercial Loan (3y)	14,0%	2,6467	5.000	0,5%	-58	4.942
Mortgage (10y)	12,0%	6,3282	3.000	0,5%	-85	2.915
Total assets		3,2218	10.000			9.857
Deposit (1y)	6,0%	1,0000	3.700	0,5%	-17	3.683
Deposit (3y)	8,0%	2,7833	4.800	0,5%	-62	4.738
Total liabilities		2,0070	8.500			8.421
Equity			1.500			1.437

Numbers in EUR million

Source: Referred to Armeanue/Balue/Obbreja, 2008, p. 7-8

Generally, the longer the maturity or next repricing date of the instrument and the smaller the payments that occur before maturity, the higher the duration. Higher duration implies that a given change in the level of interest rates will have a larger impact on EV.

In order to be useful for interest rate risk management a repricing schedule should be rather based on effective maturities incorporating assumptions about client behaviour than on contractual maturities (Marrison, 2002, p. 191). Analysis based on contractual maturities is more useful in showing liquidity characteristics of cash flows.

- *Simulation approaches* are applied by banks for two main reasons: to estimate the effective maturity of balance sheet transactions and to estimate potential effects of interest rate risk movements on NII and on the

EV on a more sophisticated basis than in a repricing schedule. The effective maturity of balance sheet positions is necessary in order to capture interest rate risk related to a single transaction (section 2.3). The effective maturity of loans with embedded prepayment options is shorter than the contractual maturity as the client has the right to repay the product before its contractual repricing date. The effective maturity of core deposits is longer than the contractual maturity. Although customers can withdraw these products instantly, core deposits usually provide funds for long periods of time (Smullen, 2001, p. 68). Methods on estimating the effective maturity of core deposits cover statistical analysis, simple estimates of the maturity and replicating portfolios (PwC, 2006, p. 31). Banks also include their equity in the risk management process (section 2.1). It is common to give a certain maturity to equity. Methods are similar to those applied to non-maturing deposits (PwC, 2006, p. 34).

In order to estimate potential effects of changes in interest rates on NII and EV, banks simulate the future path of interest rates and their impact on cash flows. Static simulations assess cash flows arising from the bank's current on- and off balance sheet positions at a particular point in time. Dynamic simulations incorporate assumptions about the future course of interest rates and expected changes in a bank's business activity over that time. One example on an income simulation model is earnings at risk (EaR), which measures the loss of NII from interest rate movements among various rate scenarios. One example on a method based on economic value orientation is economic value of equity (EVE), which measures the change in the market value of equity resulting from interest rate shock scenarios, compared with the market value of equity under a base scenario (BCBS, 2008, p. 55).

In general, methods on interest rate risk measurement are more sophisticated in large banks than in small and medium size banks (PwC, 2006, p. 34).

2.5 Regulation by banking supervision

Interest rate risk in the banking book is not subject to regulatory capital charges under Pillar 1 of Basel II. However, in order to support Pillar 2 of Basel II, which expects that banks have in place a comprehensive risk management process to evaluate their overall capital adequacy in relation to their risk profile (BCBS, 2001, p. 1), the BCBS published the 'Principles for the management and supervision of interest rate risk' in July 2004. (BCBS 2004). The principles form the basis for a sound framework for the management of interest rate risk in the banking book.

Sound interest rate risk management requires the application of:

- Appropriate board and senior management oversight
- Adequate risk management policies and procedures
- Appropriate risk measurement, monitoring and control functions and
- Comprehensive internal controls and independent audits

According to the principles, banks must hold capital commensurate with the level of interest rate risk they undertake. They must establish risk limits in order to maintain the bank's interest rate risk exposure within an acceptable range. Risk limits require approval by senior management. Banking supervision can require that the bank reduces interest rate risk or holds an additional amount of capital, if supervisors determine that a bank is not holding capital commensurate with the level of interest rate risk.

The BCBS (2004, p. 31) acknowledges the treatment of positions where the effective maturity differs from the contractual maturity, such as loans including prepayment features or core deposits and simulation approaches in order to determine the impact of interest rate movements on both NII and EV. Banks should measure their vulnerability to loss under stressful market conditions; possible stress scenarios might include abrupt changes in the general level of interest rates, changes in the relationships among key market rates (e.g. basis risk), changes in the slope of the yield curve (yield curve risk), changes in the liquidity of key financial markets or changes in the volatility of market rates (BCBS, 2004, p. 17).

Banks with positions denominated in different currencies are exposed to interest rate risk in each of these currencies. Banks need to include in their risk measurement process methods to aggregate their exposures in different currencies (BCBS, 2004, p. 16).

The manner in which a bank applies the BCBS principles depends on the nature of its holding and activities and the level of interest rate risk exposure (BCBS, 2004, p. 8).

According to the 2009 survey by PwC most banks benchmark their interest rate risk framework in ALM to the BCBS's guidance in 'Principles for the management and supervision of interest rate risk' and assign capital to interest rate risk in the banking book as recommended by the BCBS (PwC, 2009, p. 7).

3 Basic conditions of hedge accounting under IAS 39

3.1 Scope

Economic hedging is based on the notion of offsetting, which means that changes of the hedging derivative offset changes of the balance sheet item (IASB, 2010b, p. 5). Due to a mixed measurement model on financial instruments under IAS 39, the offsetting of changes to the components in an economic hedge can only partially be reflected in the financial statement. The purpose of hedge accounting is to mitigate accounting volatility resulting from the mixed measurement model (IAS 39.85).

Financial instruments subject to IAS 39 are measured either at fair value or at amortized cost. According to IAS 32.11 fair value reflects the credit quality of the instrument and is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

If the instrument is quoted in an active market, the market price is used to determine the fair value (IAS 39.AG74). If no active market exists, the entity shall use a valuation technique in order to determine the fair value (IAS 39.74). The valuation technique shall establish what the transaction price would have been on measurement date under normal business condition and therefore use maximum market input e.g. commodity prices, foreign exchange prices (IAS 39.AG75, IAS 39.AG82).

The amortized cost is the amount at which a financial asset or liability is measured at initial recognition minus principal repayments, plus or minus the cumulative amortization using the effective interest method³ of any difference between that initial amount and the maturity amount, and minus any reduction for impairment or uncollectibility (IAS 39.9).

According to the IFRS definition a financial instrument can be a financial asset, a financial liability or an equity investment of another entity (IAS 32.11). IAS 39.9 allocates financial instruments to five categories:

³ The effective interest method is a method of calculating the amortized cost of a financial asset or liability and of allocating the interest income or interest expense over the relevant period (IAS 39.9)

- *Fair value through profit or loss*: includes financial assets or liabilities which are held for trading or applying the fair value option. Held for trading instruments are intended to be sold or repurchased in the near term. The purpose of the instrument is short-term profit taking. The fair value option allows the entity to measure a financial instrument at fair value, which otherwise should be measured at amortized cost (IAS 39.9 (b)). Applying the fair value option is irrevocable, which means that financial instruments once designated at fair value are not allowed to be reclassified into another category (IAS 39.50).⁴
- *Held to maturity*: includes non-derivative assets with fixed or determinable payments and fixed maturity intended to be hold to maturity.
- *Loans and receivables*: recognizes non-derivative assets with fixed or determinable payments not quoted in an active market.
- *Available for sale*: contains non-derivative financial assets not classified in one of the other categories for financial assets and investments in equity instruments of another entity.
- *Other financial liabilities*: includes non-derivative financial liabilities not classified at fair value through profit or loss.

At initial recognition financial instruments are measured at fair value plus in the case of a financial instrument not fair value through profit or loss at transaction costs that are directly attributable to the acquisition or issue of the financial instrument (IAS 39.43). Table 3 gives an overview about subsequent measurement of financial instruments under IAS 39.

Table 3: Subsequent measurement of financial instruments under IAS 39

Category		Subsequent measurement
Fair value through profit or loss	Held for trading	Fair value
	Fair value option	
Held to maturity		Amortized cost
Loans and receivables		Amortized cost
Available for sale		Fair value
Other financial liabilities		Amortized cost

Source: PwC, 2005a, p. 7

⁴ For detailed information about the fair value option please refer to Fiechter, 2009

Derivative hedges of non-financial instruments are also in the scope of hedge accounting. Non-financial instruments are measured at cost (IASB, 2010, p. 6).

Excursion:**Classification and measurement of financial instruments under IFRS 9**

Especially decisions with project phase 1 'Classification and measurement' impact the desire for hedge accounting under IFRS 9. On November 12th 2009 the IASB published finalized regulation on recognition and measurement of financial assets. The IASB has decided to retain the mixed measurement model for financial instruments under the new standard, which confirms ongoing desire for hedge accounting. In order to reduce complexity, the IASB maintains only two categories for financial assets: fair value and amortized cost. Derivatives will continuously be measured at fair value. The fair value option will remain, and shall be applied, if measurement at fair value eliminates or significantly reduces a measurement or recognition inconsistency. Election must be made at inception of the instrument and is irrevocable. Financial assets of the categories: Held to maturity, available for sale and loans and receivables under IAS 39 are categorized at amortized cost under IFRS 9, if the objective of the entity's business model is to hold the assets to collect and the contractual cash flows are solely payments of principal and interest, otherwise these assets are categorized at fair value. Investments in equity instruments in another entity, which are categorized available for sale under IAS 39 are categorized at fair value under IFRS 9 (Deloitte, 2010). New regulation is applicable as per January 1st 2013; early application is permitted for periods ending on or after December 15th 2009 (IASB, 2010a). On May 11th 2010 the IASB published an exposure draft with proposed changes to the fair value option for financial liabilities (IASB, 2010c). Thus, the change in fair value due to an entity's own credit risk should be excluded from profit and loss (section 3.4) and instead recognized in equity as a component of 'Other comprehensive income' in order to avoid accounting volatility which is counter intuitive. The IASB proposed no further changes regarding classification or measurement of financial liabilities which means that liabilities which are not categorized at fair value are continuously measured at amortized cost.

3.2 Application criteria

In order to apply for hedge accounting, an entity has to meet all of the following criteria (IAS 39.88):

- At inception of the hedge the entity documents the hedge relationship, the entity's risk management objective and strategy for undertaking the hedge. Documentation shall include identification of the hedging instrument, the hedged item or transaction, the nature of the risk being hedged and how the entity will assess the hedging instrument's effectiveness in offsetting the exposure to changes in the hedged item's fair value or cash flows attributable to the hedged risk.
- The entity can demonstrate that the hedge is expected to be highly effective in offsetting changes in fair value or cash flows attributable to the hedged risk, consistent with the risk management strategy documented.
- In the case of a cash flow hedge (section 3.4) a forecast transaction that is subject to the hedge must be highly probable and must present an exposure to variations in cash flows that could ultimately affect profit or loss.
- Hedge effectiveness can be reliably measured.
- The hedge is assessed on an ongoing basis and determined actually to have been highly effective throughout the financial reporting periods for which the hedge was designated.

3.3 Components of a hedge relationship

A hedge relationship is build by one or more hedged items assigned to a hedging instrument.

- A *hedged item* exposes the entity to risk through changes in fair value or future cash flows and can be an asset, liability, firm commitment⁵, highly probable forecast transaction or net investment in a foreign operation (IAS 39.9). Both financial and non-financial instruments can be hedged item. Table 4 gives an overview about qualifying financial items under IAS 39.

