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**Accounting for Financial Instruments
in the Banking Industry**

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Abstract

Recent changes in accounting regulation for financial instruments (SFAS 133, IAS 39) have been heavily criticized by representatives from the banking industry. They argue for retaining a historical cost based "mixed model" where accounting for financial instruments depends on their designation to either trading or nontrading activities.

In order to demonstrate the impact of different accounting models for financial instruments on the financial statements of banks, we develop a bank simulation model capturing the essential characteristics of a modern universal bank with investment banking and commercial banking activities.

In our simulations we look at different scenarios with periods of increasing/decreasing interest rates using historical data and with different banking strategies (fully hedged; partially hedged). The financial statements of our model bank are prepared under different accounting rules ("Old" IAS before implementation of IAS 39; current IAS) with and without hedge accounting as offered by the respective sets of rules.

The paper identifies critical issues of applying the different accounting rules for financial instruments to the activities of a universal bank. It demonstrates important shortcomings of the "Old" IAS rules (before IAS 39), and of the current IAS rules. Under the current IAS rules the results of a fully hedged bank may have to show volatility in income statements due to changes in market interest rates. Accounting results of a partially hedged bank in the same scenario may be less affected even though there are economic gains or losses.

Contents

I.   Introduction

Advances in the economics and technology of banking and finance have led to a tremendous increase in the use of derivatives and other financial instruments. Accounting regulation had to follow these developments and all major standard setters have projects on their agendas that shall improve accounting for financial instruments.

Standard setters face strong opposition from the banking industry when proposing new standards that change their preferred "mixed model" by introducing fair value measurement for all derivative instruments (SFAS 133, IAS 39) or extending fair value accounting to all financial instruments. Representatives of the banking industry argue that the proposals or standards do not adequately portray the economics of the banking business[1].

The objective of this paper is to carefully analyze and evaluate the arguments of the critics from the banking industry. We develop a simulation model that captures the essential characteristics of a modern universal bank with investment banking and commercial banking activities that hedges its interest rate risks in the banking book by internal contracts with the trading book. We run simulations for our model bank following different banking strategies (fully hedging risks or hedging only a part of their risk) using historical interest rates from periods with rising interest rates and from periods with decreasing interest rates.

Application of different sets of accounting rules – "Old IAS" before IAS 39 became effective and "New IAS" with and without hedge accounting under IAS 39 – to the activities of our model bank in the different interest rate scenarios yield important insights. We demonstrate that under Old IAS a fully hedged bank that under our model assumptions has zero economic earnings is in the position to adequately portray this in its financial statements. However, as Old IAS has no rules for hedge accounting it allows much discretion. A fully hedged bank may as well present income that is either positive or negative for example by not applying optional hedge accounting to economic hedges.

We further show that under New IAS (including IAS 39) banks can not adequately portray their investment banking and commercial banking activities because of the restrictive hedge accounting rules that do not allow best practice asset liability management activities to be adequately reflected in the financial statements. Our detailed analysis of the accounting rules in

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[1]   Cf. JWG (1999); JWG BA (1999).

addition identifies critical issues of the different accounting models that have not been covered in the accounting literature.

The paper proceeds as follows: In section II. we describe the modelling of the activities of a modern universal bank with an asset liability management that maintains the preferred risk profile of the bank. We also describe the simplifying assumptions necessary to isolate the effects of the different accounting models. Section III. presents and discusses the different accounting models: The banks' preferred "mixed model" developed under Old IAS 39 and the current IAS rules (including IAS 39) are carefully discussed.

In section IV. the different accounting models are applied to the model bank. The accounting results are contrasted with the results from economic performance measurement that underlies the economic decisions of the management of banking book and the trading book.

II. Modeling the activities of a modern universal bank

1. Characteristics of a modern universal bank

The distinguishing feature of a universal bank is its blend of commercial and investment banking activities of a modern bank.[2] As a commercial bank, it serves as an intermediary between borrowers and lenders in the money and capital markets. The bank receives funds through current and savings accounts, term deposits, and issued bonds, and it provides loans to its customers. Both, loans and issued bonds are often customer-tailored by embedded derivative products (e.g., roll-over loans with interest rate caps or multi-callable bond issues). As an investment bank, it advises and executes orders to buy and sell bonds, shares, currencies, and many derivative products for its customers. Furthermore, large universal banks have trading units to offer their own investment banking products to their customers and to engage in trading on their own account.

In most universal banks the risk management is organized according to the classical distinction of credit risk from market price risk and liquidity risk. These risks are managed in various specialized departments. All departments are subject to risk controlling and economic performance measurement (apart from financial accounting results) carried out by independent controlling departments.

Credit risk is usually managed in loan departments. Traditionally, they have pursued a "buy and hold" policy based on credit risk limits for individual counter-parties and industry segments. However, recent developments in the financial markets, in particular with respect to asset securitization and credit derivatives, enable banks to manage their loan portfolios more actively. Furthermore, the implementation of a new capital accord ("Basel II") encourages the valuation of credit risk by external ratings or by the internal ratings based approach.[3] To the extent that credit risk can be traded and hedged, its management differs no longer from the management of market price risk and liquidity risk. But most universal banks have not yet started with active credit portfolio management so that the traditional role of loan departments still prevails.

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[2] Universal banks are typical for the European continent. In the United States, the Banking Act of 1933 (Glass-Steagall Act) required banks to restrict their activities to either commercial or investment banking. This has been changed by regulation in particular during the last two decades, i.e., the Gramm-Leach-Bliley Financial Services Modernization Act of 1999. Cf. Johnson (2000).

[3] Cf. Schroder Salomon Smith Barney (2001).

The market price risk and the liquidity risk of the trading book positions, i.e., trading positions of bonds, shares and derivatives, are managed by the trading departments. The market price risk and the liquidity risk of the banking book[4] positions, i.e., loans and issued bonds, are managed by the asset liability management (ALM) so that the loan portfolio has no market price risk and no liquidity risk. The ALM plays a central role in maintaining a transparent and managed (market price and liquidity) risk exposure of the bank. Figure II.1 illustrates this approach.

Figure II.1: Risk Management of Two Customer Transactions within a Universal Bank
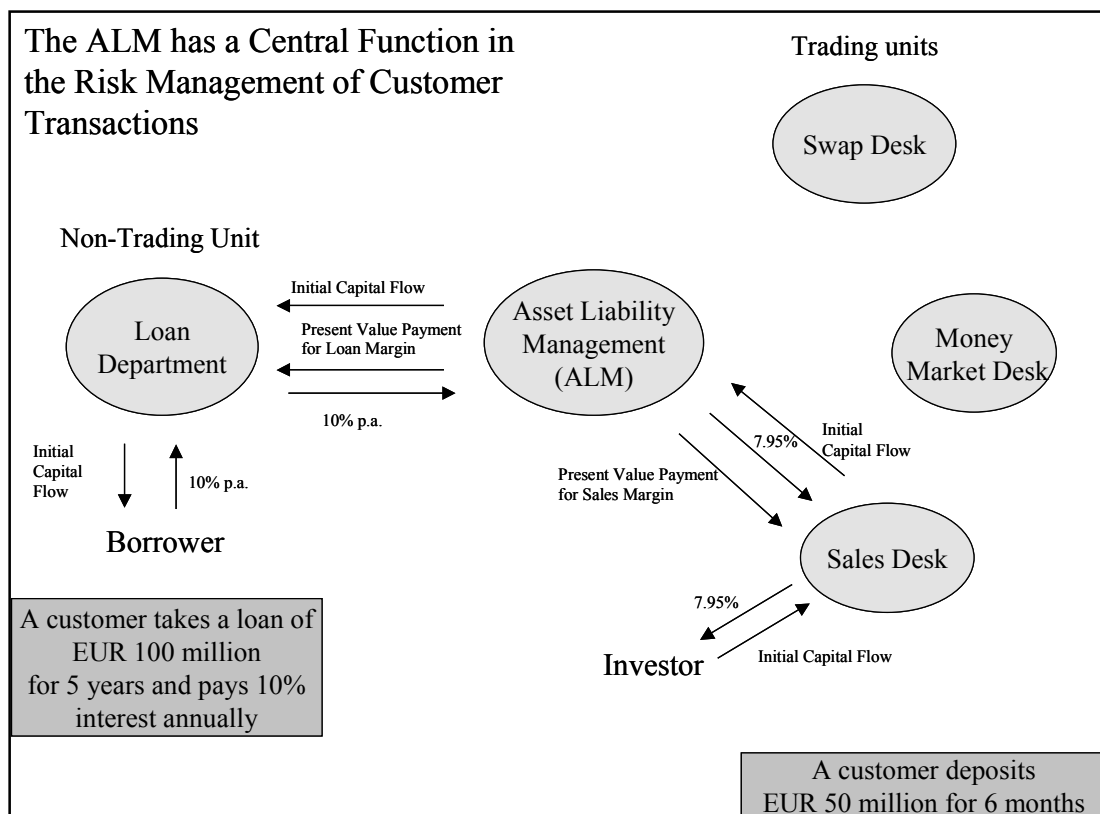
The following example shows how the ALM may get involved when external transactions occur. Consider a bank that currently maintains its desired risk exposure. This bank now gets „disturbed" by two new customer-driven transactions. The first transaction is a loan of EUR 100 million with a fixed rate of interest at 10 per cent annually and 5 years maturity. The second transaction is a 6 months deposit of EUR 50 million at 7.95 per cent. These two

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[4] It would be more appropriate to refer to the „non-trading book" since the term „banking book" has a particular regulatory definition. However, in banking practice the term „banking book" rather than „non-trading book" is commonly used and in this sense, and for this reason, the term „banking book" is applied in this paper.

transactions add to the risk position of the bank in three dimensions. The loan implies additional credit risk, and since the deposit cannot match the loan in maturity or volume there is also additional liquidity risk and interest rate risk. The credit risk is managed by the loan department, which charges a credit risk premium. Both, the liquidity risk and interest rate risk are managed by the ALM. Figure II.1 shows how the organizational units of a universal bank may get involved. The arrows in Figure II.1 represent either external transactions between the bank and other market participants or internal transactions among units within the bank.[5]

The two customer transactions result in the following risk position. The deposit funds half of what is needed for the funding of the loan but the deposit matures in six months while the loan matures in five years. In addition to this liquidity risk there is also interest rate risk as the interest from the loan is fixed for 5 years whereas the interest on the funding side is only fixed for 6 months and only for half the required amount.

If the bank wants to reestablish its preferred - and previously held - risk position, it can issue a bond with a structure similar to the loan, buy interest rate futures or interest rate swaps. While an issued bond may hedge interest rate and liquidity risk, interest rate derivatives (i.e., swaps) hedge only interest rate risk but do not provide the funding. In this case the best hedge would be to issue a bond. However, such a bond cannot usually be placed concurrent with the loan. Market price risks remain until the issued bond will be entirely placed. Interest rate futures can be contracted immediately.[6] Interest rate swaps are more often used as hedging instruments of interest rate risk, especially if individual transactions must be hedged. They can be customized to match any cash flow structure and they are also highly liquid instruments.

Assuming that the ALM wants to hedge the customer transactions immediately, the first transaction may be to hedge the interest rate risk with an interest rate payer swap. The bank will pay a fixed rate of interest for 5 years and receive a 6 months EURIBOR floating rate. In addition, the bank can take another 6 months deposit of EUR 50 million to provide the funding for the first floating rate period. What remains is the liquidity (funding) risk for the following floating rate periods. Either the bank expects sufficient deposit funding in the future and that

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[5] In a smaller bank the trading desks and the ALM need not be separated into various organizational units. However, the functions should remain separate in order to maintain a transparent risk management.

[6] Interest rate futures are more appropriate hedge instruments for portfolios where hedges of individual transactions are not required or desired. This is especially the case for trading books that need frequent adjustments of risk positions as many deals pass through the book each day. Futures have the advantage of high liquidity and very tight bid ask spreads so that close outs are less expensive compared to any other hedge instrument. Futures are therefore also appropriate temporary hedges, for example, until the issued bonds will be placed to fund the cash flows of new loans.

future liquidity spreads will not exceed the forward liquidity spreads as compared to the EURIBOR benchmark, or a bond issue must be placed in due time. Furthermore, the interest rate margin for the credit risk of the loan is not hedged.

Figure II.2: Hedges of Two Customer Transactions within a Universal Bank

The ALM hedges the interest rate risk of the loan with an internal payer swap (5 years maturity) and takes a deposit (6 months maturity) to provide additional liquidity (funding) for the originated loan
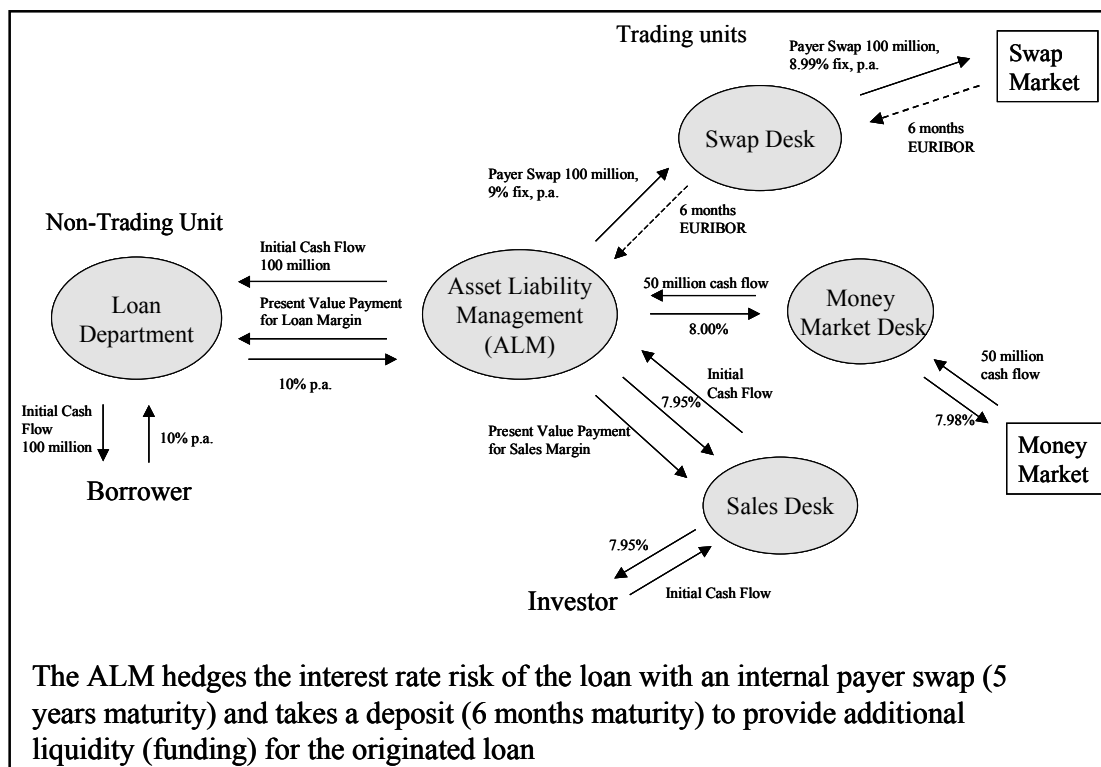
The hedges and customer transactions are shown in Figure II.2. The ALM serves as the central unit between the loan department and the trading desks. Here, the decisions are taken whether and how to hedge currency risk (not covered by our example), interest rate risk, and liquidity risk, which arise outside the trading desks. Accordingly, the bank allocates risk limits to the ALM as well as to the trading desks. The ALM may have direct access to financial markets or, as in our example, engage in internal transactions with the trading desks. In larger banks with active trading desks the advantage of internal transactions is that some positions can be matched internally and others bundled in a way to optimize the resulting external transactions. There is, however, the potential disadvantage that the internal pricing may not be very

competitive if the trading desks have a monopoly position within the bank.[7] Without internal transactions the ALM closes its positions in the market directly and it could happen that a broker finds a trading desk of the same bank as a potential counter-party. A pragmatic approach is to keep as many transactions within the bank as possible by granting the ALM the right for direct market access only if there are significant price differences to internal prices. This option will usually lead to very competitive prices offered by the trading desks for internal deals. It should be noticed that the volume of internal deals in large universal banks can comprise a substantial share of their total volume of deals.

Figure II.2 further provides an illustration of the internal pricing process. First, there is the pricing of customer transactions. The loan department is charged with funding costs by the ALM. Assuming that this bank can fund itself at interest rate swap levels, the ALM determines its funding cost by the actual market prices for swaps with 5 years maturity. The market quotes are assumed to be at 8.96 to 9.00 per cent so that the ALM sets the funding cost at 9 per cent. The loan department charges a loan margin of 100 basis points per annum, which must cover its annualized credit risk premium and some annualized standard costs for loan processing. When the loan is made with the customer, the ALM takes charge of the cash flow and transfers the present value of 100 basis points per annum for the 5 years period to the loan department. The credit risk remains with the loan department. Furthermore, the sales desk determines the deposit price by subtracting 5 basis points as customer margin from the inter-bank market price. The inter-bank market quotes in our example are 7.95 to 8.00 per cent for the 6 months deposits. The ALM receives the deposit at 7.95 per cent and pays the sales desk the present value for the 5 basis points customer margin.

Second, there is the pricing of the hedging instruments. The ALM pays the swap desk 9 per cent per annum for a 5 years swap. The swap desk is supposed to close the position by paying 8.99 per cent per annum in the market. Furthermore, the ALM pays 8 per cent for another deposit that, in our example, is funded by the money market desk at 7.98 per cent.

According to the internal performance measurement, the trading desks have closed all their positions with a small profit and the loan department receives the present value of 100 basis points per annum for 5 years. Generally, all products are either marked to market or, where market prices are not available, their cash flows are discounted to a present value. The loan

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[7]   In the first place this could lead to an internal transfer of profits to the trading desks. For example, higher internal funding costs can squeeze the margins earned by the loan department. The bank's total earnings remain

cash flow in the ALM, for instance, is stripped of its credit risk, which is managed in the loan department, so that a present value is calculated using a yield curve representing the funding costs of the ALM.

In our example, the ALM is illustrated as a service center of the bank without generating any profit. Alternatively, the ALM can be managed as a profit center that may take risk positions to enhance its profit opportunities. In both cases, the ALM manages market price risks within its risk limits. Strategic risk positions of the bank usually belong to a separate portfolio and are managed and monitored by the top management in the asset liability committee.

So far, we have discussed only micro hedges, which means that a hedging instrument is directly related to the hedged item. Banks usually apply micro hedges only to large transactions with high market price risk exposures, to (banking book) transactions with option components, and to transactions where accounting departments prescribe micro hedges in order to demonstrate a particular hedge relationship. In general, however, the ALM manages market price risk at the portfolio level.