⁵ A firm commitment is a binding agreement for the exchange of a specified quantity of resources at a specified future date or dates (IAS 39.9)

Table 4: Qualifying financial items under IAS 39

Category		Qualifying as hedged item?
Fair value through profit or loss	Held for trading	No
	Fair value option	No
Held to maturity		Only for foreign exchange risk or credit risk
Loans and receivables		Yes
Available for sale		Yes
Other financial liabilities		Yes

Source: IAS 39.9

Only financial instruments measured at amortized cost qualify as hedged item. Derivatives generally do not qualify as hedged item, categorized held for trading they are measured at fair value, as an exception purchased options qualify as hedged item in a fair value hedge (IAS 39.IG.F.2.1, IAS 39.AG94).

The hedged item can be (a) a single one or a (b) group or (c) in a 'Portfolio hedge of interest rate risk' only, a portion of the portfolio of financial assets or liabilities that share the risk being hedged (IAS 39.78).

In the case of a group of hedged items, similar items shall be aggregated and hedged. Hedged items require sharing the risk exposure that is designated as being hedged. Furthermore, the change in fair value attributable to the hedged risk for each individual item in the group should be expected to be approximately proportional to the overall change in fair value attributable to the hedged risk of the group of items (IAS 39.83).

A hedged item needs to involve a party external to the entity (IAS 39.80). Designation of a net amount including assets and liabilities is prohibited (IAS 39.81A). Designation of risk components is allowed on all financial instruments qualifying as hedged item. Held to maturity items are restricted to foreign currency and credit risk only and cannot be a hedged item with respect to interest rate risk or prepayment risk. The IASB argues that designation of an investment as held to maturity requires an intention to hold the investment until maturity without regard to changes in the fair value or cash flows of such an investment attributable to changes in interest rates (IAS 39.81 and IAS 39.79). Non-financial items can be desig-

nated as hedged item only in their entirety for all risks. Designation of risk components is not permitted only in the case of foreign currency risk. The IASB argues that isolating and measuring the appropriate portion of the cash flows or fair value changes attributable to specific risk other than foreign currency risks is difficult (IAS 39.82).

- A *hedging instrument* is a designated derivative. Non-derivative instruments may be designated as a hedging instrument only for a hedge of a foreign currency risk (IAS 39.72).

A qualifying instrument must involve an external party (IAS 39.73), which means that intragroup transactions do not qualify for hedge accounting in the consolidated balance sheet (IAS 39.72)

A hedging instrument must be designated in its entirety, which means that all types of risk that are hedged have to be included in fair value measurement. The only exceptions are options and forward contracts (IAS 39.74, IAS 39.IG.F.4.3).

3.4 Types of hedges

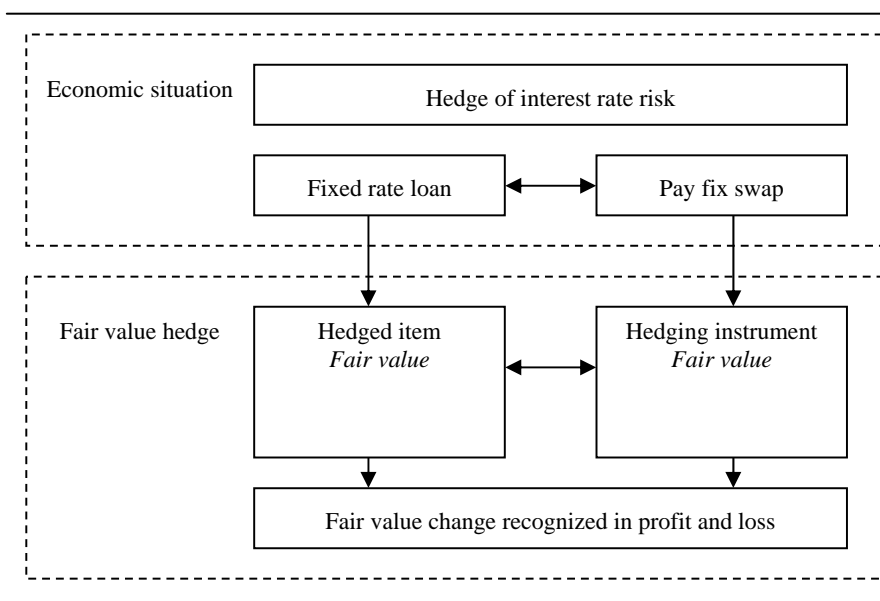
IAS 39 distinguishes three types of hedges: fair value hedge, cash flow hedge and hedge of a net investment in a foreign operation.

- A *fair value hedge* is a hedge of the exposure to changes in the fair value of a recognized asset or liability or an unrecognised firm commitment, or an identified portion of such an asset, liability or firm commitment, that is attributable to a particular risk and could affect profit or loss (IAS 39.86). The gain or loss from remeasuring the hedging instrument at fair value for a derivative or the foreign currency component of its carrying amount measured in accordance with IAS 21 for a non-derivative shall be recognized in profit or loss (IAS 39.89 (a)). The gain or loss on the hedged item attributable to the hedged risk shall adjust the carrying amount of the hedged item and be recognized in profit or loss, if the hedged item is otherwise measured at cost. Recognition of the gain or loss attributable to the hedged risk in profit or loss applies if the hedged item is an available for sale financial asset (IAS 39.89 (b)). According to IAS 39.92 the adjust-

ment of the carrying amount of the hedged item for which the effective interest method is applied should be amortized to profit or loss based on a recalculated effective interest rate.

Figure 3 shows a fair value hedge of interest rate risk, including a fixed rate loan, designated as hedged item and a pay fix interest rate swap designated as hedging instrument.

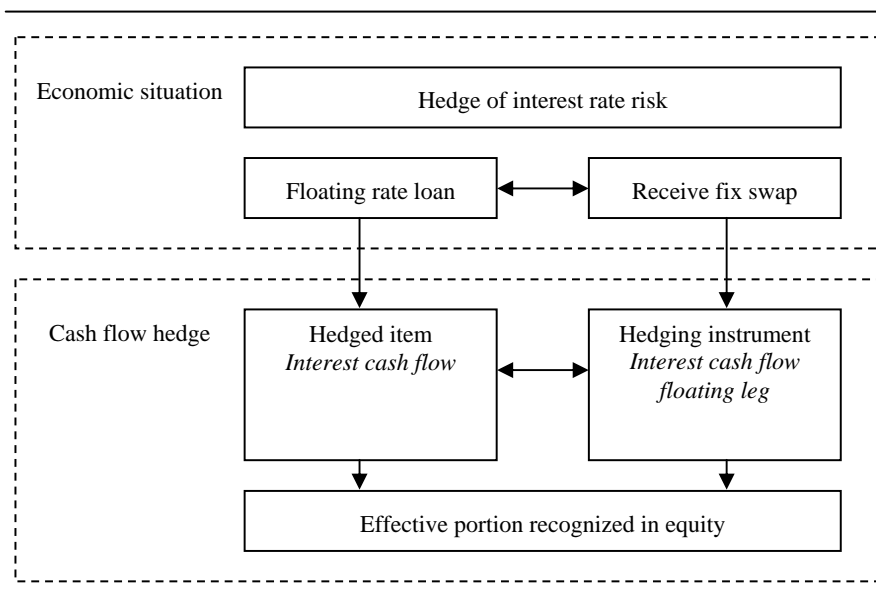
Figure 3: Fair value hedge



- A *cash flow hedge* is a hedge of the exposure to variability in cash flows that is attributable to a particular risk associated with a recognized asset or liability, such as all or some future interest payments on variable rate debt, or a highly probable forecast transaction and could affect profit or loss (IAS 39.86).

The effective portion of the gain or loss on the hedging instrument is recognized in equity in 'Other comprehensive income'. The ineffective portion of the gain or loss on the hedging instrument is recognized in profit or loss (IAS 39.95).

Figure 4 shows a cash flow hedge of interest rate risk, where future cash flows of a floating rate loan (hedged item) being hedged by an receive fix interest rate swap (hedging instrument).

Figure 4: Cash flow hedge

- A net investment in a foreign operation is the amount of the reporting entity's interest in the net assets of that operation (IAS 21.8), including a hedge of a monetary item that is accounted for as part of the net investment, shall be accounted for similarly to cash flow hedged (IAS 39.102). The portion of the gain or loss on the hedging instrument that is determined to be an effective hedge is recognized directly in equity through the statement of changes in equity and the ineffective portion is recognized in profit or loss.

3.5 Hedge effectiveness

Hedge effectiveness is the degrees to which changes in the fair value or cash flows of the hedged item are attributable to a hedged risk are offset by changes in the fair value or cash flows of the hedging instrument (IAS 39.9).

IAS 39 adopts a quantitative assessment of hedge effectiveness. According to IAS 39.AG105 a hedge is regarded highly effective, if it is deemed highly effective in achieving offsetting changes in fair value or cash flows attributable to the hedged risk at inception and in subsequent periods and if the actual results of the hedge are within a range of 80-125 per cent.

Ineffectiveness is the amount by which the value of the hedging instrument does not perfectly offset the value of the hedged item (PwC, 2005a, p. 14).

Effectiveness can be assessed on cumulative basis when it is documented; therefore hedge accounting has not to be precluded in the case of a not highly effective expected hedge in a particular period, but over the lifetime of the hedging relationship.

Hedge effectiveness must be assessed both prospectively and retrospectively. Prospective testing is necessary to justify that the hedge relationship will be highly effective over future periods in achieving offsetting changes in fair value or cash flows through the date of periodic assessment. Effectiveness must be assessed at a minimum at the time an entity prepares its annual or interim financial statements (IAS 39.AG106). Retrospective effectiveness testing is intended to determine whether the hedge relationship has been highly effective in achieving offsetting changes in fair value or cash flows through the date of periodic assessment (PwC, 2005a, p. 14).

In the case an entity does not meet the criteria on hedge effectiveness, hedge accounting needs to be discontinued from the last date on which the hedge was effective. If the hedge became ineffective due to an event and the entity can prove that the hedge was effective prior to the event the entity may discontinue hedge accounting from the date of the event (IAS 39.AG113).

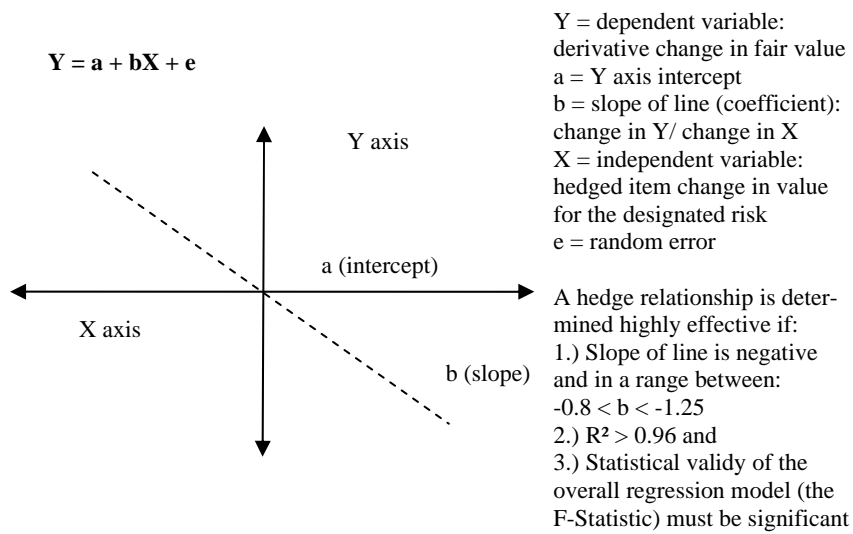
There's no single test method on hedge effectiveness prescribed by the standard (PwC, 2005b). The IASB rather recommends that entities should use a test method which is compliant with the entity's risk management strategy (IAS 39.AG107). The critical terms approach, dollar offset test and regression analysis are among the most common test methods in practice.

- The *critical terms approach* compares the critical terms of the hedging instrument with those of the hedged item. The hedge is deemed highly effective, if the principal terms of the hedging instrument and the hedged item are the same, the changes in fair value and cash flows attributable to the risk being hedged may be likely offset each other fully, both when the hedge is entered into and afterwards (IAS 39.AG108), for example

notional, pricing, re-pricing dates, currency. There are no features (such as optionality) that would invalidate an assumption of perfect effectiveness; however the approach is not accepted to test effectiveness retrospectively. Although the principal terms of the hedging instrument and hedged item match, ineffectiveness may still arise due to other attributes such as the liquidity of the instrument (IAS 39.IG.F.4.7).

- The *dollar offset test* compares the change in fair value or cash flows of the hedging instrument with the change in fair value or cash flows of the hedged item attributable to the hedged risk. The test can be performed either on cumulative basis (i.e. with the comparison performed from the inception of the hedge) or on a period-by-period basis (i.e. with the comparison performed from the last testing date). A hedge is highly effective if the results are within a range of 80-125 per cent⁶. In practice the approach is used for prospective and retrospective testing (PwC, 2005a, p. 15).
- *Regression analysis* is a statistical approach, which investigates the strength of the statistical relationship between the hedged item and the hedging instrument. The approach involves determining a “line of best fit” and then assesses the “goodness of fit” of this line. It determines the extent by which one variable “the dependant” (or hedging instrument) will vary with changes in another variable “the independent” (hedged item). It is tested whether the change in the value of the hedged item and the hedging instrument are highly correlated in a range between 80-125 per cent (PwC, 2005a, p. 16).

⁶ For details regarding variations of the dollar offset test please refer to PwC, 2005a, p. 15

Figure 5: Regression analysis

Source: PwC, 2005a, p. 16

4 ‘Portfolio hedge of interest rate risk’ model

4.1 Model background

In March 2004 the IASB published the conditions for the ‘Portfolio hedge of interest rate risk’. The model was established in response to requests by many banks for an approach that allows reflecting common practice on interest rate risk management in the banking book in hedge accounting.

Hedging interest rate risk in the banking book is subject to hedge accounting as derivatives such as interest rate swap are measured at fair value, but most balance sheet positions such as loans or deposits are measured at amortized cost.

As bank’s balance sheets contain large numbers of transactions, hedging is commonly applied on a macro basis (section 2.4). Although previous versions of IAS 39 allowed for macro hedge accounting (section 3.3), banks faced problems with application, as existing regulation did not consider specific characteristics of interest rate risk hedging in the banking book.

The main problems covered:

- Designation of assets with embedded prepayment options (e.g. loans) at effective maturity rather than at contractual maturity
- Designation of a net positions as hedged item
- Consideration of adjustments to hedged items in a dynamic risk management in the effectiveness assessment
- Presentation of the change in fair value of large numbers of individual transactions in the financial statement

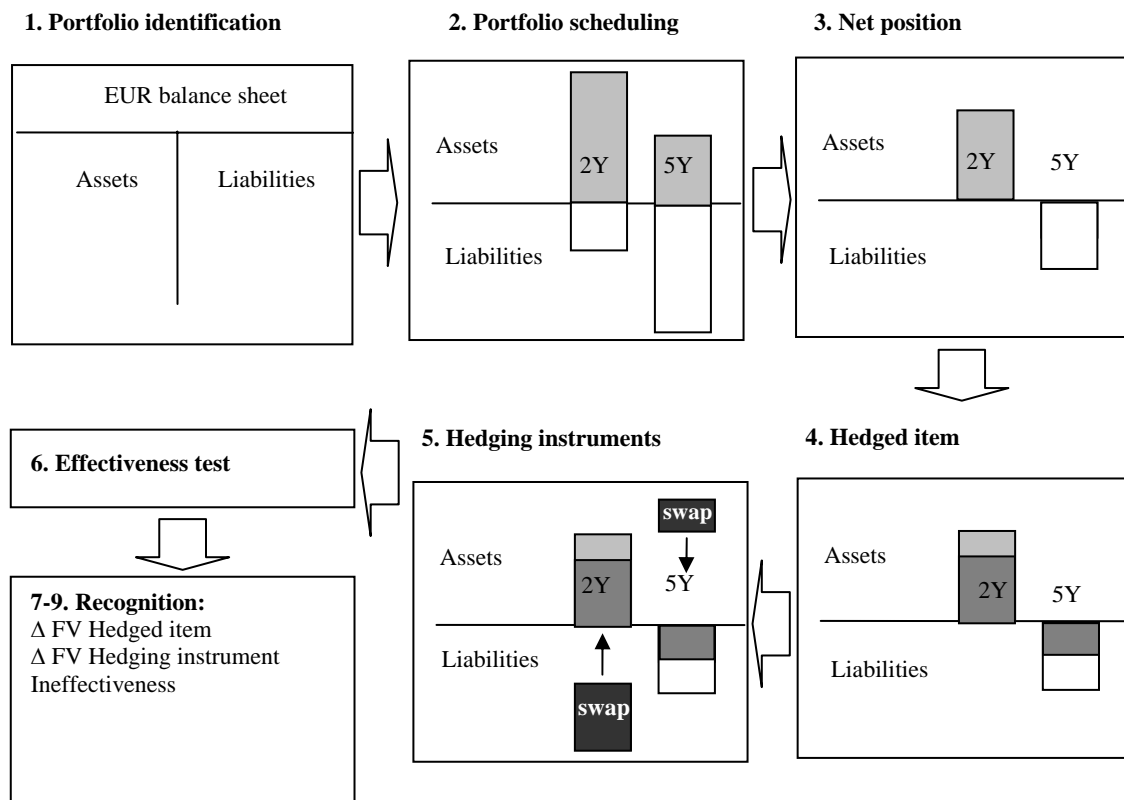
The ‘Portfolio hedge of interest rate risk’ model allows to recognize client transactions with embedded prepayment options as portfolio items at their effective maturity rather than their contractual maturity. The model enables to hedge net positions. Banks hedge interest rate risk on a dynamic basic. Previous regulation did allow reflecting changes to hedging instruments, but not concerning hedged items (PwC, 2004, p. 21). In order to reflect dynamic risk management, the new model considers adjustments to hedged items.

Due to large amounts of transactions in the banking book, adjustment of the carrying amount of every single hedged item leads to significant system needs (IAS 39.BC176 (c)). Therefore the IASB allows reflecting the sum of change in fair value of all hedged items in a single line item.

4.2 Basic requirements

The standard limits application of a ‘Portfolio hedge of interest rate risk’ to fair value hedge accounting (IAS 39.BC175). This requires that derivatives are measured at fair value and that effectiveness is recognized in profit or loss (IAS 39.BC177 (a-b)). As the model should reflect interest rate risk management, changes to the fair value of hedged items and hedging instruments are solely based on interest rate movements (IAS 39.AG121).

Figure 6: Procedure of the ‘Portfolio hedge of interest rate risk’ model



Applying the model in figure 6 requires the following procedure (IAS 39.AG114):

1. Identification of a portfolio of items
2. Portfolio scheduling into repricing periods
3. Determination of the net position
4. Designation of the hedged portion of interest rate risk (hedged item)
5. Designation of one or more hedging instruments
6. Effectiveness assessment at inception and in subsequent periods
7. Recognition of change in fair value of an effective hedged item as gain or loss in a respective line items in the financial statement
8. Recognition of the change in fair value of the hedging instrument in profit or loss
9. Recognition of the ineffective portion in profit or loss as the difference between the change in fair value referred to the hedged item and the hedging instrument

4.3 Eligible portfolio items

IAS 39.78 defines the hedged item as a portion of a portfolio of financial assets or financial liabilities that share the risk being hedged (section 3.3). The portfolio can contain assets and liabilities or only assets or only liabilities (IAS 39.AG116, IAS 39.BC177 (c)).

In order to align the model to risk management, the IASB allows designating net positions as hedged item. However, according to IAS 39.AG114 (c) the group of portfolio items, which sum up to the hedged item, is not expressed as an overall net position, but as an amount of assets or liabilities, as certain balance sheet items are not eligible for designation (section 5.2.1).

As outlined in sections 2.3 and 2.4 retail banks recognize client transactions at their effective maturity, including assumptions about client behaviour, rather than their contractual maturity in risk management.

The IASB permits assets with embedded prepayment options as portfolio item at their expected repricing date rather than their contractual repricing date. The expected repricing date should be estimated at the inception of the hedge and throughout the term of the hedge, based on historical evidence and other available

information, including information about prepayment rates, interest rates and the interaction between them. The estimates are reviewed periodically and updated in the light of experience. The methodology for an allocation of items according to their estimated repricing date should be in accordance with the entity's risk management procedures and objectives (IAS 39.AG117).

Banks usually hedge large numbers of individual transactions in a retail bank's balance sheet on a macro basis, which allows netting of transactions with offsetting risk profile. Residual interest rate risk exposures after netting are usually managed with derivatives (section 2.4).

According to IAS 39.AG118 (a) an item qualifies as portfolio item, if its fair value changes in response to changes in the interest rate movements and if the item could have been qualified for fair value hedge accounting, if it had been designated as hedged item individually.

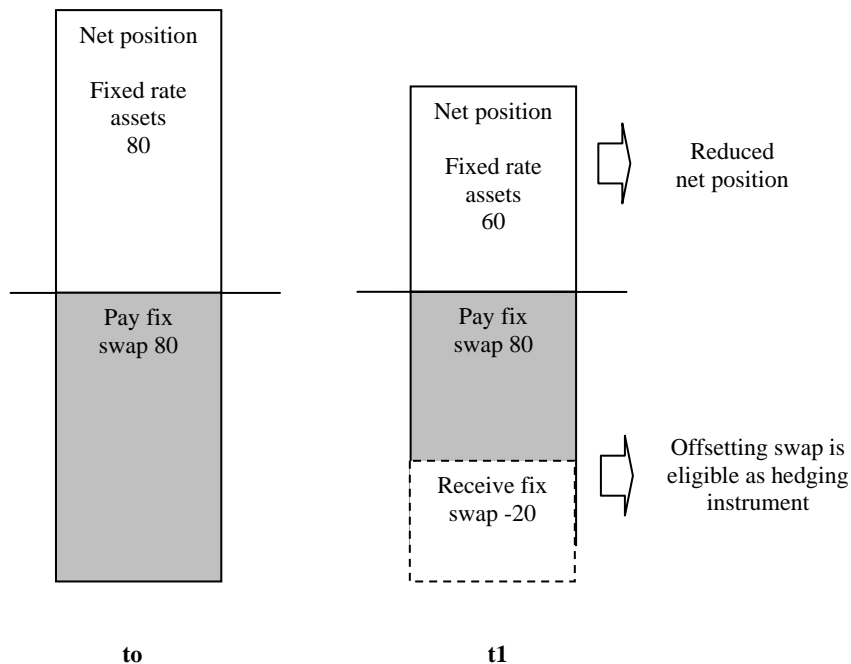
A financial liability with a demand feature, like a core deposit, does not qualify for fair value hedge accounting for any time period beyond the shortest period in which the holder can demand payment (IAS 39.AG118 (b), IAS 39.BC188).