Risk management considers the risk exposure of individual financial instruments only in the context of the risk exposure of the entire portfolio. The risk exposure can be expressed by risk factors for currency, interest rate, credit and liquidity risk. These risk factors can be computed for single transactions and then be aggregated. The capital adequacy accord in 1988 ("Basel I") promoted the development of complex statistical models to report the risk exposure of a portfolio ("value at risk").[8]

In ALM banking practice, the interest rate risk and liquidity risk of a portfolio with deterministic cash flows are often analyzed by the creation of time buckets for the aggregated cash flows of all transactions in the portfolio, usually distinguished by currencies. For example, daily cash flows may be summed up to monthly or even yearly figures (for longer time buckets, i.e., quarters or years, the cash flows should be adjusted by their time values). The impact of interest rate changes on the present values of the cash flows can then be analyzed for each individual time bucket. The cash flows in the time buckets may vary from positive to negative figures. If the time buckets are defined on a quarterly basis, a particular quarter of a year might display a positive cash flow hedging negative cash flows of preceding or following quarters.

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unchanged. If the higher internal funding costs were passed on to the customer, the bank would earn more or have less business.

[8] Cf. Bessis (2002), Johanning (1998).

For risk evaluation, a straightforward approach is to calculate present values for the cash flows of all time buckets. Repeating the same routine with different interest rate risk scenarios results in new present values, and the present value differences display the risk exposure in the time buckets. The sum of all present value differences for a given interest rate risk scenario determines the total risk exposure of the portfolio. Based on the interest rate risk analysis of the portfolio, the ALM selects the hedging instruments with the appropriate volumes and maturities in order to maintain the desired risk exposure of the portfolio. In contrast to micro hedges, direct links between particular hedging instruments and hedged items are not the intent of portfolio hedges.

2. Key assumptions of the bank model

We develop a model that captures the essential characteristics of the activities of a universal bank. The model will allow measuring the economic performance of the bank at year-end for three consecutive years, and these results will then serve as a benchmark for the different accounting standards to be discussed in the following section.[9] In order to reduce the complexity of the model its focus is limited to interest rate products in a single currency either belonging to the banking book or to the trading book and to the management of interest rates. Other products, e.g., equities, can be included in extensions of the model. Our model is based on the following assumptions:

Assumption 1   The model bank operates in an economy without regulatory capital and liquidity requirements.

Assumption 2   The model bank operates in an economy where credit risk does not exist.

Assumption 3   The model bank operates in an economy where liquidity (or funding) risk does not exist.

Assumption 4   The model bank maintains its original portfolio structure. It engages in no new transactions except for short-term funding.

Assumption 5   The model bank operates at zero costs, pays no taxes and earns no fee and commission income.

According to assumption 1 the model bank needs no equity. Because the model bank starts with zero equity, equity may be negative if the bank accumulates negative income. There is no

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[9]   As mentioned above, banks implement the economic performance measurement internally. Our approach here follows current best banking practise.

profit distribution to shareholders, i.e., all profit goes to retained earnings. Term deposits transfer the gains or losses of each year to the next year in order to demonstrate the full economic consequences of particular bank strategies over the years.[10] The funding of all assets of the model bank is thus included in the balance sheet.

According to assumption 2 there are no credit spreads among or between bonds, loans and interest rate swaps. Without credit risk there is no need for a loan department and internal transactions with the ALM so that the ALM can be modeled to be identical with the banking book. Therefore, the item "loan loss provisions" in the income statement is omitted. Furthermore, the economic performance of the bank may be measured by using only one interest rate curve.[11]

Table II.1 displays the balance sheet and the income of a bank under IAS that adopts the typical financial statements of German universal banks.[12] The items in italics are excluded from the model financial statements, and the numbers in parentheses refer to the corresponding assumptions. The economic model of a universal bank therefore results in a reduced model balance sheet and income statement. With respect to the cash flow mapping of interest rate products some further assumptions facilitate the analysis of economic and accounting results:

Assumption 6   The day count convention for the money and capital markets is 360/360 days. Each banking year consists of 360 days.[13]

Assumption 7   Trade and value dates are identical and may only occur at the last day of a year.

Assumption 8   There are no bid ask spreads.

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[10] The term deposit volume remains constant if the bank makes neither economic gains nor losses.
[11] Potential hedge inefficiencies as a result of spread variations among different yield curves are not the subject of our analysis.
[12] IAS (as opposed to German-GAAP) does not prescribe formats for a balance sheet and income statement. IAS 30 only defines some minimum disclosure requirements for banks´ financial statements.
[13] Here, the German day count convention for bonds was chosen. It could have been any other. It is only important that each year has the same number of days and that a single day count convention is applied to all interest rate products in order to permit a straightforward interpretation of economic and accounting results from the underlying cash flows.

Table II.1: Representative Balance Sheet and Income Statement of a Universal Bank under IAS

Balance Sheet	
Assets	**Liabilities**
Cash Funds (4) Trading Assets *Loans and Advances to Customers (4)* Loans and Advances to Banks *Thereof Loan Loss Allowance (2)* Investment Securities *Property and Equipment (4)* *Income Tax Assets (5)* Other Assets	Trading Liabilities *Liabilities to Customers (4)* Liabilities to Banks Certified Liabilities *Provisions* *Income Tax Liabilities (5)* Other Liabilities *Subordinated Capital (1)* **Equity** *Subscribed Capital (1)* *Capital Reserve (1)* Retained Earnings *Distributable Profit (1)*

Income Statement
Net Interest Income *Loan Loss Provisions (2)* *Net Interest Income after Loan Loss Provisions (2)* *Net Commission Income (5)* Net Trading Income Net Income from Investments *Administrative Expenses (5)* *Income Tax Expense (5)* Net Income

3. Activities of the model bank

The model bank can be described as a set of two portfolios, the banking book (or ALM) and the trading book. The portfolio of the banking book consists of loans, bonds, own bond issues, term deposits and interest rate swaps, while the portfolio of the trading book consists of bonds, interest rate swaps and term deposits. In order to optimize the bank's activities in the financial markets interest rate swaps are only traded externally out of the trading book and internally between the trading book and the banking book. Term deposits, on the other hand, are only traded externally out of the banking book and internally between the banking book and the trading book. Bonds are directly bought into and sold out of either the banking or trading book.

Table II.2: The Structure of Assets and Liabilities of the Model Bank

Model Bank					
Banking Book (ALM)		Trading Book		Consolidated	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Loans Term Deposits (internal) Bonds	Own Bond Issues Term Deposits (external) Interest Rate Swaps (internal)	Bonds Interest Rate Swaps (internal)	Term Deposits (internal) Interest Rate Swaps (external)	Loans Bonds	Own Bond Issues Term Deposits Interest Rate Swaps

Table II.2 exhibits the model bank in terms of assets and liabilities of the banking and of the trading book as well as on a consolidated basis. In the banking book, term deposits appear as assets because they are internally lent to the trading book. The banking book thus provides the funding for the trading portfolio. The assets of the banking book (and through internal transactions the whole bank) are funded by bond issues and term deposits. Interest rate risk that results from a mismatch between short-term deposits and long-term assets is hedged by internal interest rate swaps with the trading book. The interest rate swaps of the banking book are displayed in Table II.2 as payer swaps on the liability side and as interest rate receiver swaps on the asset side of the trading book.[14] The internal deposits of the trading book with the banking book are displayed on the liability side since they provide the internal funding of the trading

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[14] We have chosen to display interest rate payer (or receiver) swaps on the liability (or asset) side of the balance sheet in order to demonstrate the hedging relationship between hedge item and hedging instrument. Under IAS accounting, interest rate swaps may appear on either side of the balance sheet according to their positive or negative market values.

book. The resulting interest rate risk exposure of the trading book is hedged by interest rate payer swaps with external counter-parties.

Two banking strategies will be analyzed. Under the first strategy, the bank is fully hedged against any movements of interest rates. Obviously, we expect no gains or losses from changing interest rates in the economic performance or accounting results. Under the second strategy, the bank is only partially hedged against changing interest rates. Here we would expect gains or losses directly related to changing interest rates in the economic performance or accounting results. Under both strategies we apply micro hedges to reduce the interest rate risk from fixed rate assets to short-term interest rate exposures.[15] The short-term interest rate exposure is hedged on a portfolio level by term deposits, which do also provide the funding of the assets.

The individual transactions of the model bank under both banking strategies are displayed in Tables II.3, II.4a and II.4b. In Table II.3 we present the initially contracted transactions according to the reduced model balance sheet of Table II.1. The interest rate swaps serve as hedges of bonds and loans and may be displayed on either side of the balance sheet according to their market values. Under the scenario of rising interest rates, the interest rate swaps will be displayed as trading assets, and under the scenario of decreasing interest rates, the interest rate swaps will be displayed as trading liabilities. However, the interest rate swaps have no initial cash flows on their trading dates and zero market values. The interest rate swaps are therefore displayed with their nominal values in parentheses only as additional information.

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[15] Here we deviate from banking practice because banks usually use portfolio hedges, as noted above.

Table II.3: Model Bank Balance Sheet with Original Transactions for Two Interest Rate Periods

	Rising Interest Rates—1989 to 1991	Decreasing Interest Rates—1996 to 1998
Trading Assets	DEM 100 Million (6.59 %, 1997) [*Interest Rate Swaps* *DEM 100 Million (6.59 %, 1997)* *DEM 100 Million (6.20 %, 1995)* *DEM 50 Million (5.59 %, 1992)* *DEM 30 Million (6.50 %, 1997)*]	DEM 100 Million (6.28 %, 2004)
Loans and Advances to Banks	DEM 200 Million (6.20 %, 1995)	DEM 200 Million (7.82 %, 2002)
Investment Securities	DEM 50 Million (5.59 %, 1992) DEM 30 Million (6.50 %, 1997)	DEM 50 Million (7.56 %, 1999) DEM 30 Million (7.90 %, 2004)
Other Assets	None	None
Total Assets	DEM 380 Million	DEM 380 Million
Trading Liabilities	None	[*Interest Rate Swaps* *DEM 100 Million (6.28 %, 2004)* *DEM 100 Million (7.82 %, 2002)* *DEM 50 Million (7.56 %, 1999)* *DEM 30 Million (7.90 %, 2004)*]
Liabilities to Banks	DEM 280 Million	DEM 280 Million
Certified Liabilities	DEM 100 Million (6.20 %, 1995)	DEM 100 Million (7.82 %, 2002)
Other Liabilities	None	None
Total Liabilities & Equity	DEM 380 Million	DEM 380 Million

Following the portfolio structure of the model bank in Table II.2, we present the same transactions with their internal and external hedge instruments according to the two hedging strategies and interest rate scenarios in Tables II.4a and II.4b respectively. The number of transactions for each product category is kept to a minimum so that the differences between (internal) economic performance and (external) accounting results can be easily identified while at the same time the relevant hedge accounting principles can be discussed. For each transaction, the nominal volume is displayed together with the nominal rate of interest and the maturity in parentheses. All transactions are contracted at market rates; no product has a premium or discount.

Table II.4a: Model Bank—Full Hedge: Rising Interest Rates (Partial Hedge: Idem, but without Transactions in Italics and Square Brackets)

Model Bank—Full Hedge					
Banking Book		Trading Book		Consolidated	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Loans DEM 200 Million (6.20 %, 1995) Term Deposits (internal) DEM 100 Million Bonds DEM 50 Million (5.59 %, 1992) DEM 30 Million (6.50 %, 1997)	Own Issues DEM 100 Million (6.20%, 1995) Term Deposits (external) DEM 280 Million Interest Rate Swaps (internal) [*DEM 100 Million (6.20 %, 1995)*] DEM 50 Million (5.59 %, 1992) DEM 30 Million (6.50 %, 1997)	Bonds DEM 100 Million (6.59 %, 1997) Interest Rate Swaps (internal) [*DEM 100 Million (6.20 %, 1995)*] DEM 50 Million (5.59 %, 1992) DEM 30 Million (6.50 %, 1997)	Term Deposits (internal) DEM 100 Million Interest Rate Swaps (external) DEM 100 Million (6.59 %, 1997) [*DEM 100 Million (6.20 %, 1995)*] DEM 50 Million (5.59 %, 1992) DEM 30 Million (6.50 %, 1997)	Loans DEM 200 Million (6.20 %, 1995) Bonds DEM 100 Million (6.66 %, 1997) DEM 50 Million (5.59 %, 1992) DEM 30 Million (6.50 %, 1997)	Own Issues DEM 100 Million (6.20%, 1995) Term Deposits DEM 280 Million Interest Rate Swaps DEM 100 Million (6.59 %, 1997) [*DEM 100 Million (6.20 %, 1995)*] DEM 50 Million (5.59 %, 1992) DEM 30 Million (6.50%, 1997)

Table II.4b: Model Bank—Full Hedge: Decreasing Interest Rates (Partial Hedge: Idem, but without Transactions in Italics and Square Brackets)

Model Bank—Full Hedge					
Banking Book		Trading Book		Consolidated	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Loans DEM 200 Million (7.82 %, 2002) Term Deposits (internal) DEM 100 Million Bonds DEM 50 Million (7.56 %, 1999) DEM 30 Million (7.90 %, 2004)	Own Issues DEM 100 Million (7.82%, 2002) Term Deposits (external) DEM 280 Million Interest Rate Swaps (internal) [*DEM 100 Million (7.82 %, 2002)*] DEM 50 Million (7.56 %, 1999) DEM 30 Million (7.90 %, 2004)	Bonds DEM 100 Million (6.28 %, 2004) Interest Rate Swaps (internal) [*DEM 100 Million (7.82 %, 2002)*] DEM 50 Million (7.55 %, 1999) DEM 30 Million (7.88 %, 2004)	Term Deposits (internal) DEM 100 Million Interest Rate Swaps (external) DEM 100 Million (6.28 %, 2004) [*DEM 100 Million (7.82 %, 2002)*] DEM 50 Million (7.56 %, 1999) DEM 30 Million (7.90 %, 2004)	Loans DEM 200 Million (7.82 %, 2002) Bonds DEM 100 Million (6.28 %, 2004) DEM 50 Million (7.56 %, 1999) DEM 30 Million (7.90 %, 2004)	Own Issues DEM 100 Million (7.82%, 2002) Term Deposits (external) DEM 280 Million Interest Rate Swaps (external) DEM 100 Million (6.28 %, 2004) [*DEM 100 Million (7.82 %, 2002)*] DEM 50 Million (7.56 %, 1999) DEM 30 Million (7.90%, 2004)

Consider, for example, the hedges of the loans and bonds. A DEM 100 million fixed rate bond issue and a DEM 100 million interest rate payer swap under the full hedge strategy hedge the DEM 200 million fixed rate loan. Under the partial hedge strategy, the DEM 100 million fixed rate bond issue hedges only half of the DEM 200 million fixed rate loan volume. The missing interest rate swap in the hedge of the loan is the cause for the only open position in the partial hedge model. There is neither an internal swap between the banking book and the trading book (as hedge of the loan) nor a matching external swap in the trading book. The long position of the banking book is thus transformed into a long position of the bank.[16] Since both the internal and the external swap are missing in the hedge of the loan, the trading book remains in a fully hedged position in the partial hedge model. The bonds of both the trading and the banking book (with nominal volumes of DEM 100 million, DEM 50 million, and DEM 30 million) are hedged by corresponding interest rate swaps under both hedge strategies.

4.   Economic performance measurement for the model bank

Assumptions 1 – 5 imply that the performance of the model bank is completely determined by the cash flows of interest rate products. For each product a present value of future cash flows is calculated with discount factors derived from the same yield curve.[17] We choose the interest rate swap curve as the standard valuation curve for each product.

The model is applied to two interest rate periods in Germany. In the first period, interest rates were rising from 1989 to 1991. In the second period, interest rates were decreasing from 1996 to 1998. In both periods, the bank starts with the same structure of transactions, which is built up in the two preceding years (1987/88 and 1994/95 respectively). Figure II.3 displays the end of year yield curves for the two scenarios of rising and decreasing interest rates respectively.[18] Since we apply real data, they do not display a continuous rise or fall of interest rates over the years. Under the first scenario, the (final) 1991 yield curve is located between the yield curves of 1989 and 1990 but it remains well above the yield curves of 1987 and 1988. Under the second scenario, the short end of the 1997 yield curve is positioned above the 1995 yield curve, while the long end remains below the 1995 and 1996 yield curves. The (final) 1998 yield curve is below all previous yield curves of the second scenario.

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[16]   A long position here means that the risk management expects to profit from short-term funding of long-term assets. This strategy requires a normal upward sloping yield curve („riding the yield curve") to prevail or that the funding costs will fall so that the long position can be closed at cheaper funding levels.

[17]   It should be noted that bonds are usually marked to market. This valuation technique, however, is not applied to our model as all market data are derived from the same interest rate curves.

[18]   The individual interest rates are displayed in Appendix Table II.7.

Figure II.3a: Scenarios of Increasing and Decreasing Interest Rates
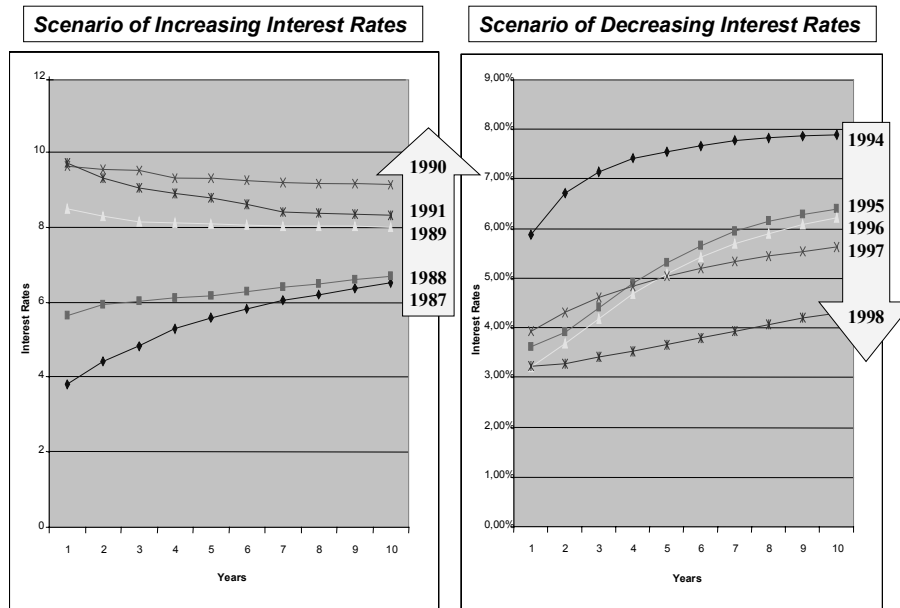
The performance of each financial instrument i in year t is calculated according to the following equation: $PFI_{i,t} = PV_{i,t} - PV_{i,t-1} + CF_{i,t}$,

where $CF_{i,t}$ = Cash flow of financial instrument i in year t for years $t = 0,...,m$

with m being the year of maturity of the financial instrument, based on the yield curve of year t.