4.4 Eligible hedging instruments

According to IAS 39.AG120 the hedging instrument may be a single derivative or a portfolio of derivatives, containing an exposure to the hedged interest rate risk.

In the case of a portfolio of derivatives, the hedging instrument may contain offsetting derivatives (IAS 39.BC215). Assets and liabilities in each repricing time period change over time as prepayment expectations change, existing items are derecognized and new items are originated. As a consequence, the net position changes. Entities usually do not reduce the hedging instrument but enter into a new derivative with an offsetting risk profile (IAS 39.BC21, figure 7).

Figure 7: Offsetting hedging instruments



Numbers in EUR million

A hedging instrument may not include written options or net written options. If the hedging instrument hedges more than one repricing time period it is allocated to all the time periods it hedges. In accordance with IAS 39.74 the hedging instrument needs to be allocated to the repricing time period in its entirety (IAS 39.AG120).

4.5 Effectiveness assessment

The basic requirements on effectiveness assessment in IAS 39.9 and IAS 39.AG105 also apply to a ‘Portfolio hedge of interest rate risk’, which means that the change in fair value of the hedged item that is attributable to a hedged risk is offset by changes in the fair value of the related hedging instrument within a range of 80-125 per cent (IAS 39.BC216, section 3.5).

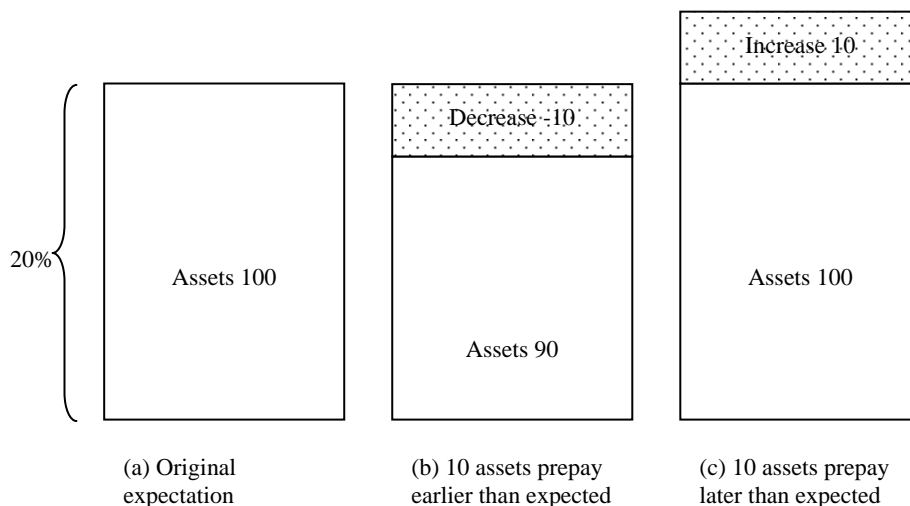
Hedge effectiveness is measured periodically (IAS 39.AG126). An entity requires to measure hedge effectiveness both prospectively and retrospectively (IAS 39.AG114 (f)). The standard does not specify the technique to determine the change in fair value of the hedged item (IAS 39.AG122). There are no restrictions

concerning prospective effectiveness measurement (IAS 39.AG107). According to IAS 39.BC217 the entity needs to demonstrate that the hedge is expected to be highly effective only for the period until the amount of the hedging instrument is next adjusted.

According to IAS 39.BC218 an entity can use any method to apply retrospective effectiveness testing, but IAS 39.AG126 requires that if estimates of repricing dates are included in the portfolio, the entity needs to calculate the change in fair value of the portfolio item solely based on changes in interest rates, including the effect that changes in the hedged interest rate have on the fair value of the prepayment option. The standard contains only one method which is consistent to the described requirements namely the percentage approach.

In the *percentage approach* the designated hedged item is a percentage of the assets (or liabilities) in a repricing time period (IAS 39.BC199). The entity measures the percentage of the assets (or liabilities) per repricing period that is hedged on the basis of estimated repricing dates at the last date it tested effectiveness (figure 8).

Figure 8: Designation of an amount of assets as hedged item in a percentage approach



Source: IAS 39.BC199

This percentage is applied to the revised estimate of the amount in that repricing time period to calculate the amount of the hedged item based on its revised esti-

mate. The entity calculates the change in fair value of the revised estimate of the hedged item and recognizes ineffectiveness, which is the change in fair value of the hedged item and the change in fair value of the hedging instrument (IAS 39.AG126).

IAS 39.BC203 allows to ignore the requirement in IAS 39.AG126 only in the case that positions solely include interest rate risk and preclude prepayment risk. For example the interest rate risk is hedged by an interest rate swap and prepayment risk is hedged by a swaption. In that case, the entity is able to measure the change in fair value directly. According to IAS 39.BC204 a direct method is preferable to the percentage approach, which is a proxy.

Revisions to the estimated repricing dates of existing assets (or liabilities) during the designation period are included in effectiveness measurement, while origination of new assets (or liabilities) is not (IAS 39.AG127). According to IAS 39.AG121 only changes in fair value incurred by interest rate movements maybe recognized, for example a loan is early redeemed due to a change in interest rates.

Changes in expected repricing dates that clearly arise from factors others than changes in the hedged interest rate, are uncorrelated with changes in the hedged interest rate and can be reliably separated from changes that are attributable to the hedged interest rate (e.g. demographic factor or tax regulations) are excluded when determining the change in fair value of the hedged item because they are not attributable to the hedged risk. Example: a customer has repaid a loan due to heritage. The portfolio change is not allowed to be considered.

If there is uncertainty about the factor that gave rise to the change in expected repricing dates or the entity is not able to separate reliably the changes that arise from the hedged interest rate from those that arise from other factors, the change is assumed to arise from changes in the hedged interest rate (IAS 39.AG121).

After effectiveness measurement for the respective designation period the entity establishes a new estimate of the total assets (or liabilities) in each repricing time period, including new assets (or liabilities) that have been originated since the last effectiveness testing. The entity repeats procedures in accordance with the prior designation period including designation of the new amount as the hedged item

and a new hedged percentage (IAS 39.AG127). Appendix 1 includes an example on effectiveness testing under the percentage approach.

4.6 Documentation and reporting

Documentation needs to be compliant with IAS 39.88 (a). The entity’s policy shall specify all the variables that are used to identify the amount that is hedged and how effectiveness is measured (IAS 39.AG119). The policy concerning designation and documentation of the hedge relationship shall be in accordance with the entity’s risk management procedures and objectives.

According to IAS 39.AG119 documentation shall include:

- Which assets and liabilities are included in the portfolio hedge and the basis to be used for removing them from the portfolio
- How the entity estimates repricing dates, including what interest rate assumptions underlie estimates or prepayment rates and the basis for changing the estimates
- The number and duration or repricing time periods
- How often the entity tests effectiveness and which method it uses
- The methodology used to determine the amount of assets (or liabilities) that are designated as the hedged item and accordingly the percentage measure used when the entity tests effectiveness using the method described in IAS 39.AG126 (b)
- Whether it tests effectiveness for each repricing time period individually, for all periods in aggregate, or by using some combination of both.

In order to simplify documentation, in view of the large number of individual transactions in the banking book, IAS 39.AG123 allows the following disclosure of the change to the carrying amount of the hedged items in accordance with IAS 39.89A (section 3.4):

- In the case the hedged item is an asset, the attributable gain or loss is presented in a single line item within assets
- In the case the hedged item is a liability, the attributable gain or loss is presented in a single separate line item within liabilities.

The separate line items shall be presented next to financial assets or financial liabilities (IAS 39.AG123, IAS 39.BC209). Amounts included in these line items shall be removed from the balance sheet and included in the gain or loss that arises from derecognition, when the assets or liabilities to which they relate are derecognized (IAS 39.AG128, IAS 39.BC211) and in the same periods as they would have been removed had individual assets or liabilities been designated as the hedged item (IAS 39.BC210).

In order to coordinate respective items IAS 39.BC221 recommends scheduling individual assets or liabilities into repricing time periods and tracking both on how long the scheduled individual items have been hedged and how much of each item was hedged in each time period. If the designated hedged amount for a repricing time period is reduced the separate line item must be reduced.

Amortization of the reduced portion of the hedged item in accordance with IAS 39.92 can be based on the straight-line method instead of the recalculated effective interest rate method (section 3.3) in view of the large number of transactions and in order to avoid significant system requirements (IAS 39.BC212).

5 Analysis of complexities in applying the 'Portfolio hedge of interest rate risk' model

5.1 Focussing

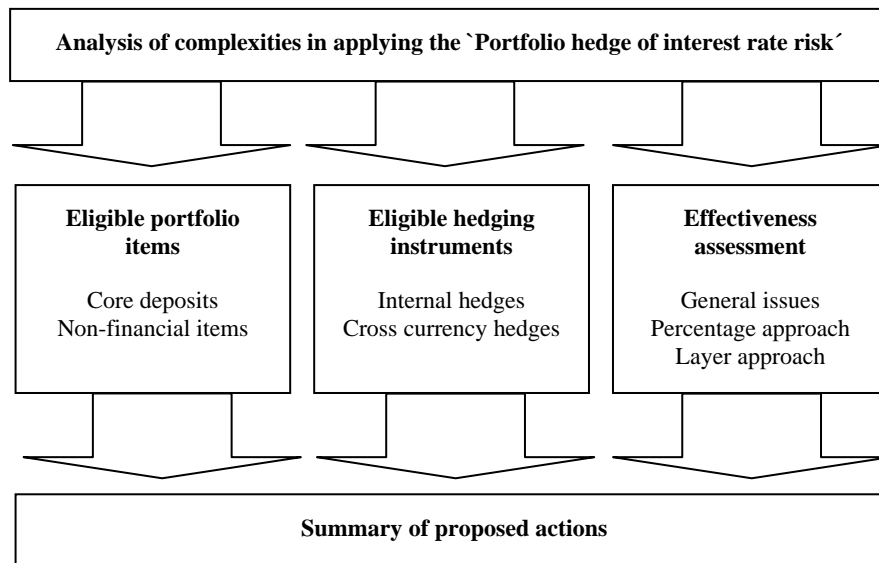
The 'Portfolio hedge of interest rate risk' model was established in 2004, as banks asked for a hedge accounting approach, which is compliant with common practice on interest rate risk management in the banking book. Although the model recognizes various specifics of interest rate risk hedges in retail banks, applicants still face complexities with the model.

In view of the latest proposal by the IASB to simplify regulation on hedge accounting by the 'Project for the replacement of IAS 39', this analysis concentrates on complexities in applying the 'Portfolio hedge of interest rate risk' model from the perspective of interest rate risk management in a retail banks' ALM.

Respondents to the IASB's discussion paper 'Reducing complexity in reporting financial instruments' attributed problems with existing regulation mainly to eligible hedge relationships and hedge effectiveness assessment.