$PV_{i,t}$ = Sum of discounted cash flows $CF_{i,t}$, with $PV_{i,t-1} = 0$ for $t = 0$.

$PFI_{i,t}$ = Performance of the financial instrument i in year t.

Thus the performance measurement considers expectations, which are reflected in the yield curve, leading to capital gains or losses. The performance results of all financial instruments are aggregated at the portfolio level (the banking book and the trading book), and the sum of the portfolio results represents the bank's total economic performance.

The results are displayed in Appendix Tables II.5a and II.5b for rising and decreasing rates of interest respectively. As expected, the bank has a performance of zero when it is fully hedged. In the case of the partial hedge, the long position of the bank book leads to a negative (positive) performance for rising (decreasing) rates of interest, while the trading book still has a performance of zero. Appendix Tables II.5a and II.5b do also provide all necessary data for the

calculation of the accounting results in section IV. The benchmark for the accounting results is displayed as economic accounting in Appendix Tables II.6a and II.6b for the two interest rate scenarios under both banking strategies. We define economic accounting as the consistent application of mark to market or present value measurement to all financial instruments as in best practice internal performance measurement. Furthermore, in addition to the line items net interest income, net trading income, and net income we do also display their components: the realized cash flows and the present values of future cash flows. The present value of the future interest flows changes with increasing or decreasing interest rates. In the fully hedged model, both the realized interest cash flows and the changes in the present value of future interest flows equal zero. In the partially hedged model, the present value results of future interest flows contribute most to net income.

While the sum of the (fair) values of the assets equals the sum of the (fair) values of the liabilities in the fully hedged model, this is no longer the case in the partially hedged model where we have a change in net income. The missing interest rate swap as a hedge of the loans leads to different valuation results of the trading assets or liabilities and to a change in the liabilities to banks. Of course, the un-hedged risk position of the model bank causes the bank performance to depend on interest rate movements. These results are first displayed in net income and as accumulated result of all previous years in retained earnings in Appendix Tables II.6a and II.6b.

III. Accounting regimes for financial instruments

In this section we describe the accounting rules for banks that we will apply to the activities of our model bank in section IV. We restrict our discussion to Old IAS before IAS 39 became effective and to New IAS including IAS 39.

1. Accounting under IAS before IAS 39 ("Old IAS")

Up to now IAS have been used in the banking industry mainly by German and Swiss banks. Deutsche Bank in 1995 was the first major bank to present consolidated financial statements in accordance with IAS by then in addition to its statutory German GAAP group accounts. Since 1998 German listed enterprises have the option to prepare their group accounts either under German GAAP or according to internationally accepted accounting standards meaning either IAS or US GAAP[19]. Today most German private banks publish group accounts according to IAS. Deutsche Bank changed to full US GAAP by 2001 in order to fulfill the SEC requirements for a listing at the New York Stock Exchange (NYSE).

1.1. Accounting under Old IAS without hedge accounting

Before IAS 39 became effective recognition and measurement of financial instruments has been dealt with only in IAS 25 "Accounting for Investments". In particular, there are no special recognition or measurement rules for banks[20]under "Old IAS": All (financial) assets are initially recognized at historical cost where cost is represented by the fair value of the consideration given[21]. For subsequent measurement of investments IAS 25 offered a wide range of options. For current investments there was a choice between lower of cost or market, mark to market, and portfolio accounting. For long-term investments valuation could have been at cost, at revalued amounts, or at lower of cost or market. Cost based measurement was applied to all liabilities without an explicit standard. Hidden reserves are prohibited for banks as for any other company[22].

The absence of explicit regulation for recognition and measurement of financial assets and liabilities under Old IAS has been used by the financial industry to develop a "best industry practice". This is based on the distinction of trading activities and other banking (book)

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[19] See § 292a German Commercial Code.
[20] IAS 30 contains special disclosure rules for banks that currently are under revision.
[21] See Framework, §100a.
[22] See IAS 30.52.

activities and the application of different recognition and measurement rules[23]. Fair value measurement is applied to all trading book assets and liabilities including derivative instruments[24]. Adopting the disclosure definitions for measurement purposes under Old IAS fair value is best reflected in observable market prices or may be estimated by reference to markets for similar instruments[25]. If market prices are not available (for example, for certain over the counter instruments), or if they do not adequately reflect fair value (for example, in illiquid markets) well-accepted measurement techniques like the discounted cash flow method are employed. It should be noted that traded liabilities other than derivative financial instruments with negative fair value and short selling liabilities normally are not to be designated as held for trading.

All changes in the fair value of trading book assets and liabilities are recognized immediately in net income. Thus, from the point of view of the traditional interpretation of the realization principle unrealized gains – even if not covered by unrealized losses are included in net income.[26]

All banking book financial assets and liabilities are measured on an amortized cost basis. The option in IAS 25.23b of a revaluation of non-current assets has not been used by major German banks. Derivative instruments in the banking book are not recognized as assets or liabilities but continue to be treated as "off-balance" executory contracts that may require to set up a provision for losses from unperformed contracts.

Old IAS contains no explicit hedge accounting rules. Such rules are not required for the trading book as the changes in fair value of the trading book assets and liabilities are offset in net income by the changes in fair value of the derivative hedging instruments ("compensating valuation"). The offset is perfect for perfect hedges; any inefficiencies of the hedges will show up in net income.

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[23] A common feature of most trading activities is that unrealized profits are readily realizable since the capital markets involved are highly liquid. A frequent buying and selling of trading instruments is not necessary, because a position might be held over a certain period to trade on certain market expectations. For internal management accounting all trading positions are measured and monitored daily on a fair value basis.

[24] This practice has been well established with US-American investment banks, see Krumnow et al. (1994), p. 452f.

[25] See IAS 32.77 ff. Although IAS 32 is a pure disclosure standard that does not contain recognition and measurement rules, the definitions are applied for the measurement of trading instruments at fair value. IAS 39.95 ff. adopts the fair value definitions of IAS 32 except for transaction costs, which should not be deducted in subsequent measurement of financial assets under New IAS.

[26] For a modern interpretation of the realization principle for financial instruments see Gebhardt (1996), p. 581 f.; IASC (1997), p. 85 f.

Figure III.2a: Bank Accounting for Financial Instruments under a "Mixed Model"
Without Pre-IAS 39 Hedge Accounting

	"Trading book"		
at fair value: gain or loss recognized	Financial Asset: Maturity 5 years; Fixed rate 8.00 percent	Interest rate Swap: Maturity 5 years; Pay fixed rate 8.00 percent	at fair value: gain or loss recognized
	"Banking book"		
at cost: gain or loss *not* recognized	Financial Asset (Loan): Maturity 5 years; Fixed rate 8.00 percent	*[Interest rate Swap:* *Maturity 5 years;* *Pay fixed rate 8.00 percent]*	gain *not* recognized, loss recognized as a provision
at lower of cost or market: loss recognized	Financial Asset (Security):Maturity 5 years; Fixed rate 8.00 percent	*[Interest rate Swap:* *Maturity 5 years;* *Pay fixed rate 8.00 percent]*	gain *not* recognized, loss recognized as a provision
Gain *not* recognized, loss recognized as a provision	*[Interest rate Swap:* *Maturity 5 years;* *Receive fixed rate 8.00 percent]*	Financial liability (issue bond): Maturity 5 years; Fixed rate 8.00 percent	at cost: gain or loss *not* recognized

Changes in the fair value of loans and liabilities of the banking book due to rising or decreasing interest rates are not recognized in net income. However, derivative hedging instruments might have a negative fair value (with rising rates for receiver swaps and decreasing rates for payer swaps) requiring to set up a provision for unrealized losses from unperformed contracts. Thus, we observe a potential mismatch in earnings for a fully hedged position in the banking book with declining interest rates. Fixed income securities of the banking book must be written down with rising interest rates, whereas the unrealized gain of the hedging instrument may not be recognized in the income statement under Old IAS rules. This results in an earnings mismatch for a fully hedged banking position for both rising and declining interest rates.

1.2. Old IAS with banking industry hedge accounting

In an attempt to overcome such earnings mismatch German commercial banks interpret Old IAS rules as being open to a so-called off-balance-sheet approach for hedging. Under this approach, banking book derivative financial instruments are again not recognised as assets or liabilities. For the determination of net income banking book derivatives designated as hedging instruments remain unvalued if the hedged items are measured at cost (e. g. loans or receivables). This implies that there are no provisions for losses from negative fair values of derivative hedging instruments.

This compensating non-valuation – or better: "compensating misvaluation" - assumes the existence of a perfect hedge where changes in fair value of both the hedged item and the hedging instruments fully offset each other. Therefore the approach does not display hedge inefficiencies, which result for example from differences in the changes of fair value due to different counterparty risks of loans and swaps.

Where a derivative instrument hedges an investment security in the banking book, hedge inefficiencies in part show up in net income. The banking book derivative is not recognized, except for an overhang of losses that requires to set up a provision. An overhang of unrealized gains remains unconsidered - this is the so-called zero-line-approach. The following graph demonstrates the zero-line-approach with a simple micro hedge of a security and an interest rate swap in four scenarios. In scenario [1] a loss on the security (-80) is compensated by a profit on the swap (+100). The excess of unrealized gains on the swap (20) will not be recognized. In scenario [2] a loss on the security (-100) is partly compensated by a profit on the swap (+80). The excess of losses on the security (-20) leads to a write-down on the security. In scenario [3] a loss on the swap is partly compensated by profits of the security. The excess of losses on the security (-20) leads to a provision for executory contracts. In scenario [4] there is an excess of gains on the security (20), which will not be recognized in net income. With the either zero-line-approach the security is measured at cost or at an artificial value resulting from the compensation with unrealized gains on the hedging derivative.

Figure III.2b: Zero-line-approach
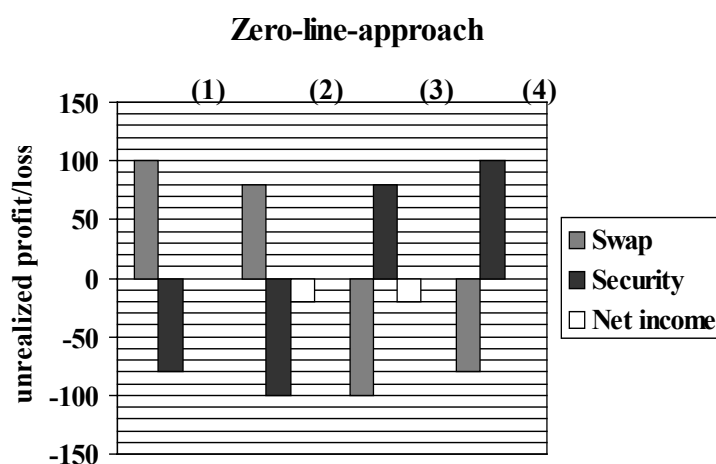
Non-valuation of banking book hedges ("compensating misvaluation") raises the question, which degree of inefficiency is acceptable for hedge accounting. Whether certain hedges are accepted or not has been an ongoing dispute in the Old IAS era. Hedging inefficiencies have

been largely accepted if they were caused by changes of interest rate curves belonging to different market segments (i.e., interest rate swaps and bonds). They have been less accepted if the hedge inefficiency was caused by maturity gaps; for example, if a bond with a maturity of 12 years is hedged by a bond future whose underlying cheapest to deliver bond has a maturity of 8 years. Not accepted have been cross currency hedges of weakly correlated currencies. Figure III.2c summarises pre IAS 39 hedge accounting.

Figure III.2c: Bank Accounting for Financial Instruments under a "Mixed Model"
        With Pre-IAS 39 Hedge accounting

"Banking book"			
at cost: gain or loss *not* recognized	Financial Asset (Loan): Maturity 5 years; Fixed rate 8.00 percent	*[Interest rate Swap:* *Maturity 5 years;* *Pay fixed rate 8.00 percent]*	at cost: gains or loss *not* recognized
	Non-valuation ("compensating misvaluation") Inefficiencies *not* measured		
at lower of cost or market: only an overhang of losses recognized	Financial Asset (Security) Maturity 5 years; Fixed rate 8.00 percent	*[Interest rate Swap:* *Maturity 5 years;* *Pay fixed rate 8.00 percent]*	at lower of cost or market: only an overhang of losses recognized
	Compensating valuation Inefficiencies *partly* measured (zero-line-approach)		

In addition, Old IAS has been interpreted by German banks with a view that macro hedge accounting for the banking book is acceptable. In a macro hedge a portfolio of banking book assets and liabilities is defined as hedged item. In contrast to micro hedging, which can also involve more than one hedging instrument or hedged item, macro hedging goes on in a dynamic way. This means that the hedging derivatives are adjusted with new transactions or changes in the contractual conditions (e. g. prolongation of a loan). Risk management techniques allow to measure the interest rate risk (e. g. by basis point values) and to demonstrate that hedging derivatives significantly reduce the risk exposure. If a banking book portfolio is managed with a near to zero risk limit (working balance) macro hedging in banks is widely accepted under Old IAS[27].

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[27] The limits have not been clearly defined and might differ from bank to bank.

1.3. Hedging and hedge accounting with internal contracts under Old IAS

Universal banks often manage risks in the banking book by the use of internal derivatives. In Figure 3a the banking book consists of a fixed rate loan financed by a variable rate term deposit. To hedge the interest rate risk from the fixed rate loan the treasury department enters into an internal interest rate swap with the trading desk paying fixed rate interest rate payments over the term of the loan. The trading desk enters into an offsetting interest rate swap with third parties who receive the fixed rate.

Figure III.3a: Accounting for Financial Instruments under a "Mixed Model" with Internal Derivatives Without Hedge accounting at Rising Interest Rates

	"Trading book"		
Consolidated: Loss *not* recognized	Interest rate Swap (internal): Maturity 5 years; Receive fixed rate 8.00 percent Pay variable rate	Interest rate Swap (external): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at fair value: gain recognized
	"Banking book"		
at cost: loss *not* recognized	Financial Asset (Loan): Maturity 5 years; Fixed rate 8.00 percent	Term Deposit Maturity 3month Pay variable rate	at cost
		Interest rate Swap (internal): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	Consolidated: Gain *not* recognized, interest not accrued

Even though the positions of both trading book and banking book are fully hedged from an economic point of view, the bank will have to show a positive trading income with rising interest rates, a negative one with decreasing interest rates as the internal swap will have to be neglected when preparing the consolidated financial statements. In the banking book rising interest rates will lead to higher interest expenses for the term deposit resulting in a lower (net) interest income. The offsetting earnings effect of the internal swap is not taken into account.

In the trading book the positive fair valuation effect on the payer swap comprises the value of all future fixed rate swap payments in the period of the rise in interest rates. The compensating effect of lower net interest income in the banking book shows up over the term of the hedge.

Thus, net income of the bank becomes volatile even though economically the bank faces no interest rate risk.

The mismatch in accounting earnings can be overcome by a special hedge accounting that includes internal derivatives. Interpretations of Old IAS treat internal transactions like external ones[28] if contracted at arms' length and valued under the same assumptions as external deals. However, accounting for internal derivatives leads to a peculiar different accounting treatment of internal derivative contracts between the trading book and the banking book. While the trading book side of the deal is marked to fair value the banking book side remains unvalued or in the case of securities the measurement results are compensated off-balance under the zero-line-approach as described above.

When this hedge accounting is extended to internal derivatives the change in fair value on the external swap in our example is perfectly offset by the change in fair value of the internal swap (see Figure III.3b).

Figure III.3b: Accounting for Financial Instruments under a "Mixed Model"
With Hedge Accounting including Internal Derivatives at Rising Interest Rates

	"Trading book"		
at fair value: loss recognized	Interest rate Swap (internal): Maturity 5 years; Receive fixed rate 8.00 percent Pay variable rate	Interest rate Swap (external): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at fair value: gain recognized
	"Banking book"		
at cost: loss **not** recognized	Financial Asset (Loan): Maturity 5 years; Fixed rate 8.00 percent	Term Deposit Maturity 3 month Pay variable rate	at cost
		Interest rate Swap (internal): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at cost: gain **not** recognized, interest accrued

In the banking book the difference between the fixed rate interest received on the loan and the variable rate interest paid on the term deposit will show up in net interest income. As a perfectly hedged interest rate position may not show any net interest income the periodic

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[28] As we know there are no written sources which explicitly refer to IAS. We refer to the arguments in Krumnow (1995), p. 17; Naumann (1995), p. 183f.; Wittenbrink and Goebel (1997), p. 27f.; Scharpf and Luz (2000), p. 242. US GAAP is more restrictive as it does not allow accounting for internal derivatives except for those

differences on the external contracts have to be offset by accrued interest from the internal swap. The following graph gives a simple example. We see a perfect offset of accruals in net interest income resulting from an internal interest rate swap hedging a banking book position with a loan and a deposit. In period 2 we assume a one time interest rate shift of variable rates from 5% to 6%, affecting the term deposit interest and the floating leg of the swap. Thus, the accruals from the internal swap serve to secure the interest margin from the loan and the deposit in our example.

Figure III.3c: Offset of accruals in Net Interest Income
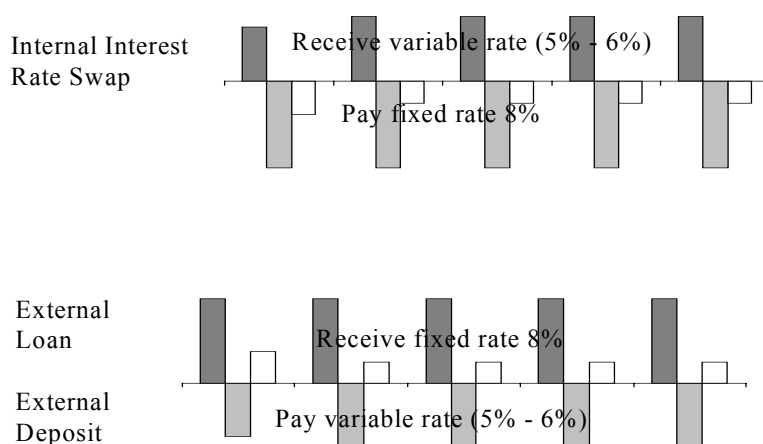
Internal derivatives do not fulfill the conditions of a financial asset or financial liability, because the definition requires an external party to enter into the contract[29]. Therefore the positive and negative fair values from internal derivatives must be eliminated by consolidation. A complete offset would take place, if internal derivatives would also be marked to the market in the banking book. The different measurement of the internal derivative in the trading book and in the banking book requires the entry of a balancing item, a peculiarity forced by the logic of double entry book keeping. This will normally be recognized net under "other assets" or "other liabilities"[30]. In our simple example in Figure III.3b we have to recognize a liability from

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transacted before 01.01.1998 (see SEC speech from Pascale Desroches on December 9th, 1998 at www.sec.gov). This grandfather rule has been suspended with implementation of SFAS 133.