This analysis addresses the major points of criticism by respondents to the IASB's outreach activity and focuses on weaknesses concerning eligible portfolio items, eligible hedging instruments and effectiveness assessment.

Investigation concerning eligible portfolio items concentrates on restrictions on core deposits and non-financial items. The analysis focuses on internal hedges and cross currency hedges in view of complexities with hedging instruments.

Figure 9: Content of analysis

Many respondents of the IASB's discussion paper criticised the quantitative approach on effectiveness assessment (IASB, 2009a, p. 3). One source of complexity on effectiveness testing are general restrictions on what components of hedged items and hedging instruments may be considered in effectiveness testing under IAS 39, independently from the method applied. Restrictions on the percentage approach are another source of complexity.

Although discussed in the exposure draft to the 'Portfolio hedge of interest rate risk' model in 2003, the layer approach, which is a type of qualitative effectiveness test, is prohibited under existing hedge accounting regulation, as it is inconsistent with the quantitative requirements of IAS 39. As many banks would favour the layer approach (IASB, 2009b, p. 3), the analysis further appreciates this method of effectiveness testing.

5.2 Complexities on eligible portfolio items

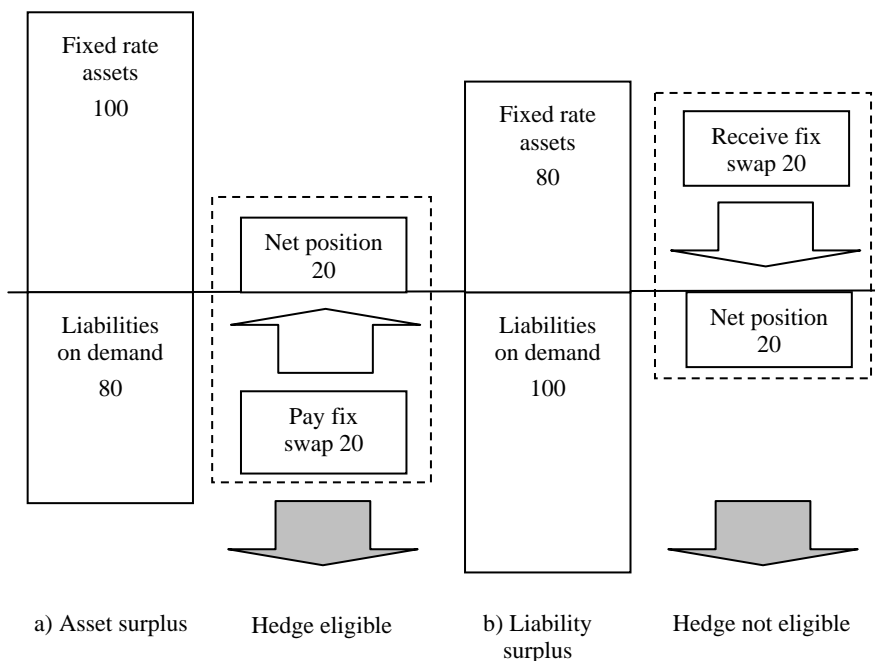
5.2.1 Core deposits

As described in section 2.3 it is common practice among banks to model the effective maturity of core deposits in ALM and transfer the related interest rate risk

into the risk management unit. These internal transactions are subject to hedging. The transactions are transferred at an internal transfer price.

Under existing IFRS core deposits may be considered at their estimated maturity in calculating the net position in a 'Portfolio hedge of interest rate risk' (IAS 39.BC190), but they are not allowed to be designated as portfolio item at a maturity which is longer than the contractual maturity (section 4.3). As a consequence, derivatives executed for the purpose to hedge net positions, which are solely consisting of core deposits may not be recognized in the hedge (figure 10).

Figure 10: Hedges of liabilities on demand



Numbers in EUR million

The IASB argues that reflecting core deposits at a different maturity, using a different rate, is inconsistent with the requirements in IAS 39.49 that the fair value of a liability with a demandable feature cannot be less than the amount payable on demand (IAS 39.BC187 (d)). Core deposits are not allowed to be included at their effective maturity, as they are from the IASB's perspective forecast transactions, which are solely allowed to be hedged via cash flow hedges (IAS 39.BC187 (a), IAS 39.86).

Excursion: Cash flow hedge as an alternative

IFRS allows an entity to apply different types of hedges. Due to restriction concerning core deposits in the 'Portfolio hedge of interest rate risk', which is based on fair value hedging, the cash flow hedge could be an alternative. Effectiveness in a cash flow hedge is achieved, if forecasted cash flows of the hedged item offset those of the hedging instrument (section 3.4). Core deposits typically include client products such as savings accounts and current accounts, whose interest rates are not related to market rates or even pay zero interest (section 2.1.) However, the floating leg of an interest rate swap is standardised referred to a market rate (e.g. LIBOR). Hedge effectiveness can hardly be achieved under the existing quantitative approach due to bad correlation as the designated portion of the cash flows of a hedged item must be less than the total cash flows of the financial asset or financial liability (IAS 39.AG99C, section 5.4.1).

The IASB further argues that a portfolio of demandable liabilities is similar to a portfolio of trade payables as both comprise individual balances that usually are expected to be paid within a short time and replaced by new balances. If the board were to permit demandable liabilities to be included in a fair value hedge based on estimated maturities it should similarly allow as hedge of a portfolio of trade payables to qualify for fair value hedge accounting (IAS 39.BC187 (b)).

Reflecting core deposits at their effective maturity in risk management is acknowledged by banking supervision in the 'Principles for the management and supervision of interest rate risk'. According to a survey by PwC carried out in 2009 among 43 leading financial institutions around the world, most banks assign interest risk management in ALM to the principles by banking supervision (section 2.5). The argument by the IASB that the fair value of a liability on demand cannot be less than the amount payable on demand is correct, however it does not consider that risk management can be subject to transactions at estimated maturities. In order to be consistent with risk management, the standard should allow designation of core deposits at estimated maturities as portfolio item. Excluding core deposits from the 'Portfolio hedge of interest rate risk' model and instead of applying for cash flow, hedging is not a feasible solution as under existing restric-

tion the hedge may fail the effectiveness test due to bad correlation. According to Menk (2009, p. 179) the comparison of core deposits with trade payables is not convincing as banks' balance sheet do not contain significant exposures of trade payables.

5.2.2 Non-financial items

ALM manages mismatch risk inherent in the retail banks' balance sheet, including the bank's equity, which is a non-financial instrument (section 2.1). According to PwC equity is considered as a permanent funding resource. Although natural equity is non-interest rate risk bearing, equity investments can be exposed to interest rate risk. Equity is often recognized at an estimated maturity in risk management (section 2.4).

According to IAS 39.AG115 solely financial instruments qualify as portfolio item in a 'Portfolio hedge of interest rate risk'. Non-financial instruments are prohibited from designation. However, according to the basic conditions of hedge accounting non-financial instruments are permitted to be hedged item in a hedge relationship (section 3.3). As equity is commonly included in the ALM process, non-financial instruments should be eligible portfolio item in a 'Portfolio hedge of interest rate risk'. This would be consistent with the basic conditions of IAS 39.

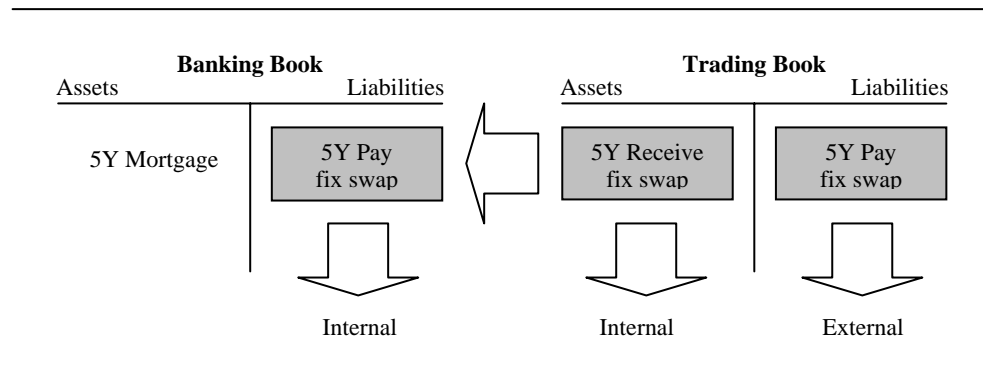
5.3 Complexities on eligible hedging instruments

5.3.1 Internal hedges

Large, diversified banks operate in internal risk management at least with two portfolios: the banking book and the trading book (Schmidt, 2007, p. 262). The banking book includes instruments that are not actively traded by the bank, the trading book includes positions that are actively traded. ALM's retail balance sheet is part of the banking book (section 2.1). From a risk management perspective both portfolios, the banking book and the trading book, are exposed to interest rate risk. It is common risk management practice to manage an open interest rate risk position in the banking book by a derivative which is included in the

trading book. Main reasons for internal hedges are cost reduction on external trades and limitation of counterparty risk related to the swap partner.

Figure 11: Internal hedge



Source: Referred to Schmidt, 2007, p. 265

According to IAS 39.73 hedging instruments require to involve an external party (section 3.3). The IAS 39 prohibits hedge accounting for transactions between entities in the same group in consolidated financial statements. As internal interest rate swaps are not allowed to be designated as hedging instrument, they have to be valued at full fair value and hence financial statements show income volatility that does not exist in reality.

The IASB argues that the fundamental principle of consolidation is that internal transactions are eliminated in full. Permitting the designation of internal contracts as hedging instrument may result in non-elimination of internal gains and losses and have other accounting effects (IAS 39.BC165).

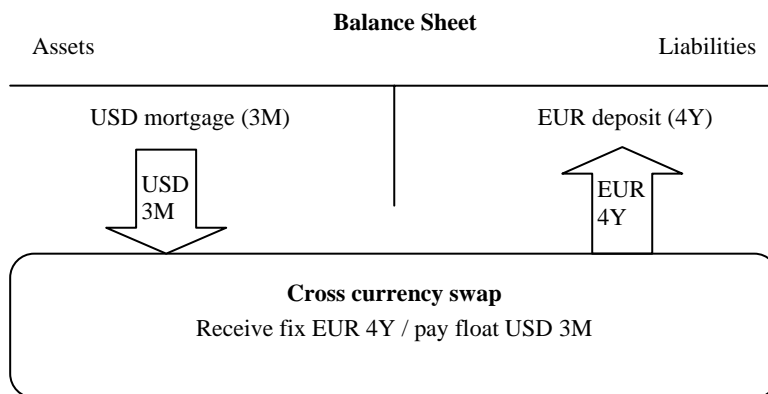
Banks argue that in order to reflect internal risk management practice properly in external reporting it should be possible to reflect internal transactions in external reporting. The BCBS (2002, p. 5-6) comments that many international banks use derivatives to hedge their overall net exposures in the banking book on a dynamic basis and use internal transactions to reallocate risk exposures from the banking book to the trading book. Accounting standards should contribute to sound management practices. The Committee recommends, that the IASB improves its understanding of how banks use internal transactions to identify and hedge banking book exposures, in order to determine whether additional hedge accounting guidance could be developed that contributes to sound risk management and consolidation practice in this area.

As a hedge between an internal derivative and a balance sheet item, valued at amortized cost, creates incorrect accounting effects, without hedge accounting, the standard should permit designation of internal derivatives as hedging instruments.