[29] See the definition of financial instruments in IAS 32.5 and IAS 39.8.

[30] We found no bank, which has disclosed this item separately.

the internal trade, which stands against the external trading asset resulting from the external swap. We will discuss this "plug" in detail when presenting our bank model[31].

One could argue that banks should designate the external deal in the trading book as (micro-) hedging instrument of the banking book loan. This would work in our simple example and also in the simplified banking model. Under dynamic ALM hedges using internal derivatives with the market maker in the trading book it is often impossible to document the link. We will discuss this issue below in the context of the IAS 39 accounting rules.

Our simple example has not yet included the necessary refinancing of trading activities, for example when the trading department bought a security. Figure III.4 presents a simple example in which the funds needed for a trading book financial asset are raised through term deposits that appear in the banking book. The funds are transferred internally to the trading book via internal contracts.

Figure III.4: Refinancing of Trading Activities

	"Trading book"		
at fair value: gain (including interest received) or loss recognized in trading income	Financial Asset (Security): Maturity 5 years; Fixed rate 8.00 percent	Interest rate Swap (external): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at fair value: gain or loss recognized in trading income
		Term Deposit (internal) Maturity 3month Pay variable rate	Consolidated in balance-sheet; accrued interest recognized in trading income
	"Banking book"		
Consolidated in balance-sheet; accrued interest recognized in net interest income	Term Deposit (internal) Maturity 3month Receive variable rate	Term Deposit Maturity 3month Pay variable rate	at cost: accrued interest recognized in net interest income

IAS banking practice recognizes the interest expenses of refinancing trading activities in net trading income. As the external funding raised by the treasury or through banking book

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activities cannot be attributed directly to the trading book the funding costs of trading are measured on a calculatory basis or based on internal term money between the money market desk and the ALM department. It should be noted that banks consider the funding of trading activities as a disclosure issue[32]. The aim is an appropriate allocation of funding costs to the respective bank activities. Only the external funding is disclosed in face of the balance sheet and only external funding costs are included in net income as the internal deposits are consolidated or netted when preparing the financial statements of a group or an individual company.

2. Accounting under IAS 39 ("New IAS") and US GAAP

As a part of its comprehensive project on accounting for financial instruments the FASB issued SFAS 115 requiring a fair valuation for certain investments in securities and SFAS 133 requiring to mark all derivative financial instruments to fair value. IAS 39 very closely follows the new US rules. In May 2001 a new EC Fair Value Directive was issued that allows to adopt the IAS 39 rules. The member states shall transform this directive into national law until the end of 2003. In the following section we describe both IAS and US GAAP in a parallel way.

2.1. Accounting under current rules without hedge accounting

Although the new standards increase the use of fair values for financial instruments we still have a mixed model. Fair value measurement applies to financial assets and financial liabilities of the trading portfolio and to all available-for-sale assets. Contrary to US GAAP IAS 39.10 introduces a general trading definition which is not restricted to certain instruments: A trading asset or liability is one "that was acquired or incurred principally for the purpose of generating a profit from short-term fluctuations in price or dealer's margin"[33]. US GAAP does not allow to fair value trading liabilities other than financial derivatives with negative fair value and short selling liabilities (e. g. money market deposits, structured issued bonds). This issue has not been resolved in the IAS 39 Implementation Guidance Committee (IGC)[34], but the IASB proposes as a part of the IAS 39 improvement project to permit measurement at fair value for

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[32] For German GAAP (§ 29 RechKredV) the funding costs for trading activities must be disclosed as interest expense. For US GAAP the regulation SX rule 9-04 requires to disclose the funding of trading activities as interest expense. Some US investment banks allocate the funding costs to trading in their notes.

[33] SFAS 115.6 and 115.12 describe trading activities but there is no general definition.

[34] IAS 39.18 does not allow to treat the funding of trading activities as a trading liability but the judgement regarding other trading liabilities depends on how the wording is interpreted. The term "include" could define

such items based on designation[35]. For income recognition of gains and losses from available-for-sale financial assets an enterprise may choose only under IAS 39.103b between either the immediate recognition in net income or presentation in other comprehensive income with a recycling to net income in the following periods. Most German banks choose the second option, which pertains to securities and to loans acquired on secondary markets. US GAAP requires changes in the fair value of available-for-sale securities to be recognized in other comprehensive income. According to a special rule in SFAS 65 mortgage loans held for sale may not be fair valued, but measured at the lower of cost or market.

Losses due to decreases in the fair value of available-for-sale securities other than temporary lead to an impairment to be recognized in net income both under IAS and US GAAP[36]. Under US GAAP an impairment creates a new cost base and a recovery of fair value will be recognized in other comprehensive income. IAS 39.19 prescribes to reverse the loss in net income, if the reason for the impairment no longer applies.

Loans originated by the bank, held-to-maturity investments, and all non-trading liabilities continue to be measured at amortised cost. IAS and US GAAP require an impairment test for originated loans and held-to-maturity securities. However, both standards do not allow to write-down such assets to lower fair value as a consequence of increasing market interest rates. Impairments only consider the probability of uncollectability regarding all payments (interest, principal) due to the contractual terms. Further both standards prescribe using the original effective interest rate for calculation of the present value of expected future cash flows and thus avoid measurement at full fair value[37].

Since the IAS 39 definition of originated loans does not distinguish between loans and securities even highly liquid governments bonds must be valued at amortised cost, if the funds are provided directly to the debtor and there is no positive intent to sell the instrument immediately or in the short-term[38]. SFAS 115 does not allow to measure securities at cost except when there is an explicit positive intent to hold them to maturity. Under both IAS and

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trading liabilities conclusive (American English) or it could allow for further application (British English) whenever the main purpose is to generate a trading profit. See IGC QA 18-3 which has not been approved.

[35] See Proposed Amendments to IAS 39 Financial Instruments: Recognition and Measurement, p. 282.

[36] The term "other than temporary" is used in SFAS 115.16. Although IAS 39.109 ff. uses a different wording ("lower recoverable amount") there are no differences in content.

[37] See IAS 39.113; SFAS 114.13.

[38] See IGC QA 10-11a and QA 10-20. For a critique, see German Institute of Chartered Accountants (2001), p. 997.

US GAAP the held-to-maturity category is narrowly defined. It precludes stocks from designation as held-to-maturity and punishes an enterprise for sales before maturity: IAS 39.83 prohibits any designation to the category for the current and two subsequent years tainting[39].

Under New IAS and under US GAAP all derivative financial instruments are considered to be rights or obligations that meet the definition of assets or liabilities[40]. They are to be measured at fair value[41] with changes in fair value recognized in net income with the exception of derivative instruments designated as hedging instruments in cash flow hedges where changes are recognized in other comprehensive income. Figure III.5 summarises the recognition and measurement rules of financial assets and financial liabilities under current IAS and US GAAP without hedge accounting.

Under these rules earnings mismatches occur, because the banking book assets and liabilities and (hedging) derivative instruments are measured differently. While derivatives are measured at fair value with changes immediately reflected in net income originated loans, held-to-maturity investments and non-trading liabilities are measured at cost showing the income effect of changes in interest rates over time. If for available-for-sale assets the IAS option of an immediate recognition of fair value changes is not used, there is also a mismatch between net income and other comprehensive income. For "natural" hedge relations in the banking book between balance sheet items measured at cost (e g. a fixed rate loan and a fixed rate liability with the same notional amount and maturity) the compensating misvaluation creates no mismatch in earnings. However, any inefficiencies of natural hedges of banking book assets and liabilities will not show up in earnings in the periods of changing interest rates, but only over the remaining term of the instruments.

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[39] There is no time limit for tainting under SFAS 115.

[40] See IAS 39.13 (background); SFAS 138.218, Appendix C. At inception transactions like forwards and swaps contracted at prevailing market conditions typically start with zero value.

[41] US GAAP does not allow to measure derivatives at cost, which would be often zero, if a reliable measurement were not possible (e. g. a forward contract on an unquoted equity instrument). See SFAS 138.223.

[42] IAS 39.70 allows allows to measure derivatives at cost as an exception - which would be often zero - if a reliable measurement were not possible (e. g. a forward contract on an unquoted equity instrument). Under US GAAP derivatives must be always measured at fair value, see SFAS 138.223.

Figure III.5: Accounting for financial instruments under current IAS and US GAAP
– without hedge accounting

	"Trading"		
At fair value: gain or loss recognized in net income	Financial asset (Security): Maturity 5 years; Fixed interest 8.00 percent	Interest Rate Swap: Maturity 5 years; Pay fixed interest 8.00 percent	at fair value: gain or loss recognized in net income
	"Available-for-sale"		
At fair value: gain or loss recognized in other compre-hensive income or (only with IAS) in net income	Financial asset (Security): Maturity 5 years; Fixed interest 8.00 percent	Interest rate Swap: Maturity 5 years; Pay fixed interest 8.00 percent	at fair value: gain or loss recognized in net income
	"Held-to-maturity"		
At cost: Gain or loss *not* recognized	Financial asset (Security): Maturity 5 years; Fixed interest 8.00 percent	Interest rate Swap: Maturity 5 years; Pay fixed interest 8.00 percent	at fair value: gain or loss recognized in net income
	"Originated by the enterprise"		
At cost: Gain or loss *not* recognized	Financial asset (loan, security): Maturity 5 years; Fixed interest 8.00 percent	Interest rate Swap: Maturity 5 years; Pay fixed interest 8.00 percent	at fair value: gain or loss recognized in net income
		"Non-trading liabilities"	at cost:
At fair value: Gain or loss recognized in net income	Interest rate Swap: Maturity 5 years; Receive fixed interest 8.00 percent	Financial Liability (issued bond): Maturity 5 years; Pay fixed interest 8.00 percent	gain or loss *not* recognized

2.2. Accounting under current rules with hedge accounting

2.2.1. Fair value hedge accounting or cash flow hedge accounting

IAS 39 and SFAS 133 offer two basic forms of hedge accounting if certain qualification criteria are met[43]. Fair value hedge accounting can be applied to the exposure to changes in fair value of a recognised financial asset or liability, or (only under US GAAP) a firm commitment, which can be attributed to a particular risk being hedged. For example, an USD denominated Argentina government bond could be hedged with a total return swap covering all risk categories involved. Instead, each single risk factor (benchmark interest rate, counterparty risk, foreign currency risk) could be hedged with a suitable hedge derivative[44]. Held-to-maturity assets may not be designated as a hedged item in a fair value hedge or cash flow hedge of interest rates changes (IAS 39.127; SFAS 133.426). Cash flow hedge accounting may be applied to hedges, that shall offset the variability of cash flows attributable to a particular risk associated with a recognised asset or liability or an unrecognised firm commitment. IAS 39.137 applies cash flow hedge accounting also to hedges of unrecognized firm commitments even though they have a fair value exposure. Both forms of hedge accounting are optional and thus need not be applied even if all qualification criteria are met.

Under both approaches for hedge accounting derivatives are measured at fair value. Under fair value hedge accounting all changes in fair value of the derivative hedging instrument are recognised in net income. Under cash flow hedge accounting the change in fair value of the derivative hedging instrument attributable to the hedged risk factor is included in other comprehensive income and "recycled" into net income at the time when the hedged transaction affects earnings (IAS 39.162).

The carrying amount of a hedged item in a fair value hedge is adjusted for its the change in fair value attributable to the hedged risk. Under cash flow hedge accounting there is no such basis adjustment. Under both approaches hedge ineffectiveness should show up in earnings in principle.

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[43]   We will not discuss hedges of a net investment in a foreign currency as defined in IAS 21 and SFAS 52.

[44]   An amendment of SFAS 133 by SFAS 138 allows to hedge the risk free interest rate (referred to as benchmark interest rate), e. g. LIBOR or EURIBOR. Thus credit risk includes all risks other than the benchmark component.

A bank may designate its interest risk management activities either as a fair value hedge or a cash flow hedge[46]. In Figure III.6a we look at a fixed rate financial asset refinanced by variable rate term deposits, which are assumed to roll over until maturity of the funded asset. The interest rate risk is effectively hedged by an interest rate swap under which the bank pays fixed rate interest and receives the variable rate. The payer interest rate swap can be considered as a hedge of the variability of the fair value of a fixed rate loan (i.e. fair value hedge).

Figure III.6a: IAS 39 Fair Value Hedge accounting for interest rate risk management

	Fair Value Hedge		
At cost plus basis adjustment: Profit or loss attributable to the hedged risk is recognized as an adjustment of the carrying value	Financial Asset: Maturity 5 years; Fixed rate 8.00 percent	Interest rate Swap: Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at fair value: profit or loss recognized
		Term Deposit: Maturity 5 month Pay variable rate	at cost

Alternatively, the same swap could be viewed as a cash flow hedge as displayed in Figure III.6b. The swap can be looked at as offsetting the variability of the funding cost of a variable rate term deposit, which is rolled over and interpreted as a forecasted transaction qualifying as a hedged item in a cash flow hedge. The bank has to demonstrate a high probability of occurrence of the forecasted roll over transactions as required in IAS 39.142c[47].

Figure III.6b: IAS 39 Cash Flow Hedge accounting for interest rate risk management

	Cash Flow Hedge		
At cost	Financial Asset: Maturity 5 years; Fixed rate 8.00 percent	Interest rate Swap: Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at fair value: profit or loss deferred in other comprehensive income
		Term Deposit: Pay variable rate	at cost (no basis adjustment)

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[46] See IGC QA 121a; Bundesverband deutscher Banken (2001), p. 346-353.
[47] See IGC QA 121-2-e.

Under either perspective the swap offsets the effects of interest rate changes on the banking book. However, the accounting consequences differ considerably. Whilst under fair value hedge accounting the effects of the change in fair value attributable to the hedged risk on hedged item and derivative hedging instrument offset in net income, cash flow hedge accounting may create significant volatility in equity. That is the case because the positive or negative change in fair value of the hedging instrument is deferred in other comprehensive income until the hedged transaction affects net income without a compensating entry for the change in fair value of the hedged item.

2.2.2. Hedge accounting for portfolios

The current standards (i. e. IAS 39, SFAS 133) do not require an entity-wide risk reduction as a precondition for hedge accounting[49]. To qualify for hedge accounting a hedging relationship between a qualifying hedged item and a qualifying hedging instrument must be documented. On principle this is the concept of micro hedging of individual transactions. Modern risk management strategies however follow the concept of macro hedging applied to net positions. If a bank has fixed rate assets of 100 million and fixed rate liabilities at 90 million it will hedge only the net position of 10 million through an interest rate swap (see Figure III.7).

Both IAS and US GAAP prohibit to designate a net position of assets and liabilities as hedged item. A guidance in IAS 39.133 proposes to overcome the problem by treating the net position as gross. The 10 million financial asset identified as hedged item as well as the related interest rate swap must represent the net position over the term of the hedge, which is not not realistic in an environment of daily changing banking book positions.

Furthermore, hedge accounting portfolios of dissimilar items are not accepted under both IAS 39 and SFAS 133. Rather the hedged items must react proportionally in a narrow range to changes of the defined risk factor.[51] Thus IAS 39 and SFAS 133 hedge accounting rules allow macro hedging only for homogeneous portfolios of either assets or liabilities and this leads to a large number of portfolios or bends for hedge accounting purposes. The understanding of

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[48] This type of designation avoids a basis adjustment upon occurrence of future forecasted transactions (see IAS 39.160), because it does not result in the recognition of assets or liabilities; see IGC QA 121-2j.

[49] See SFAS 133.357; IGC QA 137-6.

[50] See IGC QA 121-1.

[51] See SFAS 133.21a(1); IAS 39.132.

Figure III.7: IAS 39 Proposal for Hedging Net Positions

	Fair Value Hedge		
at cost plus basis adjustment	Financial Asset: Notional: 10m Maturity 5 years; Fixed rate 8.00 percent	Interest rate Swap: Notional: 10m Maturity 5 years; Pay fixed rate 8.00 percent	at fair value
at cost	Financial Asset: Notional: 90m Maturity 5 years; Fixed rate 8.00 percent	Financial Liability: Notional: 90m Maturity 5 years; Fixed rate 8.00 percent	at cost

portfolios under US GAAP and IAS is quite different from portfolio theory, which forms an important basis of ALM hedging. While portfolio risk diversification implies that the hedged instruments have a high negative correlation of changes in fair value due to the hedged risk, hedge accounting requires that the hedged instruments must have a high positive correlation. For example, for purposes of hedge accounting it is impossible to designate a portfolio with shares mirroring the STOXX index hedged with a STOXX future for hedge accounting, although it is a perfect hedge from an economic point of view[52].

2.2.3. Hedge accounting with internal contracts

Internal derivatives cannot be designated as hedging instruments under IAS or US GAAP since they have to be eliminated upon consolidation. As an exception they can be designated as a hedging instrument for interest rate risk only if they are directly offset by third-party contracts. This requirement restricts the possibilities to bundle internal risk by specialist internal market makers. In the example of a fair value hedge in Figure III.8a we assume that the third party contract offset can be demonstrated. The swaps are recorded in a special hedging book.

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[52] See IGC QA 132-1; Scharpf (2001), p. 200.

Figure III.8a: IAS 39 Fair Value Hedge Accounting involving internal derivatives
          Rising interest rates

	"Hedging book"		
Consolidated: Loss *not* recognized	Interest rate Swap (internal): Maturity 5 years; Receive fixed rate 8.00 percent Pay variable rate	Interest rate Swap (external): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at fair value: gain recognized
	"Banking book"		
at cost: loss attributable to interest rate risk is recognized (basis adjustment)	Financial Asset (Loan): Maturity 5 years; Fixed rate 8.00 percent	Interest rate Swap (internal): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	Consolidated: Gain *not* recognized
		Term Deposit (external): Maturity 5 month Pay variable rate	at cost

The change in fair value of the hedged banking book asset can then be recognized as a basis adjustment and offsets the change in fair value of the derivative hedging instrument. Thus, IAS 39 fair value hedge accounting can avoid earnings mismatches if, and only if, the link between the hedged loan and the external hedge derivative can be demonstrated. This requirement causes a lot of troubles for practical application in a modern bank risk management environment where dynamic macro hedging strategies are followed.

Figure III.8b shows cash flow hedge accounting using internal contracts under IAS 39. We find that the mismatch in earnings is eliminated but relocated to other comprehensive income. We will discuss the effects in more detail in the following section, which applies the accounting rules to our model bank.

Figure III.8b: IAS 39 Cash Flow Hedge Accounting involving internal derivatives
Rising interest rates

	"Hedging book"		
Consolidated: Loss *not* recognized	Interest rate Swap (internal): Maturity 5 years; Receive fixed rate 8.00 percent Pay variable rate	Interest rate Swap (external): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	at fair value: gain deferred in other compre-hensive income
	"Banking book"		
at cost	Financial Asset (Loan): Maturity 5 years; Fixed rate 8.00 percent	Interest rate Swap (internal): Maturity 5 years; Pay fixed rate 8.00 percent Receive variable rate	Consolidated: Gain *not* recognized
		Term Deposit (external): Pay variable rate	at cost

IV.   Application of accounting rules to the activities of the model bank

In this section we apply the different accounting rules described in the previous section to the activities of our model bank under different interest rate scenarios and under different hedging strategies. We present the results for the Old IAS rules (before IAS 39 became effective) and for current IAS rules (including IAS 39) and the similar US GAAP rules after SFAS 133 became effective. In addition we compare the financial accounting results to the results of economic accounting as described in section II.

1.   Financial statements of the model bank under Old IAS

Following the "mixed model" under Old IAS the trading book of our model bank is measured at fair value as in economic performance measurement. The banking book assets and the liabilities are measured at amortized cost; changes in interest rates do not influence the measurement of banking book loans or liabilities irrespective of the existence or non-existence of an effective hedge of interest rate changes. Securities of the banking book are valued at amortized cost or lower market quotes.

Under Old IAS hedge accounting is mainly based on interpretations and thus is optional. All German banks presenting IAS group financial statements opt to use hedge accounting. Therefore we will not discuss the results of Old IAS without hedge accounting.

Table IV.1a (down) presents the results for a fully hedged model bank in the scenario of declining interest rates. Due to the declining interest rates the fair values of the fixed rate assets and liabilities increase as displayed under "Economic Accounting" (Panel A). The risk in the banking book resulting from a long position in fixed rate assets is hedged via an internal derivative with the trading book. The open position from the internal contract in the trading book is closed by an external swap in the market.

Table IV.1a (down): Comparison of Old IAS (with Hedge Accounting) with Economic Accounting

- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B Old IAS			Panel C Differences		
	1996	**1997**	**1998**	**1996**	**1997**	**1998**	**1996**	**1997**	**1998**
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
Investment Securities	88.53	87.50	88.63	80.00	83.04	83.04	8.53	4.46	5.60
Other Assets	0.00	0.00	0.00	20.80	16.58	21.38	-20.80	-16.58	-21.38
Total Assets	415.44	417.24	433.39	403.17	405.12	417.60	12.27	12.12	15.79
Trading Liabilities	23.17	25.12	37.60	23.17	25.12	37.60	0.00	0.00	0.00
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Liabilities & Equity	415.44	417.24	433.39	403.17	405.12	417.60	12.27	12.12	15.79
Net Interest Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Trading Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income from Investments	0.00	0.00	0.00	0.00	(3.04 -3.04)	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Under Old IAS all banking book assets and liabilities except for investment securities are carried at amortized cost (Panel B). The model bank in part has a "natural hedge" of fixed rate assets and liabilities for which unrealized gains on the loans (1996: 112.27-100.00=+12.27) equal unrealized losses on the liabilities (1996: -112.27-(-100.00)=-12.27). The net long position in fixed rate assets (+ 180) results in an economic gain, which is not recognized. This

unrecognized gain (1996: +20.80) results from increases in the fair value of loans (1996: 112.27-100.00=+12.27) and of investment securities (1996: 88.53-80.00=+8.53)[53]. The corresponding loss on the external derivative hedging instruments of the banking book (1996: -20.80) appears under trading liabilities together with the loss on the swap hedging the trading book assets (1996: -2.37).

Under Old IAS we face the problem that the recognized change in fair value on the external hedging instruments is not compensated by recognized changes in the value of banking book assets and liabilities. The net change in the fair value of derivative hedging instruments is negative in this scenario of decreasing interest rates whereas the banking book assets and liabilities continue to be carried at cost and thus display no change. Without hedge accounting under Old IAS the net change of trading assets and liabilities (1996: -20.80) would show up in net income. Hedge accounting under Old IAS thus requires inserting a "plug" displayed as "other assets" in Table IV.1a (down) to equate debit and credit in the balance sheet. Only with the plug asset created by credits to net income our fully hedged bank presents a zero net income as expected. This pertains to net trading income and net interest income, which are both zero.

The following Figure IV.1 visualises this plug story. The model bank has natural hedges in the banking book where part of the fixed rate loans (100) are hedged by the fixed rate bonds (100). The compensating effects of the banking book assets and liabilities under Old IAS are not shown by entering the compensating changes in fair value in net income but by ignoring the fair value changes ("compensating misvaluation"). In the trading book we have another natural hedge as the securities (100) are hedged by a swap. Changes in fair value of the trading securities (1996: 2.37) are perfectly offset in net trading income ("compensating valuation") by the changes in fair value of the swap (1996: -2.37). The fixed rate loans and securities of the banking book (180) hedged via internal swaps are carried at cost whereas the external swap in the trading book effectively hedges the long position in the banking book. As derivative hedging instruments are carried at fair value with changes recognised in net income this charge (1996: - 20.80) can only by compensated by a credit to net income (1996: 20.80) and by recognising a related "plug" asset.

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[53]   Since the operations of the bank start in 1995 the numbers represent the accumulated gain.

Figure IV.1: Balance Sheet Effects (with Hedge Accounting)
– Decreasing Interest Rates –

Fixed rate Investment Securities and Loans hedged by Swap

Securities (80)   Trading Liabilities   20.80

Loans (100)   Net Income   20.80   -20.80

Other Assets
"plug"   20.80

"Natural" Hedges

Trading
Securities (100)   2.37   Trading Liabilities   2.37

Loans (100)   Issued Bonds (100)
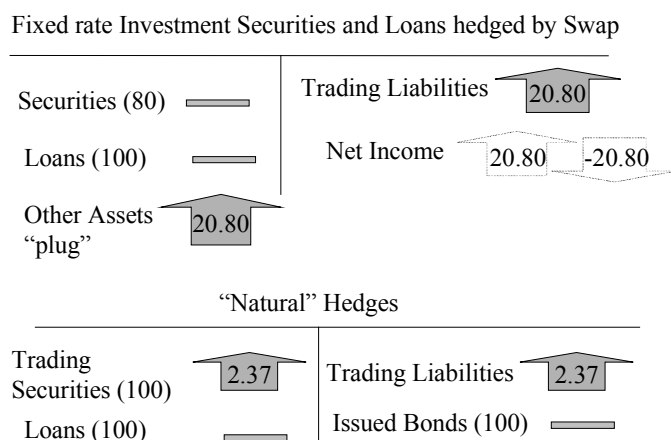
The "plug" asset or liability is a very interesting item as it represents the net change in fair value of the banking book assets and liabilities attributable to the risk that has been hedged via internal contracts with the trading book[54]. If the model bank does not hedge the interest rate risk from the long fixed rate position in the banking book there would be no necessity for a "plug" asset or liability. Table IV.1b (down) demonstrates this for the partial hedge strategy where the long position in loans (100) remains unhedged and correspondingly the amount of the "plug" asset decreases (1996: +8.53)[55].

German banks appear to handle the "plug" item as a technical issue, which is supposedly viewed as immaterial in most cases and probably therefore not disclosed separately in financial statements. Reviewing the 2000 fiscal year end annual reports we found no bank, which disclosed or explained such a plug in the notes to financial statements.

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[54] See Wittenbrink and Göbel (1997), p. 272.
[55] With the partial hedge strategy only the investment securities (1996: +8.53) are hedged via internal deals with external trading swaps (1996: -8.53).

Table IV.1b (down): Comparison of Old IAS (with Hedge Accounting) with Economic Accounting

- Partially Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	**1997**	**1998**	**1996**	**1997**	**1998**	**1996**	**1997**	**1998**
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
Investment Securities	88.53	87.50	88.63	80.00	83.04	83.04	8.53	4.46	5.60
Other Assets	0.00	0.00	0.00	8.53	4.46	5.60	-8.53	-4.46	-5.60
Total Assets	415.44	417.24	433.39	390.90	393.00	401.81	24.54	24.24	31.58
Trading Liabilities	10.90	13.00	21.81	10.90	13.00	21.81	0.00	0.00	0.00
Liabilities to Banks	273.79	268.97	264.66	273.79	268.97	264.66	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	12.65	18.48	23.15	1.93	6.21	11.03	10.72	12.27	12.12
Net Income	5.83	4.67	7.98	4.28	4.82	4.31	1.55	-0.15	3.67
Total Liabilities & Equity	415.44	417.24	433.39	390.90	393.00	401.81	24.54	24.24	31.58
Net Interest Income	5.83	4.67	7.98	4.28	4.82	4.31	1.55	-0.15	3.67
Net Trading Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income from Investments	0.00	0.00	0.00	0.00	(3.04 -3.04)	0.00	0.00	0.00	0.00
Net Income	5.83	4.67	7.98	4.28	4.82	4.31	1.55	-0.15	3.67

Under the partial hedge strategy, the model bank does not close the long position in fixed rate assets in the market and thus shows a positive net interest income with decreasing interest rates because of the lower cost to refinance the long position in fixed rate assets. There is no effect on trading income, because we assume that the trading department in our model bank closes all risks from the trading security and the internal derivative hedging the investment securities in

the market. In Table IV.1b (down) we see that net interest income under Old IAS with hedge accounting (1996: +4,28) differs from net interest income under economic performance measurement (1996: +5,83). Whereas under economic performance measurement the change in the fair value of all future interest payments is included in net (interest) income in the period of the change in interest rates, under Old IAS only the interest earned and the interest expense of the reporting period affect net income. Thus the total effect of an interest rate change appears in net interest income only over the term of the fixed rate assets and liabilities and related hedging instruments under Old IAS accounting.

The investment securities of the model bank comprise bonds held as available-for-sale and bonds held-to-maturity. Both categories are recognized and measured at lower of cost or market under Old IAS. The model bank hedges investment securities under both strategies (fully and partial hedged bank). Since we assume the hedge as being perfect (i. e. we use one interest curve for the bond and the swap) there is no need for writing investment securities down to lower fair values (as expected with increasing interest rates, see Appendix Table IV.1b (up)). We have described this artificial valuation ("compensating misvaluation") in section III. in detail.

We further assume that the model bank sells a part of the investment securities portfolio (50.00) at the end of 1997 at the current market price (53.04) and immediately buys the securities back at the same price.[56] The sale results in a realized gain (3.04) in the scenario of decreasing interest rates (Table IVa (down), Table IVb (down)). The question arises whether a corresponding (unrealized) loss (-3.04) on the internal hedging instrument should be included in net income from investments[57].

Under economic performance measurement (Panel A) net economic profit of the year does not depend on whether an asset is sold and bought back immediately or held if we abstract from transaction costs. Risk management has no reason for closing out the internal hedge and thus realizing the loss on the internal contract as the risk position is virtually unchanged. For the existing accounting regimes we argue that selling or closing out hedged items should be accompanied with recognizing the compensating gain or loss on the hedging derivative in net income from investments even if the risk position does not change as in our example. That is realistic to achieve with micro hedges. However, for a bank following a dynamic macro

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[56] In order to simplify the presentation of the argument we abstract from a bid ask spread and from transaction costs (see section II.2).

[57] The situation is comparable to prepayment penalties, paid at early termination of a loan.

hedging strategy there is often no possibility to identify a single hedging derivative, which must be closed out upon sale of a security. A similar problem arises when hedging derivatives are terminated before maturity of the hedged item. Arguing with the matching principle accounting interpretations accept under Old IAS for micro hedging to recognize close-out payments in net income not immediately but over the remaining term of the hedged item[58]. In a macro-hedge environment there are again serious problems how to allocate close out payments to a single hedged item with a defined maturity.

To summarize, for a fully hedged bank Old IAS allows to present an identical income statement as under economic performance measurement and thus to present the economic results adequately. As the banking book assets and liabilities are carried at cost fair value changes are not directly recognized but the hedged part shows up in the "plug" other assets or other liabilities. Fair value changes of fixed rate banking book assets and liabilities that form "natural hedges" do not show up neither in the balance sheet nor in the income statement and thus do not display existing inefficiencies of the hedges[59]. As hedge accounting under Old IAS is not regulated by standards and thus is optional, companies may choose not to present the economics of their hedging strategy adequately. However, German banks typically choose the option of hedge accounting.

For partial hedging strategies only part of the fair value changes attributable to the risk being hedged shows up in the "plug" asset or liability. Here the income presentation differs from economic performance measurement and thus the economics of the transactions are not adequately portrayed. Changes in the fair value of banking book assets and liabilities are not fully recognized in the period of the interest rate change but show up in net income over the remaining term of the instruments under Old IAS.

2. Financial Statements of the model bank under New IAS without hedge accounting

With the introduction of IAS 39 and of SFAS 133 banks following a strategy of macro hedging face the problem that this type of hedging does not easily qualify for hedge accounting under the restrictive new rules. In this section we will analyze the effects of the new rules on a bank that sticks to macro hedging strategies and is not able or does not want to use the hedge accounting options offered by IAS 39 or SFAS 133.

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[58] See Krumnow et al. (1994), p. 468f. This implies that realised gains have to be included under liabilities and realised losses under assets.

[59] However, the year end fair values of banking book assets and liabilities appear in fair value notes disclosure, cf. IAS 32.77.

An important change introduced by IAS 39 is the classification of financial assets in four categories: trading, available-for-sale, held-to-maturity assets, and loans originated by the enterprise. For our model bank, we split the investment securities and allocate them in part to the category "available-for-sale" (50.00) and "held-to-maturity" (30.00)[60]. We do not allocate debt securities to the category "originated by the enterprise", which is required under IAS (but not allowed under US GAAP) if the funds are directly provided to the debtor and there is no intention to sell them immediately or in the short term[61]. As all derivatives, which are not designated as hedging instruments, are classified as "trading" according to IAS 39.10 for measurement purposes they are measured at fair value with all changes in fair value to be included in net income[62].

Banking book assets classified as either "originated by the enterprise" or "held-to-maturity" and banking book liabilities continue to be carried at cost under IAS 39. Banking book assets classified as "available-for-sale" are measured at fair value. IAS 39.103b offers the option to either show all changes in fair value in net income or include them in a special equity section "other comprehensive income". Most if not all German banks use the second option that we also use for the model bank.

Table IV.2a (down) presents the results of a fully hedged bank under New IAS without applying hedge accounting. The gain on fixed rate loans (1996: 24.54) and on the held-to-maturity securities (1996: 3.82) is again not recognized. The corresponding loss on the issued bonds (1996: -12.27) forming a natural hedge for half of the loans is also not recognized (compensating misvaluation). The related hedging derivatives are measured at fair value with changes in fair value recognized in net income (1996: -12.27-3.83 = -16.10).

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[60] Although IAS 39 is no disclosure standard, we assume that these categories are disclosed separately in the balance sheet.

[61] See IGC QA 10-20; for a critique see German Institute of Chartered Accountants, p. 997.

[62] Non-trading derivatives, which do not qualify for hedge accounting, may be disclosed separately.

Table IV.2a (down): Comparison of New IAS (without Hedge Accounting) with Economic Accounting
- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
AFS	54.70	53.04	52.10	54.70	53.04	52.10	0.00	0.00	0.00
HTM	33.82	34.46	36.54	30.00	30.00	30.00	3.82	4.46	6.54
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	415.44	417.24	433.39	387.07	388.53	395.27	28.37	28.71	38.11
Trading Liabilities	23.17	25.12	37.60	23.17	25.12	37.60	0.00	0.00	0.00
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	-18.84	-20.80	-16.58	18.84	20.80	16.58
Accumulated OCI	0.00	0.00	0.00	4.76	4.70	0.00	-4.76	-4.70	0.00
OCI	0.00	0.00	0.00	-0.06	-4.70	-0.94	0.06	4.70	0.94
Net Income	0.00	0.00	0.00	-1.96	4.21	-4.80	1.96	-4.21	4.80
Total Liabilities & Equity	415.44	417.24	433.39	387.07	388.53	395.27	28.37	28.71	38.11
Net Interest Income	0.00	0.00	0.00	7.47	8.21	6.88	-7.47	-8.21	-6.88
Net Trading Income	0.00	0.00	0.00	-9.43	-7.03	-11.68	9.43	7.03	11.68
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	3.04	0.00	0.00	-3.04	0.00
Net Income	0.00	0.00	0.00	-1.96	4.21	-4.80	1.96	-4.21	4.80
OCI	0.00	0.00	0.00	-0.06	-4.70	-0.94	0.06	4.70	0.94
Comprehensive Income	0.00	0.00	0.00	-2.02	-0.49	-5.74	2.02	0.49	5.74

For available-for-sale securities hedged via internal derivatives by external swaps in the trading book we observe a mismatch between net income and other comprehensive income. With decreasing interest rates the gain of increasing fair values of available-for-sale securities is allocated to other comprehensive income (4.70). The change in fair value of the external hedging derivative is negative (-4.70) and recognized in net trading income.

Figure IV.2: Balance Sheet Effects (without IAS 39 Hedge Accounting)
– Decreasing Interest Rates –

Fixed rate HTM Securities and Loans hedged by Swap

Securities (30)	Trading Liabilities 16.10
Loans (100)	Net Trading Income 16,10

Fixed rate AFS Securities hedged by Swap

Securities (50) 4.70	Trading Liabilities 4.70
	Net Trading Income 4.70
	OCI 4.70

"Natural" Hedges

Trading Securities (100) 2.37	Trading Liabilities 2.37
Loans (100)	Issued Bonds (100)

Figure IV.2 presents the balance sheet effects under New IAS without hedge accounting. The natural hedges of fixed rate loans financed by issued bonds in the banking book and of trading book securities hedged by trading book swaps continue to have no effects on net income. The mismatch of held-to-maturity securities and loans carried at cost while related trading book swaps are carried at fair value shows up in net (trading) income. A second mismatch in net income occurs when the change in fair value of available-for-sale securities is presented in other comprehensive income whereas the related change in the fair value of hedging instruments shows up in net (trading) income. Thus, the "plug" affects net income and is not presented as an artificial asset or liability.