5.3.2 Cross currency hedges

Balance sheets of international banks contain client transactions among various currencies. Interest rate risk between assets and liabilities with different tenors and currencies are commonly hedged with the help of cross currency swaps. A cross currency swap involves the exchange of a fixed rate obligation in one currency for a floating rate obligation in another currency (Flavell, 2010, p. 169). A bank can for example hedge interest rate risk between a 4Y EUR deposit and a 3M USD mortgage with a cross currency swap (figure 12).

Figure 12: Hedge by a cross currency swap

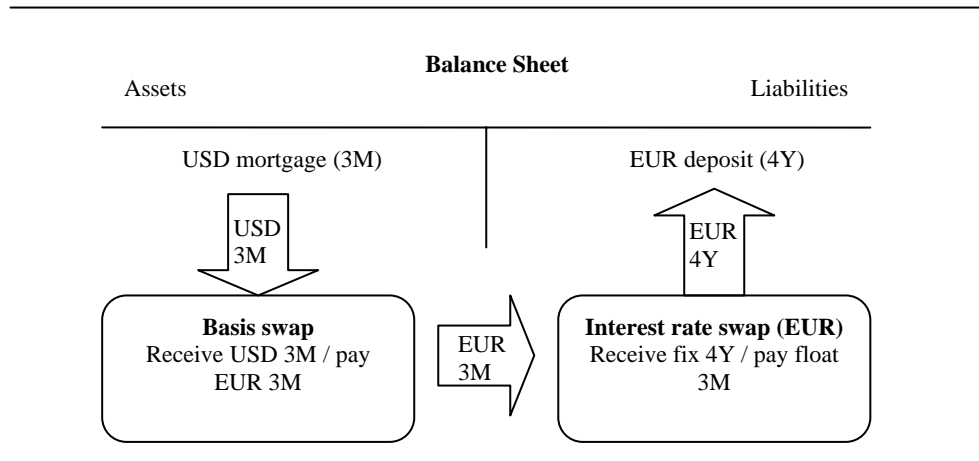


Under existing IFRS portfolio hedging may only consider interest rate risk. A cross currency swap does not qualify as hedging instrument. Separation of the interest rate risk component of the cross currency swap is prohibited by the basic conditions of hedge accounting. According to IAS 39.74 a hedging instrument is only permitted to be designated in its entirety including all types of risk (section 3.3).

In order to separate the interest rate risk component and hence apply hedge accounting an entity could, as an alternative, hedge interest rate risk via an interest rate swap and foreign currency risk via a basis swap. A basis swap is an interest rate swap which involves the exchange of two floating rate financial instruments

(Fabozzi/Mann/Choudhry, 2003, p. 289). The entity could designate the interest rate swap as hedging instrument (figure 13).

Figure 13: Hedge by a basis swap



However, hedge accounting should not influence an entity's risk management strategy. Therefore, the standard should either allow considering foreign currency risk in portfolio hedge accounting or designating the interest rate risk component of the swap which means abolishing the existing restrictions under IAS 39.74 on designating hedging instruments in their entirety of all risks (section 5.4.1). Changing the risk management strategy is no valid solution as hedge accounting should allow reflecting risk management practice.

5.4 Complexities on effectiveness assessment

5.4.1 General issues

The first part of the analysis on hedge effectiveness assessment under the 80-125 per cent threshold approach is dedicated to general complexities due to the basic conditions of hedge accounting, regardless from the type of hedge applied. Complexity is predominately due to bifurcation by risk, separation of the commercial margin and consideration of the respective swap leg in the effectiveness test.

- *Bifurcation by risk:* According to IAS 39.74 the fair value of hedging instruments is measured based on all types of risks related to the product (section 3.3) and not only the risks included in the hedge which is a source of hedge ineffectiveness.

Although financial items are allowed to be designated for risk components under existing IFRS, non-financial items are restricted to be designated only to the foreign currency component or in the entirety of all risks. The IASB argues that risk related to non-financial items is not as easily measurable like risk on financial instruments (section 3.3). In practice non-financial items are included in ALM risk management. According to PwC banks usually incorporate equity in the ALM process (section 2.4). The analysis of the comment letters to the IASB's discussion paper 'Reducing complexity in reporting financial instruments' shows, that the prohibition of designating risk components for non-financial items is one of the most criticized aspects of existing hedge accounting requirements by preparers of financial statements (IASB, 2010d, p. 6).

In order to increase hedge effectiveness, it is necessary that only those risk types are included in the hedge relationship which are subject to economic hedging. Therefore the standard should permit separating risk components on all instruments included in a hedge relationship.

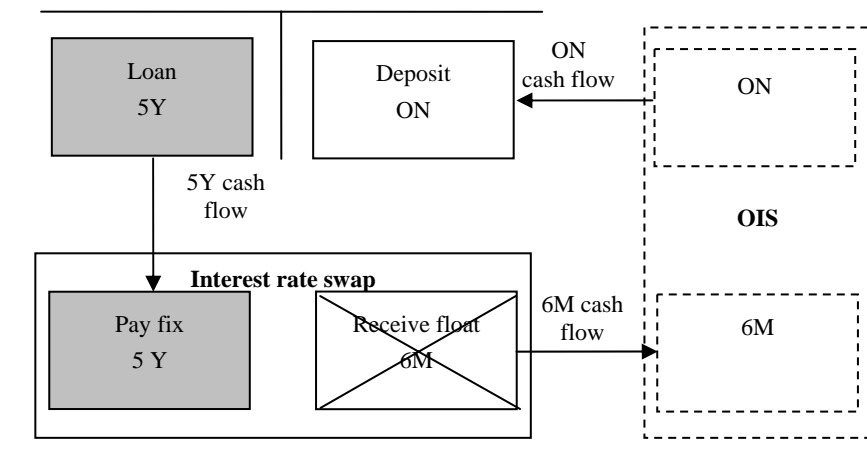
Separation of commercial margin: A key element of today's ALM frameworks in retail banks are FTP systems. FTP systems allow the transfer of flows between business groups at an internal transfer price, which is commonly based on market rates. FTP systems facilitate the transfer of interest rate risk related to client transactions from the sales units to a central risk management unit. FTP allows separating the commercial margin from risk management (section 2.3) Interest rate swaps are referred to market rates (e.g. LIBOR). According to IAS 39.AG99C the designated portion of the cash flows of a hedged item must be less than the total cash flows of the financial asset or financial liability. In practice assets or liabilities can be related to interest rates below LIBOR (e.g. AAA bonds or client deposits), which creates complexity concerning effectiveness testing. IFRS 9 should allow excluding the commercial margin (ESBG, 2010, p. 5).

- *Consideration of the respective swap leg:* An economic hedge between an interest rate swap and a hedged item aims to reduce the risk exposure. In a fair value hedge the swap reduces the risk related to the fixed swap leg

and in the case of a cash flow hedge the swap reduces the risk related to the floating leg.

Figure 14 shows a hedge of a 5 year loan by a standard plain vanilla pay fix interest rate swap. The swap hedges the interest rate risk in the 5 year tenor, however, the 6 month floating rate leg of the swap opens a new risk position. As liabilities in the example are deposits at sight, interest rate risk related to the 6 month floating rate leg of the swap could be hedged by an overnight index swap (OIS). An OIS is a short-term interest rate swap in which one counterparty agrees to pay a fixed and the other counterparty agrees to pay a floating interest rate, which is related to a daily fixed overnight rate such as the Fed funds rate (Sundaresan, 2009, p. 297). As the 6 month floating rate leg, in the example in figure 14, is not related to the hedge of the 5 year risk position, it should not be included in fair value measurement of the 5 year swap.

Figure 14: The 'hedging' swap leg



In order to increase hedge effectiveness fair value measurement of the interest rate swap should solely consider the swap leg which is related to the hedge.

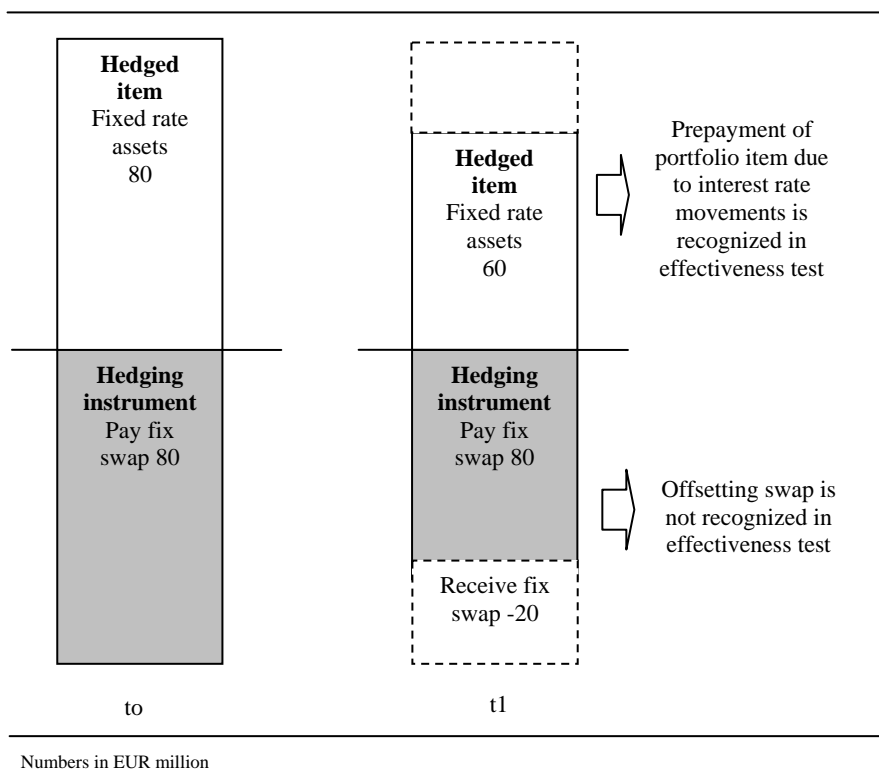
5.4.2 Percentage approach

Effectiveness testing in the 'Portfolio hedge of interest rate risk' is measured in-line with the general quantitative regulations under IAS 39.AG105. The standard contains one eligible method on effectiveness assessment for the model, the so-called percentage approach. Complexity in applying this method is mainly due to separating prepayments caused by interest rate movements and changes to hedging instruments during the hedging period.

- *Separating prepayments caused by interest rate movements:* In order to reflect economic risk management, the model allows considering changes in estimated repricing periods of portfolio items due to prepayment as well as offsetting derivatives in effectiveness assessment. The effectiveness test solely recognizes fair value changes of portfolio items and hedging instruments due to interest rate movements.

In practice banks face problems in separating prepayments caused by interest rate movements from payments due to other factors. Risk management commonly closes interest rate risk gaps created by prepayments with offsetting derivatives. Such hedges do not consider the purpose of prepayment. As offsetting derivatives cannot be splitted by the purpose of prepayment, the standard should abolish existing restriction on eligible prepayments in order to reduce complexity on applying the percentage approach.

- *Changes to hedging instruments during the hedging period:* Hedge effectiveness under the percentage approach is calculated in a way, that all changes to estimates in repricing time periods resulting from interest rate movements during a hedging period result in ineffectiveness, excluding new transactions.

Figure 15: Basis for effectiveness testing in the percentage approach

However, calculation of the fair value change of the hedging instrument does not consider offsetting derivatives (IAS 39.AG114 (h), figure 15), although the standard allows designating them as hedging instrument per every new hedging period (section 4.4). The IASB recommends a short period between effectiveness tests and a large number of repricing gaps (IAS 39.AG125) to increase hedge effectiveness. However, this entails a large number of bookings in the line-items (section 4.6) combined with high requirements in terms of system needs.

In order to increase hedge effectiveness, calculation of the fair value change of the hedged item and the hedging instrument should be consistent, meaning that both prepayments on portfolio items and offsetting derivatives should be either included or excluded in effectiveness assessment.

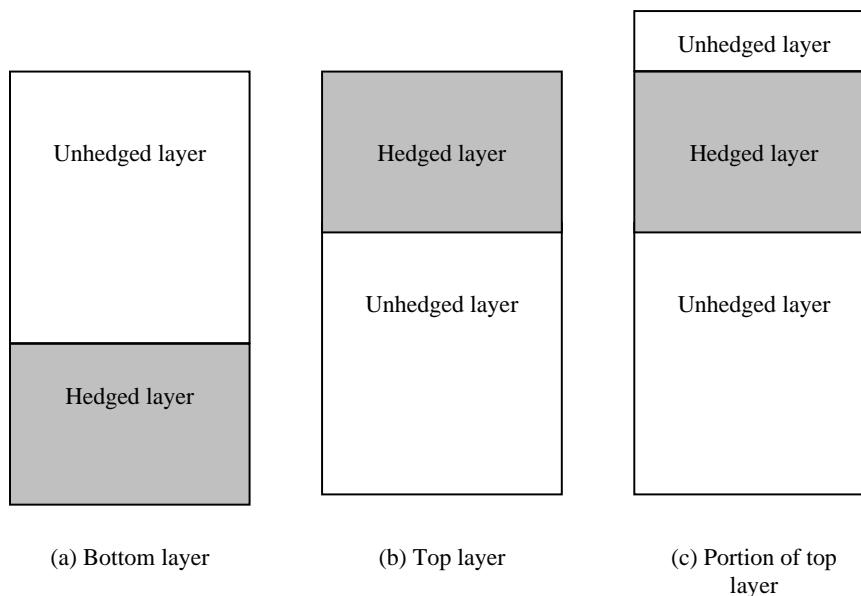
5.4.3 Layer approach

The exposure draft on the 'Portfolio hedge of interest rate risk', which was published in 2003, discussed besides the percentage approach a second method on effectiveness testing, the so-called layer approach.

The hedged item in the layer approach is a amount of assets or liabilities which is designated as a 'layer'. There are three possible types of layers: the bottom layer, the top layer and a portion of the top layer. Whether any ineffectiveness arises depends on whether the downward revision of the assets or liabilities reaches the hedged layer (IAS 39.BC197).

The layer approach is prohibited under existing IFRS, as it is a qualitative rather than a quantitative method and is not consistent with the basic conditions on effectiveness assessment under IAS 39 (section 3.5). Figure 16 shows possible variations of the layer approach.

Figure 16: Variations of the layer approach



Source: IAS 39.BC196

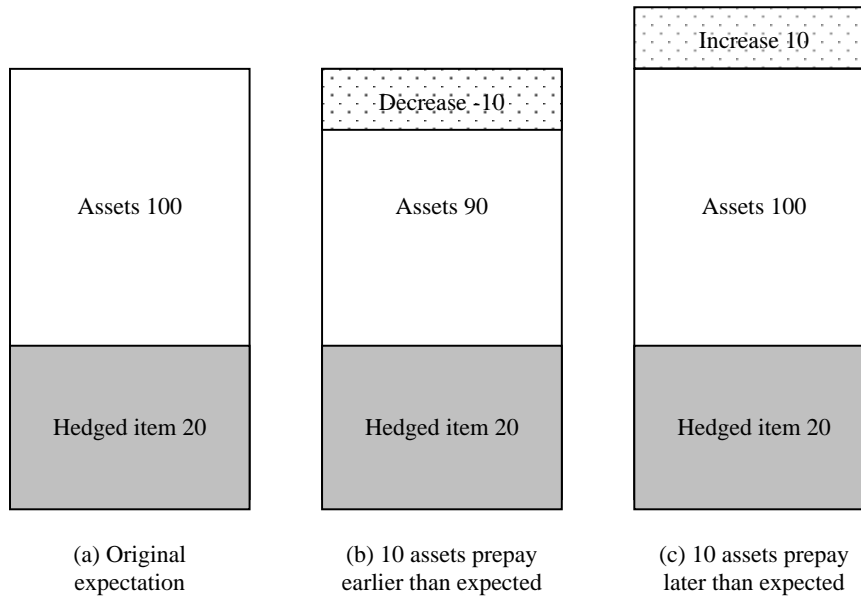
In a layer approach ineffectiveness is recognized, if the amount in a repricing time period is reestimated downwards with the effect that the entity becomes over-hedged, but not in the case that the amount in a repricing time period is reesti-

mated upwards and the entity becomes underhedged. According to the basic conditions of hedge accounting under IAS 39, ineffectiveness in a fair value hedge must be recognized both when the entity becomes overhedged and underhedged (IAS 39.BC201 (b)).

The IASB argues the following: A prepayable item can be viewed as combination of a non-prepayable item and a prepayment option. The fair value of both of these components changes, if interest rates move (IAS 39.BC201 (c)). The objective of fair value hedge accounting to a portfolio of hedged items is to obtain similar results to individual designation of hedged items. The change in fair value of both the non-prepayable component and the prepayable component related to individual prepayable items would be recognized in profit or loss (IAS 39.89 (a)). The change in fair value of the hedged item including a prepayment option would be different to the change in fair value of the hedging instrument. This would result in ineffectiveness.

Under the bottom layer approach no ineffectiveness would arise (IAS 39.BC201 (d)). All prepayable assets in a repricing time period and not just a layer of them contain a prepayment option whose fair value changes with changes in interest rates (IAS 39.BC201 (e)).

Prepayment options are normal business. Risk management is exposed to these risks. The IASB further outlines that most entities do not separate prepayment risk and interest rate risk for designation in hedge accounting. In a layer approach the effect of a fair value change of a portfolio of prepayable items and a portfolio with non-prepayable items is different in case of interest rate movements. However, the difference would not be recognized, if both portfolios are hedged to the same extent (IAS 39.BC201 (g)).

Figure 17: Effects in changes to prepayments in a bottom layer approach

Source: IAS 39.BC197

Since the introduction of the 'Portfolio hedge of interest rate risk' many banks outlined that they would prefer the layer approach in the type of a bottom layer instead of the percentage approach as this method is closer to economic risk management (PwC, 2004, p. 29).

Many respondents to the IASB's discussion paper 'Reducing complexity in reporting financial instruments' proposed to abolish the existing quantitative approach and to replace it by a qualitative approach (IASB, 2009b, p. 3).

The ESBG (2010, p. 4) argues that the objective of hedging is to reduce the risk of a position, which means underhedging. By adopting a bottom layer approach the hedge is effective as long as the hedge reduces risk exposure (figure 17). The hedge may become ineffective only in case of overhedging. The approach would therefore be consistent with real risk management.

If hedge accounting should reflect economic risk management, the bottom layer approach can be an alternative to the percentage approach. However, the approach is not consistent with existing quantitative requirements on hedge effectiveness

assessment under IAS 39 and permitting this approach could result in a fundamental change of the existing requirements.

5.5 Summary of proposed actions

The analysis investigated on complexities in applying the 'Portfolio hedge of interest rate risk' from the perspective of interest rate risk management by a retail banks' ALM. In the main focus were existing requirements on eligible portfolio items and hedging instruments as well as effectiveness assessment. Major complexities on eligible portfolio items result from liabilities with a demandable feature, so-called core deposits and non-financial instruments.

Although core deposits are non-maturing products (e.g. current accounts or savings accounts) the balance sheet of retail banks usually contains large volumes of these products, which are stable over time. Many banks measure interest rate risk related to these products based on the effective maturity, including assumptions about client behaviour, rather than at their contractual maturity. IAS 39 prohibit the designation of liabilities with a demandable feature as portfolio item at a maturity, which is longer than the contractual maturity. As a consequence, derivatives executed for the purpose to hedge core deposits at estimated maturities cannot be considered in hedge accounting due to ineligibility of the portfolio item. The treatment of client transactions at their effective maturity in risk management is common practice. Banks' models are acknowledged by banking supervision. In order to reduce complexity on applying hedge accounting, core deposits at estimated maturities should be eligible portfolio items.

Eligible portfolio items are restricted to financial assets and financial liabilities. Non-financial instruments such as equity are prohibited to be designated as portfolio item. It is common practise that banks include equity in the ALM process, therefore IFRS 9 should allow designating non-financial items as portfolio items.

Complexity concerning eligible hedging instruments predominately results from restrictions on internal hedges and cross currency swaps. In practice banks commonly hedge interest rate risk exposures in the banking book, which includes the retail balance sheet, by internal derivatives from the trading book. Existing IFRS prohibit the designation of internal derivatives as hedging instrument, in order to

fulfil the principle of consolidation, which requires avoiding any unreal accounting impact from internal transactions in external reporting. However, prohibition of a hedge relationship between an internal derivative and a balance sheet item, valued at amortized cost, creates incorrect accounting effects, as the balance sheet item is measured at amortized cost instead of at fair value. Therefore the standard should permit designation of internal derivatives as hedging instrument.

Interest rate risk related to foreign currency transactions is commonly hedged via cross currency swaps. Existing IFRS require designation of hedging instruments in their entirety of all risks. Exclusive designation of the interest rate risk component related to a cross currency swap is prohibited. Therefore the cross currency swap does not qualify as hedging instrument. As existing IFRS allow establishing portfolios per currency in a 'Portfolio hedge of interest rate risk', the standard should allow designation of the interest rate risk component of the cross currency swap as hedging instrument.

Problems on effectiveness testing emerge on the one hand from the basic conditions of hedge accounting under IAS 39, concerning which components of hedged items and hedging instruments may be considered in effectiveness assessment. On the other hand financial institutions face problems with special restrictions for effectiveness testing in the 'Portfolio hedge of interest rate risk' model.

In order to achieve a highly effective hedge, the test should solely consider risk components, which are subject to economic hedging. Therefore, the standard should allow separating risk components besides financial instruments also on non-financial instruments and hedging instruments.

Internal risk management hedges risks that are transferable to the market, priced consequently at a market rate based internal transfer price. It is common to exclude the commercial margin in risk management and hedging. Effectiveness testing under IAS 39 faces problems especially with hedged items which are priced below LIBOR as the standard restricts the designated portion of cash flows to the total amount of cash flows of a financial asset or financial liability. In order to avoid this kind of complexity, IFRS 9 should allow excluding the commercial margin in effectiveness testing.

Fair value measurement of hedged items considers the rate related to the transaction. In order to achieve a highly effectiveness hedge, fair value measurement of an interest rate swap should exclude the swap leg, which is not related to the hedge.

The standard includes one eligible method on effectiveness testing in a 'Portfolio hedge of interest rate risk', the so-called percentage approach. IAS 39 requires calculating changes of the fair value of portfolio items and hedging instruments solely on basis of interest rate movements. In practice banks face problems in separating prepayments caused by interest rate movements from prepayments due to other factors. In order to reduce complexity in applying the percentage approach IFRS 9 should abolish this restriction. Furthermore calculation of the fair value change of the hedged item and the hedging instrument should be consistent in order to avoid ineffectiveness.