Upon sale of the available-for-sale securities in 1997 the gain realized (3.04)[63] is reallocated from other comprehensive income to net income. This possibility of recycling gains (or losses

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[63] OCI decreases in 1997 by 4.70. This comprises the realized gain of 3.04 and the decrease in market value of the avaliable for sale securities in 1997 of 1.66.

in a scenario of increasing interest rates), allows some discretion for net income management under the new rules.

For the fully hedged bank we observe in Table IV.2a (down) non zero net income (1996: -1.96) with decreasing interest rates as opposed to the zero results under economic performance measurement and also under Old IAS with hedge accounting properly applied. Net interest income is positive (1996: +7.47) and results from the interest payments on the banking book assets and liabilities and also the interest allocated to the financing of the trading book[64]. Net trading income measured on a fair value basis is negative (-9.43) and results from the interest payments received on the bonds (+6.28) plus the positive changes in fair value of the bonds (+2.37), from the net payments of the external swap (-10.14) and the change in fair value of the external swap (-4.33), and from the internal allocation of interest for the financing of the trading book (-3.61). Thus, the non zero net income (1996: -1.96) is due to the different measurement bases for the banking book (accrual accounting) and for the trading book (fair value accounting).

For increasing interest rates we observe comparable effects in Appendix Table IV.2b (up): Net trading income becomes positive and net interest income negative. The fully hedged bank under IAS 39 without hedge accounting appears as an institution that runs open positions in the trading book and in the banking book.

The partial hedging strategy under New IAS without hedge accounting in Appendix Table IV.2b (down) results in non zero net income (1996: 3.87) as expected. Compared to the fully hedged strategy the net interest income (1996: +7.54) is nearly unchanged because the net interest payments on banking book assets are the same except for the liabilities to banks.[65] Users of accounting information are therefore no longer able to derive information on maturity transformation from the income statement as both a fully hedged bank and a bank with a partially hedged banking book present non zero net interest income. Old IAS may be criticized, because it shows the success of maturity transformation of a bank with an open position not immediately in full as a change in fair value of banking book assets and liabilities. Under IAS 39 without applying hedge accounting the effect of open banking book positions on net interest income is no longer identifiable.

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[64] Under old IAS with hedge accounting the net payments on the internal swaps (1996: -7.47) are netted against the interest payments on the external transactions of the banking book and result in zero net interest income for all periods.

[65] The level of funding through liabilities to banks is lower in this scenario because the bank has positive earnings and cash flows that reduce external funding needs. See section II.3. above.

The trading component of net income is less volatile for the model banks under the partial hedging strategy. The net long position of the trading book is reduced because the amount of external swaps hedging the banking book assets is smaller and thus net trading income is reduced. The volatility of net trading income can be further reduced or even eliminated if external swaps are entered into only for hedges of trading book assets. For our model bank this would mean to refrain from hedging the "available-for-sale" and "held-to-maturity" securities. Thus, the New IAS rules may discourage economic sensible hedges for which hedge accounting is either not accepted or practical. As banks cannot leave the banking book completely unhedged they have to look for interpretations to apply hedge accounting to their existing strategies or for amendments of their strategies.

The situation under New IAS without hedge accounting is similar to the status of accounting standards before the increase of investment banking business and the development of modern risk management techniques required the use of hedge accounting in order to adequately portray the economic characteristics of the underlying transactions. As the qualification criteria for hedge accounting in IAS 39 or SFAS 133 are very restrictive, economic hedges, which could be designated under Old IAS, no longer qualify for hedge accounting under the new rules. Therefore the new standards have been heavily criticized as to discourage the development of best practice risk management. As presented in this section, the new IAS and US GAAP rules might create some curiosities in the presentation of financial information, which are difficult to explain to users of financial statements.

3. Financial statements of the model bank using hedge accounting under IAS 39 and SFAS 133

We now assume the model bank does use hedge accounting and is able to fulfill the burdensome requirements of IAS 39 or SFAS 133 for hedge accounting. For our model bank it is easy to document micro hedge relationships as required by the new rules. We refrain from discussing the difficult qualification problems addressed in section III.

In our tables we apply additional presentation rules for the balance sheet and the income statement. Derivatives will be disclosed as either trading derivatives or hedging derivatives in the balance sheet, which is currently not required by IAS or US GAAP. We further recommend that there should be separate line items in the balance sheet or additional disclosure in the notes displaying positive fair values and negative fair values of hedging derivatives. Since we assume

that there exists no hedge ineffectiveness, there is no need to disclose a separate line item in the income statement of our model bank. We will point out that fair value hedge accounting is able to avoid mismatches in net income in principle. Cash flow hedge accounting reallocates the mismatch to other comprehensive income and therefore bears a serious disadvantage.

3.1 Fair value hedge accounting

Table IV.3a (down) displays fair value hedge accounting for the fully hedged bank with decreasing interest rates. Held-to-maturity securities may not be designated as hedged items in a fair value hedge of interest rate risk (IAS 39.127; FAS 133.21d) and thus continue to be carried at cost. Since the model bank has economically hedged this category the new rules in IAS 39 or SFAS 133 again create a mismatch in net income (1996: -3.82). The fair value change of derivative hedging instruments is recognized in net income, whereas the fair value change of the held-to-maturity securities (1996: +3.82) does appear neither in the balance sheet nor in net income.

In our model bank the loans are hedged by issued bonds and by swaps. The natural hedge of the loan and the issued bond both carried at cost does not appear in the balance sheet and income statement ("compensating misvaluation"). The external swap hedging the interest rate risk of the loans not covered by the natural hedge of the issued bonds can be easily identified. The change in fair value of the swap (1996: -12.27) is recognised and displayed under hedging derivatives together with the swap hedging the available-for-sale securities (1996: -4.70).[67]

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[67] The internal swaps economically hedging the long position in loans are treated as non-existent in the financial statements as they are eliminated upon consolidation. However, internal contracts are useful to document the link between the hedged items in the banking book and the hedging instrument in the trading book.

Table IV.3a (down): Comparison of New IAS (with Fair Value Hedge) with Economic Accounting
- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	212.27	212.12	215.79	12.27	12.12	15.79
AFS	54.70	53.04	52.10	54.70	53.04	52.10	0.00	0.00	0.00
HTM	33.82	34.46	36.54	30.00	30.00	30.00	3.82	4.46	6.54
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	415.44	417.24	433.39	399.34	400.66	411.06	16.10	16.58	22.32
Trading Liabilities	23.17	25.12	37.60	6.19	9.96	19.71	16.97	15.16	17.89
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Hedge Derivatives	0.00	0.00	0.00	16.97	15.16	17.89	-16.97	-15.16	-17.89
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	-3.36	-3.82	-4.46	3.36	3.82	4.46
Accumulated OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	-0.47	-0.64	-2.07	0.47	0.64	2.07
Total Liabilities & Equity	415.44	417.24	433.39	399.34	400.66	411.06	16.10	16.58	22.32
Net Interest Income	0.00	0.00	0.00	1.29	1.41	1.19	-1.29	-1.41	-1.19
Net Trading Income	0.00	0.00	0.00	-1.75	-2.05	-3.26	1.75	2.05	3.26
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	-0.47	-0.64	-2.07	0.47	0.64	2.07
OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Comprehensive Income	0.00	0.00	0.00	-0.47	-0.64	-2.07	0.47	0.64	2.07

The offset in net income is achieved for the loans by a fair value basis adjustment. The carrying amount of the hedged item is adjusted for the change in fair value with regard to the risk being hedged using derivative hedging instruments (1996: 200.00+12,27=212.27). This basis adjustment allocates the "plug" to the carrying amount of the hedged item carried at cost.[68]

The available-for-sale securities hedged by external swaps are measured at fair value with the change (1996: +4.70) recognised in other comprehensive income. Upon designation of a fair value hedge changes in fair value of available-for-sale securities have to be recognized in net income (IAS 39.153b; SFAS 133.22b) in order to offset the corresponding changes in fair value of the derivative hedging instrument.

Thus, we find the "plug" asset of 20.80 identified in the same scenario under Old IAS as an allocation to net income for the held-to-maturity securities that do not qualify for IAS 39 hedge accounting (+3.83), as an adjustment to the carrying value of the loan (+12.27), and as an adjustment to the carrying value of the available-for-sale securities (+4.70). Figure IV.3 summarizes this plug allocation

Figure IV.3: Balance Sheet Effects (with IAS 39 Fair Value Hedge Accounting)
– Decreasing Interest Rates –

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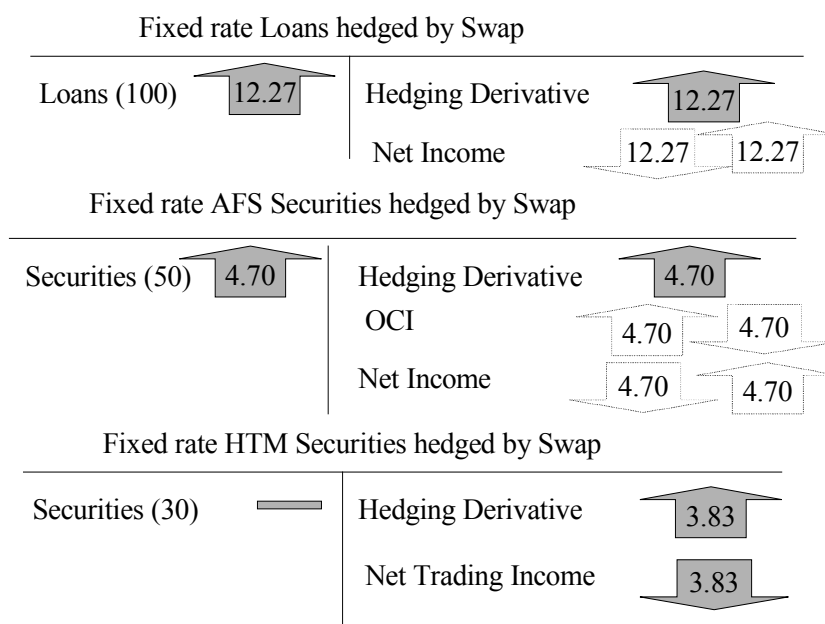
[68] See Gebhardt (2000), p. 82-83.

In the income statement we find a non zero net interest income (1996: +1.29) and a non zero net trading income (1996: -1.75) for our fully hedged bank that uses all available possibilities of fair value hedge accounting offered by IAS 39 or SFAS 133. Net interest income results from the interest payments on the held maturity securities (2.37) financed with variable rate deposits (-1.08) as the internal swap hedging the interest margin (-1.29) is eliminated upon consolidation. Net trading income represents the performance (i.e. net cash flow out of the swap (-1.29) plus the change in the present value of future swap payments (–0.46)) of the external swap economically hedging the held-to-maturity security. As IAS 39 and SFAS 133 do not accept hedge accounting for this swap it has to be measured and disclosed as a trading instrument. The combined effect on net income (1996: -0.46) represents the fair value change of the external hedging swap, which has no contra entry, because the economically hedged held-to-maturity security is valued at cost.

This result for held-to-maturity securities can be generalized to all economic hedges using derivative instruments that do not qualify for hedge accounting because of a lack of documentation or problems in demonstrating the required high degree of hedge effectiveness: The new rules in IAS 39 and SFAS 133 prohibit a fully hedged bank from presenting (zero) net income, which is independent of interest rate movements, and thus to distinguish itself from banks running open positions. Because of the optionality of hedge accounting there is a range of net income to be reported under the new rules from –0.47 (using all possibilities of fair value hedge accounting) to –1.96 (using none of the options of hedge accounting) for our fully hedged bank in the scenario of decreasing interest rates. Thus in order to enable users to understand the results presented, banks should provide adequate disclosures on their hedging and hedge accounting strategies.

Table IV.3b (down) presents the results of applying IAS 39 fair value hedge accounting to a partially hedged bank. Only available-for-sale securities are hedged by derivative hedging instruments that qualify for hedge accounting (1996: -4.70). Unhedged loans and held-to-maturity securities, which do not qualify for hedge accounting, are carried at cost.

As expected for a partially hedged bank we find a non zero net income (1996: +3.81). As the position has been taken in the banking book by not hedging the loans we find as expected a non zero net interest income (1996: +5.57) resulting from interest earned on the held-to-maturity securities (1996: +2.37) financed by variable rate deposits (1996: -1.08) and from the positive

interest margin due to interest earned on the loan (7.89)[69] that is also financed by variable rate deposits (-3.61).

Under New IAS income presentation for a partial hedged bank again differs from economic performance measurement. Changes in the fair value of banking book assets and liabilities are not fully recognized in the period of the rate change but only show up in net income over the remaining term of the instruments.

The most critical issue for banks that manage their banking book risks actively on a portfolio basis is the identification of the link between the derivative hedging instruments and the hedged items. Only if this link can be established and documented the standards permit the basis adjustment of the hedged item and thus allow an offset of fair value changes attributable to the risk being hedged in net income.

The following example illustrates some of the problems. Our model bank has allocated the notional of the transactions to bends by their remaining term. It designates the net long position (maturity bend 1999: 50 available-for-sale security: maturity bend 2002: 100 loans) as gross to external hedging payer swaps (bend 1999: 50 and bend 2002: 100) at January 1st 1995, which could be expected to offset the changes in fair value within the required range of 80% to 125%[70] within each maturity bend of similar hedging instruments[71]. At financial year-end 1996 the hedge is assumed to be still effective (in prospective as well as in retro-perspective). At January 3rd, 1997 the risk position may have changed because the bank issued a fixed rate bond of notional 200 also maturing in 2002. The bank now has a long position in fixed rate liabilities in the year bend 2002 (loans of 200 versus issued bonds of 300), which will be hedged by entering a new external receiver swap of 100 notional in our example. The bank has to terminate the old hedge, which means to allocate hedging payer swap to trading book subsequently measured at fair value and amortize the basis-adjustment (+12.27) of the hedged loan until maturity in 2002.[72] In principle, with each new transaction the bank would have to terminate old hedges and find new qualifying hedge relationships. Clearly, this is not workable for an actively managed banking book. However, some banks have developed IT based routines

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[69] This includes the interest on accumulated profits of prior years (0.07).

[70] Cf. IAS 39.146; there are no bright lines to define highly effective under SFAS 133 but the range of 80% to 125% is also accepted under US GAAP; see PwC (1998), p. 87.

[71] For simplicity we compare notional, but real-life hedge accounting would be based on sensitivities or regression analysis.

[72] Alternatively, the swap may not be closed out but transferred to the trading book at fair value.

that allow to portray their macro hedging strategies as fair value hedges under IAS 39 or SFAS 133 not completely but to an acceptable degree.

Figure IV.4: Maturity Schedules for IAS 39 Fair Value Hedge Accounting

Maturity Schedule per 1st of January 1996

	1999	…	2002	…	2004
Hedged fixed rate Items	+50 HTM bond		+100 loan 1 +100 loan 2 -100 issue bond		+30 AFS bond
Net position before hedge accounting	+50		+100		+30
	FV-Hedge		FV-Hedge		no Hedge-Accounting
Swap fixed leg	-50		-100		-30

Maturity Schedule per 3rd of January 1996

	1999	…	2002	…	2004
Hedged fixed rate Items	+50 HTM bond		+100 loan 1 +100 loan 2 -100 issue bond 1 -200 issue bond 2		+30 AFS bond
Net position before hedge accounting	+50		-100		+30
	FV-Hedge		FV-Hedge		no Hedge-Accounting
Swap fixed leg	-50		+100		-30

When comparing Old IAS and New IAS with fair value hedge accounting we have to note that because of the restrictions to apply hedge accounting the results of a fully hedged bank do not adequately mirror the economics. Instead of displaying zero net income as in economic performance measurement New IAS requires to show non zero net interest income and non zero trading income. New IAS with fair value hedge accounting does not give rise to separate

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"plug" assets and liabilities where financial instruments measured at cost are effectively hedged by derivative instruments. Rather the "plug" is allocated to the hedged items resulting in valuations of assets and liabilities that are neither cost nor market valuations but special hedge accounting valuations probably understood only by a small minority of users of financial statements.[73]

3.2 Cash flow hedge accounting

The concept of cash flow hedge accounting can be demonstrated for the situation of our model bank where the fixed rate loans are financed by revolving variable rate term deposits. Under cash flow hedge accounting, the payer swap is thought to offset the variable interest expenses on the term deposits and thus to eliminate the exposure to changes in future interest cash flows. In contrast, under fair value hedge accounting the fixed rate interest outflows on the payer swap are thought to offset the fixed rate interest received on the loan thus creating synthetically a variable rate loan the fair value of which does not change when interest rates change. Even though the financial instruments involved are exactly the same we will demonstrate that the accounting differs considerably depending on the kind of designation of a hedge as either a fair value hedge or a cash flow hedge.

Figure IV.5: Comparison of the Concepts of Fair Value Hedge Accounting and Cash Flow Hedge Accounting for Interest Rate Risk Management
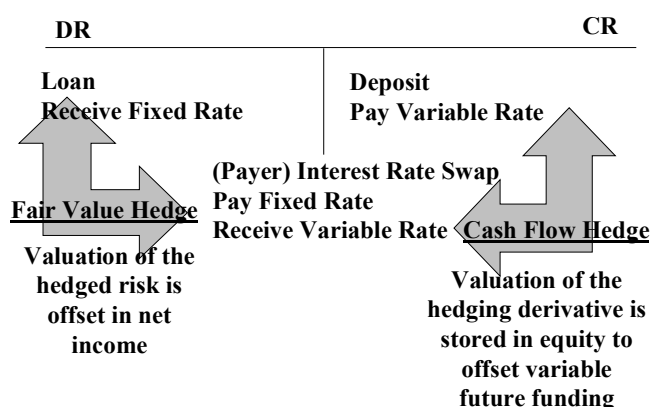
Table IV.4a (down) displays the result of applying cash flow hedge accounting to all hedges. Financial assets and liabilities are carried at either cost or fair value as already explained in

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[73] See Gebhardt (2000), p. 94.

section IV.2. for the situation without hedge accounting under New IAS. With cash flow hedge accounting there are no (basis) adjustments to the carrying value of the hedged items.