The layer approach, a qualitative method of effectiveness testing, which was originally included in the exposure draft for the 'Portfolio hedge of interest rate risk' in 2003, is prohibited under IAS 39, as the approach is not compliant with the quantitative requirements of the standard. However, many banks would favour this approach, especially in the type of the bottom layer approach, as a hedge is determined effective as long as it reduces risk, which reflects the purpose of economic risk management.

6 Conclusion

The paper was referred to the third project phase of the 'Project for the replacement of IAS 39' by the IASB, which aims to simplify regulation on hedge accounting. Both users and preparers of financial statements face problems with existing regulation due to inconsistencies with economic risk management. The paper should answer the question how hedge accounting regulation under IFRS might be improved in order to reduce inconsistencies between financial accounting and economic risk management.

In order to contribute answering the above question, the paper analysed complexities in applying the 'Portfolio hedge of interest rate risk' model, an approach, which considers the specifics of interest rate risk management in a retail bank's balance sheet.

The result of the analysis shows that complexity in applying the 'Portfolio hedge of interest rate risk' model is not only caused by the specific regulation on the model, but also by the basic conditions of hedge accounting. There are many inconsistencies between regulation on hedge accounting and economic risk management.

The basic conditions of hedge accounting induce complexity predominantly by restrictions on which components of hedged items and hedging instruments. These restrictions prevent to consider only those components which are subject to the economic hedge and can result in, from an economic perspective, unreal hedge ineffectiveness.

Specific regulations for the 'Portfolio hedge of interest rate risk' model cause complexity because of restrictions on eligible portfolio items and restrictions on eligible hedging instruments. Although the approach was originally designed for retail banks, it is not fully able to mirror the specifics of their interest rate risk management.

One major source of complexity in applying the model is prohibition to recognize certain client transactions at effective maturities rather than at contractual maturi-

ties (e.g. core deposits). According to a survey by PwC conducted in 2009 most banks align interest rate risk management in the retail balance sheet to the 'Principles for the management and supervision of interest rate risk' by the BCBS. Banking supervision acknowledges and accepts modelling the effective maturity of certain balance sheet positions in order to capture interest rate risk. However, regulation under IAS 39 is more focussed on contractual maturities; solely prepayments on assets such as loans may be considered with respect of the maturity of a transaction. In this regard banks face discrepancies between regulation by banking supervision and financial accounting.

The approach further does not consider all positions included in a retail bank's balance sheet (e.g. equity), prohibits hedge accounting on internal hedges and is restricted with regard to foreign currency risk. Effectiveness testing under the existing quantitative approach is influenced by the outlined complexities on eligible hedge relationships. The percentage approach faces weaknesses with regard to methodology, but seems overall appropriate and logical in measuring effectiveness in-line with the existing quantitative regulations.

The layer approach, a kind of qualitative effectiveness test, is favoured by many retail banks as the approach defines a hedge effective as long as the hedging instrument is able to reduce risk, which is the goal of economic hedging. The approach is not referred to a correlation range like existing regulation. Ineffectiveness solely occurs in the case of overhedging. Permitting the layer approach for the 'Portfolio hedge of interest rate risk' model would result in a break between the basic conditions of hedge accounting, which are based on a quantitative assessment of hedge effectiveness and the 'Portfolio hedge of interest rate risk' model and therefore could lead to a fundamental change of methodology. In view of increasing decision usefulness of disclosures about hedge effectiveness, it is questionable, if the layer approach is more useful than the percentage approach, as no hedge ineffectiveness is reported in the case of underhedging.

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Appendix material

Appendix 1: Effectiveness calculation under the percentage approach

Source: Referred to PwC, 2004, p. 32-34

1.) Determination of the amount of assets and liabilities per time bucket at the beginning of the hedging period

Time bucket	Assets	Liabilities	Net Position
1Y	100.000	60.000	40.000
2Y	60.000	90.000	-30.000

2.) Designation of the hedged item as a percentage of the surplus position and designation of the hedging instrument

Time bucket	Hedged item	Hedging instrument	Percentage
1Y	40.000	-40.000	40% of assets
2Y	-30.000	30.000	33% of liabilities

3.) Calculation of FV change of the surplus position determined at the beginning of the hedging period

Time bucket	Begin of hedging period	End of hedging period	Change in FV
1Y	95.500	98.000	$98.000 - 95.500 = 2.500$
2Y	-83.000	-89.000	$-89.000 - (-83.000) = -6.000$

4.) Determination of the portion of the FV change of the hedged item based on the hedged percentage

$$1Y \quad 2.500 \times 40\% = 1.000$$

$$2Y \quad -6.000 \times 33\% = -2.000$$

5.) Determination of the amount of the surplus position per time bucket at the end of the hedging period

Time bucket	Assets	Liabilities
1Y	80.000	
2Y		75.000

6.) Determination of the portion of the FV change of the hedged item, recognizing changes to the surplus position during the hedging period

$$\begin{aligned}
 1Y & \quad 80.000 \times 40\% = 32.000 & \quad 1.000 \times 32.000/40.000 = 800 \\
 2Y & \quad -75.000 \times 33\% = -25.000 & \quad -2.000 \times -25.000/30.000 = -1.667
 \end{aligned}$$

7.) Determination of the FV change of the hedging instrument

Time bucket	Begin of hedging period	End of hedging period	FV change
1Y	-40.000	-41.000	$-41.000 - (-40.000) = -1.000$
2Y	30.000	32.000	$32.000 - 30.000 = 2.000$

8.) Determination of the dollar offset ratio

Time bucket	FV change hedged item	FV change hedging instrument	Dollar offset ratio
1Y	800	-1.000	$800 / (-1.000) = -0.80$
2Y	-1.667	2.000	$-1.667 / 2.000 = -0.84$

Appendix 2: Comparison of the FASB's and the IASB's proposed models for financial instruments

Source: FASB, 2010a, p. 181-193

	The FASB's proposed update	IFRS 9 for financial assets and the IASB's current tentative decisions
Scope	<ul style="list-style-type: none"> - All financial assets and financial liabilities, as defined (except those for which a specific scope exception has been provided) - Nonpublic entities with less than \$ 1 billion in assets would apply certain requirements in this model relating to loans, loan commitments and core deposit liabilities 4 years after the original effective date 	<ul style="list-style-type: none"> - Items within the scope of IAS 39
Measurement approaches	<ul style="list-style-type: none"> - Fair value - Amortized cost - Remeasurement amount (only for core deposit liabilities) 	<ul style="list-style-type: none"> - Fair value - Amortized cost - Separate accounting of embedded derivatives from a liability host if particular conditions are met, unless fair value option is applied
Classification and measurement categories	<ul style="list-style-type: none"> - Fair value with all changes in net income - Fair value with with qualifying changes in fair value recognized in other comprehensive income - Amortized cost 	<ul style="list-style-type: none"> - Fair value through net income - Amortized cost - Fair value through other comprehensive income (limited option for some equity instruments that are not held for trading)
Amortized cost classification criteria	<ul style="list-style-type: none"> - A financial liability may be carried at amortized cost if: <ul style="list-style-type: none"> 1. The liability meets the criteria for FV-Other comprehensive income. 2. Measurement at fair value would create or exacerbate a measurement mismatch between recognized assets and liabilities. - Irrevocable election made at the issuance of the financial liability. 	<ul style="list-style-type: none"> - A financial asset (including hybrid financial assets) must be subsequently measured at amortized cost if: <ul style="list-style-type: none"> 1. the objective of the entity's business model is to hold the asset to collect the contractual cash flows. 2. The asset's contractual cash flows are solely payments of principal and interest. - Most financial liabilities must be subsequently measured at amortized cost if they are not held for trading. Embedded derivatives are separated from a liability host and accounted for as derivatives if particular criteria are met.

	The FASB's proposed update	IFRS 9 for financial assets and the IASB's current tentative decisions
Fair value option	<ul style="list-style-type: none"> - Not applicable to financial instruments in the scope of the proposed guidance - The fair value option under topic 825 applies to a broader set of instruments than the scope of the proposed guidance and would continue to apply to those instruments that are not within the scope of the proposed guidance except for unconsolidated equity investments 	<ul style="list-style-type: none"> - Financial assets: irrevocable election available at initial recognition if measuring at fair value eliminates or significantly reduces a measurement or recognition inconsistency (an accounting mismatch) - Financial liabilities: - Irrevocable election would be available at initial recognition if: <ul style="list-style-type: none"> - 1. Measuring at fair value eliminates or significantly reduces an accounting mismatch - 2. A group of financial instruments is managed and its performance is evaluated on a fair value basis - 3. The liability contains one or more separable embedded derivatives and the entity elects to account for the hybrid (combined) contract in its entirety. - The IASB's exposure draft on fair value option proposes changes to the fair value option for financial liabilities and is open for comment until July 16, 2010
Core deposit liabilities	<ul style="list-style-type: none"> - Subsequent measurement at present value of average core deposit liability discounted at the differential between the alternative funds rate and the all-in-cost-to-service rate over implied maturity - Qualifying changes in the remeasurement amount may be recognized in 'Other comprehensive income', if classification criteria are met 	<ul style="list-style-type: none"> - No special guidance; generally measured at amortized cost
Hedge accounting	<ul style="list-style-type: none"> - The types of items and transactions eligible for hedge accounting in Topic 815 would continue to apply. - The shortcut method and critical terms match method would be eliminated. An entity would no longer have the ability to assume a hedging relationship is effective and recognize no ineffectiveness in net income during the term of the hedge. 	<ul style="list-style-type: none"> - The IASB expects to publish proposals resulting from its comprehensive review of hedge accounting requirements that will allow finalization in the near term.

	The FASB's proposed update	IFRS 9 for financial assets and the IASB's current tentative decisions
Hedge accounting	<ul style="list-style-type: none"> - An entity would not be permitted to discontinue hedge accounting by simply removing the designation of a hedging relationship. Hedge accounting can be discontinued only if the criteria for hedge accounting are no longer met or the hedging instrument expires, is sold, terminated, or exercised. - An entity would be able to designate particular risks as the risk being hedged in a hedging relationship. Only the effects of the risks hedged would be reflected in net income. The types of risks eligible as hedged risks in Topic 815 would continue to apply. 	
Hedge effectiveness	<ul style="list-style-type: none"> - After inception of the hedging relationship, an entity would need to qualitatively (or quantitatively, if necessary) reassess effectiveness only if circumstances suggest that the hedging relationship may no longer be reasonably effective. - An entity would be required to perform a qualitative (rather than quantitative) test at inception to demonstrate that an economic relationship exists between the hedging instrument and the hedged item or forecasted transaction. - However, in certain situations, a quantitative test may be necessary at inception. - As part of the hedge effectiveness assessment, an entity would be required to demonstrate that changes in fair value of the hedging instrument would be reasonably effective in offsetting the changes in the hedged item's fair value or the variability in the hedged cash flows for the risk or risks hedged by the entity in that hedging relationship. 	<ul style="list-style-type: none"> - The IASB expects to publish proposals resulting from its comprehensive review of hedge accounting requirements that will allow finalization in the near term.

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