Table IV.4a (down): Comparison of New IAS (w/ Cash Flow Hedge) with Economic Accounting
- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102,37	105,50	113,18	0,00	0,00	0,00
Loans and Advances	224.54	224.24	231.58	200,00	200,00	200,00	24,54	24,24	31,58
AFS	54.70	53.04	52.10	54,70	53,04	52,10	0,00	0,00	0,00
HTM	33.82	34.46	36.54	30,00	30,00	30,00	3,82	4,46	6,54
Hedge Derivatives	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Other Assets	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Total Assets	415.44	417.24	433.39	387,07	388,53	395,27	28,36	28,70	38,11
Trading Liabilities	23.17	25.12	37.60	2,37	5,50	13,18	20,80	19,62	24,42
Liabilities to Banks	280.00	280.00	280.00	280,00	280,00	280,00	0,00	0,00	0,00
Certified Liabilities	112.27	112.12	115.79	100,00	100,00	100,00	12,27	12,12	15,79
Other Liabilities	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Hedge Derivatives	0.00	0.00	0.00	20,80	19,62	24,42	-20,80	-19,62	-24,42
Retained Earnings	0.00	0.00	0.00	0,00	0,00	3,04	0,00	0,00	-3,04
Accumulated OCI	0.00	0.00	0.00	-14,08	-16,09	-19,62	14,08	16,09	19,62
OCI	0.00	0.00	0.00	-2,02	-3,53	-5,74	2,02	3,53	5,74
Net Income	0.00	0.00	0.00	0,00	3,04	0,00	0,00	-3,04	0,00
Total Liabilities & Equity	415.44	417.24	433.39	387,07	388,53	395,27	28,36	28,70	38,11
Net Interest Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Trading Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Gains AFS	0.00	0.00	0.00	0,00	3,04	0,00	0,00	-3,04	0,00
Net Income	0.00	0.00	0.00	0,00	3,04	0,00	0,00	-3,04	0,00
OCI	0.00	0.00	0.00	-2,02	-3,53	-5,74	2,02	3,53	5,74
Comprehensive Income	0.00	0.00	0.00	-2,02	-0,49	-5,74	2,02	0,49	5,74

IAS 39.127 does not allow to designate held-to-maturity financial assets as hedged items in a cash flow hedge. However, according to IGC QA 127-4 it is accepted to "hedge the exposure to

cash flow risk associated with the forecasted future interest receipts on debt instruments resulting from the reinvestment of interest receipts on a fixed rate asset classified as held-to-maturity". By this strange line of argument it is allowed to apply cash flow hedge accounting also to held-to-maturity investments.

The derivative hedging instruments are carried at fair value and displayed in Table IV.4a (down) separately as trading liabilities (1996: 2.37) and as hedge derivatives of the variable refinancing of the banking book. The amount shown (1996: 20.80) can be allocated to the swaps hedging available-for-sale securities (-4.70), held-to-maturity securities (-3.82) and loans (-12.27). The changes in fair value of the swaps hedging the variable rate refinancing of the held-to-maturity loans and securities are not included in net income but in other comprehensive income (1996: -3.82-12.27 = -16.09). Thus, the mismatch due to the fair value measurement of the swap appears as a "plug" in other comprehensive income as visualized in Figure IV.6.

Figure IV.6: Balance Sheet Effects (with IAS 39 Cash Flow Hedge Accounting)
– Decreasing Interest Rates -
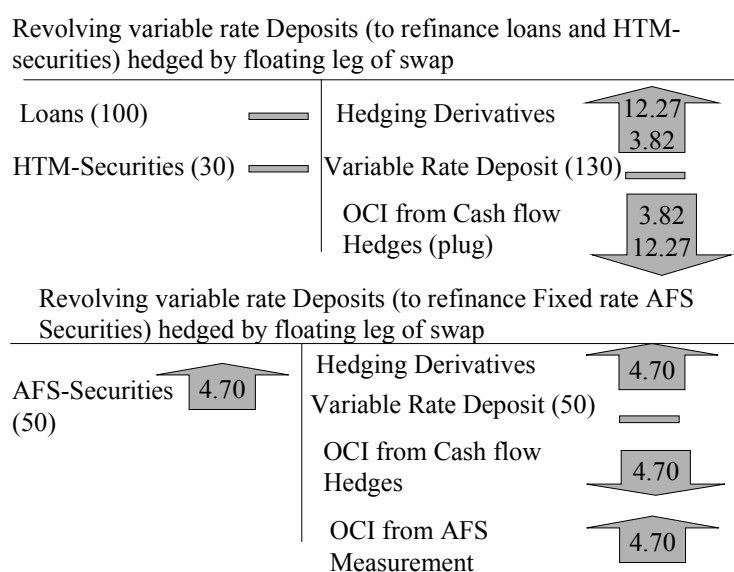
The change in fair value of the swap hedging the variable rate deposit refinancing of the available-for-sale securities (1996: -4.70) appears also in other comprehensive income and offsets the change in fair value of the available-for-sale securities (1996: +4.70). We recommend that these components of other comprehensive income should be disclosed as separate line items in the statement of changes in equity.

In Table IV.4a (down) we find again zero net income for economic performance measurement and also zero net interest income and zero trading income under New IAS with cash flow accounting for the fully hedged bank. The volatility in net income is completely removed if all

hedges are designated as cash flow hedges. However we observe volatility in other comprehensive income and thus volatility in equity.

If we compare comprehensive income under New IAS without hedge accounting (Table IV.2a) with comprehensive income under New IAS with all hedges designated as cash flow hedges (Table IV.4a) we see that both bottom lines are identical. The volatility that shows up in net income if no hedge accounting is applied is now completely removed and transferred to other comprehensive income. By choosing the level of (optional) cash flow hedge accounting one can influence the allocations to net income or to other comprehensive income. By designating all hedges as cash flow hedges we are able to move all accounting volatility in net income completely to other comprehensive income.

Figure IV.7: Maturity Schedule for IAS 39 Cash Flow Hedge Accounting

In Figure IV.7 we illustrate the problems of cash flow hedge accounting in a macro hedging framework. Again the notional amounts are allocated to the maturity schedule by their remaining term. At January 1st 1995 the model bank designates the floating leg of their payer swaps (from a fair value perspective hedging the net long position) as a hedge of variable rate interest expense of (current and future anticipated) deposits refinancing the fixed rate items. At January 3rd 1997 the risk position may have changed because the bank has issued a fixed rate bond of 200 maturing in 2002 which results in a net fixed rate position in this bend of −100. Under a cash flow hedge the bank now has to document sufficient volume of variable rate assets or highly probable future term deposits of 100 in the respective maturity bend, which have to be hedged against the risk of re-investment. These will be hedged by designating the floating leg of a new external receiver swap of 100 notional in our example. The bank has to discontinue hedge accounting for the payer swap, which means to reallocate the change in fair value (-12.27) from equity to net income immediately.

To summarize, cash flow hedge accounting reallocates the mismatch to other comprehensive income. The resulting volatility of equity is a serious disadvantage. The equity base changes although from an economic point of view there is no volatility. This is difficult to explain to users of financial statements. However, cash flow hedging remains a hedge accounting alternative chosen by a number of banks because it might be easier to demonstrate the required hedge effectiveness[74].

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[74]   See IGC QA 121-2b.

V. Conclusions

Recent changes in accounting regulation for financial instruments have been heavily criticized by representatives of the banking industry. They are claiming that the new rules do not allow to adequately portray the economics in particular of the commercial banking activities.We have developed a simulation model that captures the essential features of the market risk management of a modern universal bank. The model allows us to evaluate the arguments from the banking industry under different risk management strategies and for different interest rate scenarios.

We demonstrate that the Old IAS rules (before IAS 39 became effective) as interpreted by the banking industry allow to adequately portray the (zero) economic results of a fully hedged bank.[75] However, this requires to introduce a "plug" on the asset or liability side of the balance sheet by a credit or by a charge to net income in order to offset the change in fair value of the hedging derivatives that hedge assets or liabilities carried at cost. Thus, losses on hedging derivatives are presented as assets and gains on hedging derivatives are presented as liabilities, which is barely consistent with the definition of assets or liabilities under both IAS of US GAAP.

The "plug" identified is an interesting item as it represents the change in fair value of the banking book assets (carried at cost) attributable to the risk that has been hedged via internal contracts with the trading book.[76] If the bank does not hedge its open positions in the banking book via the trading book there would be no necessity for a "plug". We demonstrate this for the partial hedging strategy under which the long position in loans remains unhedged and thus results in a smaller "plug" asset or liability.

We arrive at this result favorable to the argument from the banking industry only when applying hedge accounting under Old IAS for all hedges. However, hedge accounting was optional and did not require extensive documentation of hedging relationships thus gave scope for earnings management.

A partial hedging strategy results in non-zero economic net income and also under Old IAS. However, periodic net income differs as the effects of favorable or unfavorable changes in

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[75] We do not argue that this is a reasonable strategy but use this as a benchmark strategy which results in zero economic net income that should also be presented in the financial statements.

[76] This statement assumes that the hedges are perfect. If ineffectiveness occurs the change in fair value of the hedging instruments is captured by the plug which the decides from the change in fair value of the hedged item attributable to risk being hedged.

interest rates show up in Old IAS accounting net income only over the remaining term of the hedged items and not immediately in the year of the change as in economic net income.

One important goal of the New IAS rules (and of SFAS 133) is to reduce the discretion in applying hedge accounting that is granted only as an exception subject to the fulfillment of burdensome documentation and restrictive qualification requirements that appear to be designed for micro hedging situations. Banks in their best practice risk management follow macro hedging strategies and thus some are unable or find it too costly to apply the new hedge accounting rules. This results in non zero interest income and non zero trading income even for a fully hedged bank that does not apply hedge accounting. Here the "plug" appears in net income and causes the strange result that the volatility of accounting income increases (decreases) with increasing (decreasing) hedging activities. As argued by the banking industry the New IAS rules thus might discourage the application of best practice (macro) risk management hedging strategies for which hedge accounting is either not accepted or practical.

As banks have to manage their risk positions they are looking for ways out of the dilemma that the New IAS hedge accounting rules do not support best practice hedging strategies. If the model bank chooses the option of fair value hedge accounting for all qualifying hedges the "plug" appears as an adjustment to the carrying amounts of the hedged items to be credited or charged to net income. This results in strange valuations of the hedged items that can be neither interpreted as cost or market but are the result of an accounting technique designed to avoid a mismatch in earnings. For hedges that do not qualify for fair value hedge accounting (e.g. of held-to-maturity investments) the "plug" appears in net income. Thus, again the fully hedged bank will have to show non-zero net interest income and non zero trading income. This might again discourage economically sensible hedges and affect risk taking in the banking industry. With cash flow hedge accounting the plug shows up in other comprehensive income. Thus, the mismatch is only reallocated from net income to other comprehensive income.

Banks that follow best practice macro hedging strategies face serious challenges in applying hedge accounting as this requires the identification of the link between the hedged items and the hedging instruments on a micro hedge basis. Thus it is difficult (if not impossible) and costly for a bank to achieve a fair presentation under the current accounting rules.

How can the unsatisfactory current situation be improved? A return to Old IAS is not a relevant option, because a majority in the relevant standard setting bodies wants to move away from the mixed model. The IASB recently released improvements of IAS 39 for public

comment, which include an option for fair valuing financial assets and financial liabilities. Although the IASB does not propose to force entities to measure more financial instruments at fair value, this might also support the work of the Joint Working Group of Standard Setters (JWG) advocating a full fair value model for all financial instruments.[77] A full fair value model would eliminate the mismatches in net income that arise both under Old IAS and New IAS but raise a number of new issues. Our bank model will be useful in discussing the pros and cons of the full fair value model.

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[77]   See JWG (2000).

References

Bessis, J.: Risk Management in Banking, 2nd edition, Chichester (John Wiley and Sons), 2002.

Bundesverband deutscher Banken, Bilanzierung von Sicherungsgeschäften (Hedge Accounting) nach IAS 39, Die Wirtschaftsprüfung, Vol. 54, No. 6 (2001), pp. 346-353.

Gebhardt, G.: Probleme der bilanziellen Abbildung von Finanzinstrumenten, Betriebswirtschaftliche Forschung und Praxis, No. 5 (1996), p. 557-584.

Gebhardt, G.: Risikomanagement und Rechnungslegung – ein Kernproblem in der Diskussion zur Bilanzierung von Finanzinstrumenten, ZfbF-Sonderheft, No. 45 (2000), pp. 69-94.

International Accounting Standards Committee (IASC): Accounting for Financial Assets and Financial Liabilities, London, 1997.

Financial Accounting Standards Board (FASB): Foreign Currency Translation. Statement of Financial Accounting Standards No. 52, Stamford CT, 1981.

Financial Accounting Standards Board (FASB): Accounting for Certain Investments in Debt and Equity Securities, Statement of Financial Accounting Standards No. 115, Norwalk CT, 1993.

Financial Accounting Standards Board (FASB): Accounting for Certain Derivative Instruments and Certain Hedging Activities – an amendment of FASB Statement No. 133. Statement of Financial Accounting Standards No. 138, Norwalk CT, 2000.

International Accounting Standards Board (IASB): Framework for the Preparation and Presentation of Financial Statements, London, 2002.

International Accounting Standards Comittee (IASC): The Effects of Changes in Foreign Exchange Rates. International Accounting Standard No. 21, London, 1993.

International Accounting Standards Comittee (IASC): Disclosures in the Financial Statements of Banks and Similar Financial Institutions. International Accounting Standard No. 30, London, 1994.

International Accounting Standards Comittee (IASC): Financial Instruments: Disclosure and Presentation. International Accounting Standard No. 32, London, 1998.

International Accounting Standards Board (IASB): Financial Instruments: Recognition and Measurement. International Accounting Standard No. 39, London, 2000.

International Accounting Standards Board (IASB): IAS 39 Implementation Guidance: Question and Answers, London, 2002.

Institut der Wirtschaftsprüfer in Deutschland (IDW), Sixth Batch of Proposed IAS 39 Implementation Guidance, Die Wirtschaftsprüfung, Vol. 54, No. 18 (2001), pp. 997-1000.

Johanning, L.: Value-at-Risk zur Marktrisikosteuerung und Eigenkapitalallokation, Bad Soden 1998.

Johnson, N. S., Speech by SEC Commissioner: Securities Regulation After Glass-Steagall Reform, March 2000 (http://www.sec.gov/news/speech/spch353.htm).

Joint Working Group of Standard Setters (JWG): Financial Instruments and Similar Items, December 2000 (http://www.iasc.org.uk).

Joint Working Group of Standard Setters (JWG): Financial Instruments – Issues Relating to Banks, August 1999 (http://www.iasc.org.uk/docs/fijwg/banksjwg.pdf).

Joint Working Group of Banking Associations on Financial Instruments: Accounting for Financial Instruments for Banks, October 1999 (http://www.iasc.org.uk/docs/fijwg/jwgfinal.pdf).

Krumnow, J., Das derivative Geschäft als Motor des Wandels für das Bankcontrolling, Die Betriebswirtschaft, Vol. 55, No. 1 (1995), pp. 11-20.

Krumnow, J., W. Sprißler, Y. Bellavite-Hövermann, M. Kemmer and H. Steinbrücker, Rechnungslegung der Kreditinstitute, Stuttgart (Schäffer-Poeschel), 1994.

Naumann, T., Bewertungseinheiten im Gewinnermittlungsrecht der Banken, Düsseldorf (IDW-Verlag), 1995.

PriceWaterhouseCoopers, A Guide to Accounting for Derivative Instruments and Hedging Activities, 1998.

Scharpf, P., Rechnungslegung von Financial Instruments nach IAS 39, Stuttgart (Schäffer-Poeschel), 2001.

Scharpf, P. and G. Luz, Risikomanagement, Bilanzierung und Aufsicht von Finanzderivaten, 2nd edition, Stuttgart (Schäffer-Poeschel), 2000.

Schroder Salomon Smith Barney, Time to Catch Up: Basel II – Modern Capital Rules for Modern Banks, September 2001.

Wittenbrink, C. and G. Göbel, Interne Geschäfte – ein trojanisches Pferd vor den Toren des

Bilanzrechts?, Die Bank, No. 5 (1997), pp. 270-274.

Appendix Tables

Table II.5a: Economic Performance Results with Rising Interest Rates

Trading Book		Full Hedge			Partial Hedge		
		1989	1990	1991	1989	1990	1991
Bonds	Present Value	91.86	87.14	90.99	91.86	87.14	90.99
	Change of Present Value	-8.14	-4.72	3.85	-8.14	-4.72	3.85
	Cash Flow	6.59	6.59	6.59	6.59	6.59	6.59
	Performance	-1.55	1.87	10.44	-1.55	1.87	10.44
External Interest Rate Swaps	Present Value	22.58	32.19	22.38	14.02	20.28	13.71
	Change of Present Value	20.39	9.60	-9.81	12.93	6.27	-6.57
	Cash Flow	-1.74	6.24	9.43	-1.18	3.95	6.00
	Performance	18.65	15.84	-0.38	11.75	10.21	-0.58
Performance of External Transactions		17.10	17.71	10.06	10.20	12.08	9.86
Internal Interest Rate Swaps	Present Value	-14.45	-19.33	-13.37	-5.88	-7.42	-4.70
	Change of Present Value	-12.26	-4.88	5.96	-4.80	-1.54	2.73
	Cash Flow	0.79	-4.34	-6.39	0.23	-2.05	-2.96
	Performance	-11.46	-9.22	-0.43	-4.56	-3.59	-0.23
Internal Deposits	Present Value (or Size)	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00
	Interest Flow	-5.64	-8.49	-9.63	-5.64	-8.49	-9.63
Performance of Internal Transactions		-17.10	-17.71	-10.06	-10.20	-12.08	-9.86
Performance of the Trading Book		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Banking Book							
Loans	Present Value	182.87	176.20	182.67	182.87	176.20	182.67
	Change of Present Value	-14.92	-6.67	6.47	-14.92	-6.67	6.47
	Cash Flow	12.40	12.40	12.40	12.40	12.40	12.40
	Performance	-2.52	5.73	18.87	-2.52	5.73	18.87
Internal Interest Rate Swaps	Present Value	8.57	11.90	8.67	0.00	0.00	0.00
	Change of Present Value	7.46	3.34	-3.24	0.00	0.00	0.00
	Cash Flow	-0.56	2.29	3.43	0.00	0.00	0.00
	Performance	6.90	5.63	0.19	0.00	0.00	0.00
Bonds Available-for-sale Present Value		46.72	46.57	48.13	46.72	46.57	48.13
	Change of Present Value	-2.38	-0.15	1.56	-2.38	-0.15	1.56
	Cash Flow	2.80	2.80	2.80	2.80	2.80	2.80
	Performance	0.41	2.65	4.35	0.41	2.65	4.35
Internal Interest Rate Swaps	Present Value	3.28	3.43	1.87	3.28	3.43	1.87
	Change of Present Value	2.38	0.15	-1.56	2.38	0.15	-1.56
	Cash Flow	0.02	1.45	2.02	0.02	1.45	2.02
	Performance	2.41	1.60	0.46	2.41	1.60	0.46
Bonds Held-to-maturity	Present Value	27.40	26.01	27.17	27.40	26.01	27.17
	Change of Present Value	-2.41	-1.40	1.17	-2.41	-1.40	1.17
	Cash Flow	1.95	1.95	1.95	1.95	1.95	1.95
	Performance	-0.46	0.55	3.12	-0.46	0.55	3.12
Internal Interest Rate Swaps	Present Value	2.60	3.99	2.83	2.60	3.99	2.83
	Change of Present Value	2.41	1.40	-1.17	2.41	1.40	-1.17
	Cash Flow	-0.26	0.60	0.94	-0.26	0.60	0.94
	Performance	2.16	1.99	-0.23	2.16	1.99	-0.23
Certified Liabilities	Present Value	-91.43	-88.10	-91.33	-91.43	-88.10	-91.33
	Change of Present Value	7.46	3.34	-3.24	7.46	3.34	-3.24
	Cash Flow	-6.20	-6.20	-6.20	-6.20	-6.20	-6.20
	Performance	1.26	-2.86	-9.44	1.26	-2.86	-9.44
Internal Deposits	Present Value (or Size)	100.00	100.00	100.00	100.00	100.00	100.00
	Interest Flow	5.64	8.49	9.63	5.64	8.49	9.63
External Deposits	Present Value (or Size)	-280.00	-280.00	-280.00	-276.90	-278.93	-282.26
	Interest Flow	-15.79	-23.77	-26.96	-15.66	-23.51	-26.86
Performance of the Banking Book		**0.00**	**0.00**	**0.00**	**-6.76**	**-5.36**	**-0.09**
Performance of the Bank		**0.00**	**0.00**	**0.00**	**-6.76**	**-5.36**	**-0.09**

Table II.5b: Economic Performance Results with Decreasing Interest Rates

Trading Book		Full Hedge			Partial Hedge		
		1996	1997	1998	1996	1997	1998
Bonds	Present Value	102.37	105.50	113.18	102.37	105.50	113.18
	Change of Present Value	2.37	3.13	7.68	2.37	3.13	7.68
	Cash Flow	6.28	6.28	6.28	6.28	6.28	6.28
	Performance	8.65	9.41	13.96	8.65	9.41	13.96
External Interest Rate Swaps	Present Value	-23.17	-25.12	-37.60	-10.90	-13.00	-21.81
	Change of Present Value	-4.33	-1.95	-12.48	-2.78	-2.10	-8.81
	Cash Flow	-10.14	-11.29	-9.22	-5.93	-6.67	-5.34
	Performance	-14.47	-13.24	-21.70	-8.71	-8.77	-14.15
Performance of External Transactions		-5.82	-3.83	-7.74	-0.06	0.64	-0.19
Internal Interest Rate Swaps	Present Value	20.80	19.62	24.42	8.53	7.50	8.63
	Change of Present Value	1.96	-1.18	4.80	0.41	-1.03	1.13
	Cash Flow	7.47	8.21	6.88	3.26	3.59	3.00
	Performance	9.43	7.03	11.68	3.67	2.56	4.13
Internal Deposits	Present Value (or Size)	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00
	Interest Flow	-3.61	-3.20	-3.94	-3.61	-3.20	-3.94
Performance of Internal Transactions		5.82	3.83	7.74	0.06	-0.64	0.19
Performance of the Trading Book		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Banking Book							
Loans	Present Value	224.54	224.24	231.58	224.54	224.24	231.58
	Change of Present Value	3.10	-0.30	7.34	3.10	-0.30	7.34
	Cash Flow	15.64	15.64	15.64	15.64	15.64	15.64
	Performance	18.74	15.34	22.98	18.74	15.34	22.98
Internal Interest Rate Swaps	Present Value	-12.27	-12.12	-15.79	0.00	0.00	0.00
	Change of Present Value	-1.55	0.15	-3.67	0.00	0.00	0.00
	Cash Flow	-4.21	-4.62	-3.88	0.00	0.00	0.00
	Performance	-5.76	-4.47	-7.55	0.00	0.00	0.00
Bonds Available-for-sale Present Value		54.70	53.04	52.10	54.70	53.04	52.10
	Change of Present Value	-0.06	-1.67	-0.94	-0.06	-1.67	-0.94
	Cash Flow	3.78	3.78	3.78	3.78	3.78	3.78
	Performance	3.72	2.11	2.84	3.72	2.11	2.84
Internal Interest Rate Swaps	Present Value	-4.70	-3.04	-2.10	-4.70	-3.04	-2.10
	Change of Present Value	0.06	1.67	0.94	0.06	1.67	0.94
	Cash Flow	-1.98	-2.18	-1.81	-1.98	-2.18	-1.81
	Performance	-1.92	-0.51	-0.87	-1.92	-0.51	-0.87
Bonds Held-to-maturity	Present Value	33.82	34.46	36.54	33.82	34.46	36.54
	Change of Present Value	0.47	0.64	2.07	0.47	0.64	2.07
	Cash Flow	2.37	2.37	2.37	2.37	2.37	2.37
	Performance	2.84	3.01	4.44	2.84	3.01	4.44
Internal Interest Rate Swaps	Present Value	-3.82	-4.46	-6.54	-3.82	-4.46	-6.54
	Change of Present Value	-0.47	-0.64	-2.07	-0.47	-0.64	-2.07
	Cash Flow	-1.29	-1.41	-1.19	-1.29	-1.41	-1.19
	Performance	-1.75	-2.05	-3.26	-1.75	-2.05	-3.26
Certified Liabilities	Present Value	-112.27	-112.12	-115.79	-112.27	-112.12	-115.79
	Change of Present Value	-1.55	0.15	-3.67	-1.55	0.15	-3.67
	Cash Flow	-7.82	-7.82	-7.82	-7.82	-7.82	-7.82
	Performance	-9.37	-7.67	-11.49	-9.37	-7.67	-11.49
Internal Deposits	Present Value (or Size)	100.00	100.00	100.00	100.00	100.00	100.00
	Interest Flow	3.61	3.20	3.94	3.61	3.20	3.94
External Deposits	Present Value (or Size)	-280.00	-280.00	-280.00	-273.79	-268.97	-264.66
	Interest Flow	-10.11	-8.96	-11.03	-10.04	-8.76	-10.60
Performance of the Banking Book		**0.00**	**0.00**	**0.00**	**5.83**	**4.67**	**7.98**
Performance of the Bank		**0.00**	**0.00**	**0.00**	**5.83**	**4.67**	**7.98**

Table II.6a: Model Bank Economic Accounting: Rising Interest Rates

	Full Hedge			Partial Hedge		
	1989	1990	1991	1989	1990	1991
Trading Assets	114.45	119.33	113.37	105.88	107.42	104.70
Loans and Advances to Banks	182.87	176.20	182.67	182.87	176.20	182.67
Investment Securities	74.12	72.58	75.30	74.12	72.58	75.30
Other Assets	0	0	0	0	0	0
Total Assets	371.43	368.10	371.33	362.87	356.20	362.67
Trading Liabilities	0	0	0	0	0	0
Liabilities to Banks	280.00	280.00	280.00	276.90	278.93	282.26
Certified Liabilities	91.43	88.10	91.33	91.43	88.10	91.33
Other Liabilities	0	0	0	0	0	0
Net Income	0	0	0	-6.76	-5.36	-0.09
Retained Earnings	0	0	0	1.29	-5.47	-10.83
Total liabilities & Equity	371.43	368.10	371.33	362.87	356.20	362.67
Net Interest Income (Realized Cash Flow)	0	0	0	0.70	-2.03	-3.33
Future Interest Income (Present Value)	0	0	0	-7.46	-3.34	3.24
Net Interest Income	0	0	0	-6.76	-5.36	-0.09
Net Trading Income (Realized Cash Flow)	0	0	0	0	0	0
Future Net Trading Income (Present Value)	0	0	0	0	0	0
Net Trading Income	0	0	0	0	0	0
Net Income from Investments	0	0	0	0	0	0
Net Income (Realized Cash Flow)	0	0	0	0.70	-2.03	-3.33
Future Net Income (Present Value)	0	0	0	-7.46	-3.34	3.24
Net Income	0	0	0	-6.76	-5.36	-0.09

Table II.6b: Model Bank Economic Accounting: Decreasing Interest Rates

	Full Hedge			Partial Hedge		
	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18
Loans and Advances to Banks	224.54	224.24	231.58	224.54	224.24	231.58
Investment Securities	88.53	87.50	88.63	88.53	87.50	88.63
Other Assets	0	0	0	0	0	0
Total Assets	415.44	417.24	433.39	415.44	417.24	433.39
Trading Liabilities	23.17	25.12	37.60	10.90	13.00	21.81
Liabilities to Banks	280.00	280.00	280.00	273.79	268.97	264.66
Certified Liabilities	112.27	112.12	115.79	112.27	112.12	115.79
Other Liabilities	0	0	0	0	0	0
Net Income	0	0	0	5.83	4.67	7.98
Retained Earnings	0	0	0	12.65	18.48	23.15
Total liabilities & Equity	415.44	417.24	433.39	415.44	417.24	433.39
Net Interest Income (Realized Cash Flow)	0	0	0	4.28	4.82	4.31
Future Interest Income (Present Value)	0	0	0	1.55	-0.15	3.67
Net Interest Income	0	0	0	5.83	4.67	7.98
Net Trading Income (Realized Cash Flow)	0	0	0	0	0	0
Future Net Trading Income (Present Value)	0	0	0	0	0	0
Net Trading Income	0	0	0	0	0	0
Net Income from Investments	0	0	0	0	0	0
Net Income (Realized Cash Flow)	0	0	0	4.28	4.82	4.31
Future Net Trading Income (Present Value)	0	0	0	1.55	-0.15	3.67
Net Income	0	0	0	5.83	4.67	7.98

Table II.7: Yield Curves for German Interest Rate Swaps from 1987 to 1991 and from 1994 to 1998[79]

	1	2	3	4	5	6	7	8	9	10
1987	3.80%	4.41%	4.83%	5.28%	5.59%	*5.82%*	6.05%	*6.20%*	*6.35%*	6.50%
1988	5.64%	5.92%	6.01%	6.11%	6.17%	*6.29%*	6.40%	*6.49%*	*6.59%*	6.68%
1989	8.49%	8.29%	8.15%	8.10%	8.09%	*8.06%*	8.02%	*8.01%*	*8.01%*	8.00%
1990	9.63%	9.52%	9.49%	9.29%	9.29%	*9.23%*	9.17%	*9.15%*	*9.14%*	9.12%
1991	9.70%	9.29%	9.04%	8.88%	8.77%	*8.59%*	8.41%	*8.38%*	*8.34%*	8.31%
1994	5.89%	6.72%	7.14%	7.41%	7.56%	7.66%	7.77%	7.82%	7.86%	7.90%
1995	3.61%	3.91%	4.40%	4.91%	5.32%	5.66%	5.95%	6.14%	6.28%	6.39%
1996	3.20%	3.68%	4.18%	4.69%	5.09%	5.42%	5.70%	5.91%	6.08%	6.21%
1997	3.94%	4.33%	4.62%	4.85%	5.04%	5.20%	5.33%	5.44%	5.54%	5.62%
1998	3.23%	3.28%	3.41%	3.53%	3.66%	3.80%	3.94%	4.08%	4.20%	4.29%

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[79] For yield curves prior to 1994, the missing interest rates for the maturities of six, eight and nine years are substituted by linear interpolation (italics). The one-year deposit rates are LIBOR based and have been recalculated into equivalent swap rates.

Table IV.1a (down): Comparison of Old IAS (with Hedge Accounting) with Economic Accounting

- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B Old IAS			Panel C Differences		
	1996	**1997**	**1998**	**1996**	**1997**	**1998**	**1996**	**1997**	**1998**
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
Investment Securities	88.53	87.50	88.63	80.00	83.04	83.04	8.53	4.46	5.60
Other Assets	0.00	0.00	0.00	20.80	16.58	21.38	-20.80	-16.58	-21.38
Total Assets	415.44	417.24	433.39	403.17	405.12	417.60	12.27	12.12	15.79
Trading Liabilities	23.17	25.12	37.60	23.17	25.12	37.60	0.00	0.00	0.00
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Liabilities & Equity	415.44	417.24	433.39	403.17	405.12	417.60	12.27	12.12	15.79
Net Interest Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Trading Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income from Investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table IV.1b (down): Comparison of Old IAS (with Hedge Accounting) with Economic Accounting

- Partially Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
Investment Securities	88.53	87.50	88.63	80.00	83.04	83.04	8.53	4.46	5.60
Other Assets	0.00	0.00	0.00	8.53	4.46	5.60	-8.53	-4.46	-5.60
Total Assets	415.44	417.24	433.39	390.90	393.00	401.81	24.54	24.24	31.58
Trading Liabilities	10.90	13.00	21.81	10.90	13.00	21.81	0.00	0.00	0.00
Liabilities to Banks	273.79	268.97	264.66	273.79	268.97	264.66	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	12.65	18.48	23.15	1.93	6.21	11.03	10.72	12.27	12.12
Net Income	5.83	4.67	7.98	4.28	4.82	4.31	1.55	-0.15	3.67
Total Liabilities & Equity	415.44	417.24	433.39	390.90	393.00	401.81	24.54	24.24	31.58
Net Interest Income	5.83	4.67	7.98	4.28	4.82	4.31	1.55	-0.15	3.67
Net Trading Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income from Investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	5.83	4.67	7.98	4.28	4.82	4.31	1.55	-0.15	3.67

Table IV.2a (down): Comparison of New IAS (without Hedge Accounting) with Economic Accounting

- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
AFS	54.70	53.04	52.10	54.70	53.04	52.10	0.00	0.00	0.00
HTM	33.82	34.46	36.54	30.00	30.00	30.00	3.82	4.46	6.54
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	415.44	417.24	433.39	387.07	388.54	395.28	28.37	28.70	38.11
Trading Liabilities	23.17	25.12	37.60	23.17	25.12	37.60	0.00	0.00	0.00
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	-18.84	-20.80	-16.58	18.84	20.80	16.58
Accumulated OCI	0.00	0.00	0.00	4.76	4.70	0.00	-4.76	-4.70	0.00
OCI	0.00	0.00	0.00	-0.06	-4.70	-0.94	0.06	4.70	0.94
Net Income	0.00	0.00	0.00	-1.96	4.21	-4.80	1.96	-4.21	4.80
Total Liabilities & Equity	415.44	417.24	433.39	387.07	388.54	395.28	28.37	28.70	38.11
Net Interest Income	0.00	0.00	0.00	7.47	8.21	6.88	-7.47	-8.21	-6.88
Net Trading Income	0.00	0.00	0.00	-9.43	-7.03	-11.68	9.43	7.03	11.68
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	3.04	0.00	0.00	-3.04	0.00
Net Income	0.00	0.00	0.00	-1.96	4.21	-4.80	1.96	-4.21	4.80
OCI	0.00	0.00	0.00	-0.06	-4.70	-0.94	0.06	4.70	0.94
Comprehensive Income	0.00	0.00	0.00	-2.02	-0.49	-5.74	2.02	0.49	5.74

Table IV.2b (down): Comparison of New IAS (without Hedge Accounting) with Economic Accounting

- Partially Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
AFS	54.70	53.04	52.10	54.70	53.04	52.10	0.00	0.00	0.00
HTM	33.82	34.46	36.54	30.00	30.00	30.00	3.82	4.46	6.54
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	415.44	417.24	433.39	387.07	388.54	395.28	28.37	28.70	38.11
Trading Liabilities	10.90	13.00	21.81	10.90	13.00	21.81	0.00	0.00	0.00
Liabilities to Banks	273.79	268.97	264.66	273.79	268.97	264.66	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	12.65	18.48	23.15	-6.19	-2.32	6.57	18.84	20.80	16.58
Accumulated OCI	0.00	0.00	0.00	4.76	4.70	0.00	-4.76	-4.70	0.00
OCI	0.00	0.00	0.00	-0.06	-4.70	-0.94	0.06	4.70	0.94
Net Income	5.83	4.67	7.98	3.87	8.88	3.18	1.96	-4.21	4.80
Total Liabilities & Equity	415.44	417.24	433.39	387.07	388.54	395.28	28.37	28.70	38.11
Net Interest Income	5.83	4.67	7.98	7.54	8.41	7.31	-1.71	-3.74	0.67
Net Trading Income	0.00	0.00	0.00	-3.67	-2.56	-4.13	3.67	2.56	4.13
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	3.04	0.00	0.00	-3.04	0.00
Net Income	5.83	4.67	7.98	3.87	8.88	3.18	1.96	-4.21	4.80
OCI	0.00	0.00	0.00	-0.06	-4.70	-0.94	0.06	4.70	0.94
Comprehensive Income	5.83	4.67	7.98	3.81	4.18	2.24	2.02	0.49	5.74

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Table IV.3a (down): Comparison of New IAS (with Fair Value Hedge) with Economic Accounting

- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	**1997**	**1998**	**1996**	**1997**	**1998**	**1996**	**1997**	**1998**
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	212.27	212.12	215.79	12.27	12.12	15.79
AFS	54.70	53.04	52.10	54.70	53.04	52.10	0.00	0.00	0.00
HTM	33.82	34.46	36.54	30.00	30.00	30.00	3.82	4.46	6.54
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	415.44	417.24	433.39	399.34	400.66	411.07	16.10	16.58	22.32
Trading Liabilities	23.17	25.12	37.60	6.19	9.96	19.71	16.97	15.16	17.89
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Hedge Derivatives	0.00	0.00	0.00	16.97	15.16	17.89	-16.97	-15.16	-17.89
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	-3.36	-3.82	-4.46	3.36	3.82	4.46
Accumulated OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	-0.47	-0.64	-2.07	0.47	0.64	2.07
Total Liabilities & Equity	415.44	417.24	433.39	399.34	400.66	411.07	16.10	16.58	22.32
Net Interest Income	0.00	0.00	0.00	1.29	1.41	1.19	-1.29	-1.41	-1.19
Net Trading Income	0.00	0.00	0.00	-1.75	-2.05	-3.26	1.75	2.05	3.26
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	-0.47	-0.64	-2.07	0.47	0.64	2.07
OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Comprehensive Income	0.00	0.00	0.00	-0.47	-0.64	-2.07	0.47	0.64	2.07

Table IV.3b (down): Comparison of New IAS (with Fair Value Hedge) with Economic Accounting

- Partially Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	**1997**	**1998**	**1996**	**1997**	**1998**	**1996**	**1997**	**1998**
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	0.00	0.00	0.00
Loans and Advances	224.54	224.24	231.58	200.00	200.00	200.00	24.54	24.24	31.58
AFS	54.70	53.04	52.10	54.70	53.04	52.10	0.00	0.00	0.00
HTM	33.82	34.46	36.54	30.00	30.00	30.00	3.82	4.46	6.54
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	415.44	417.24	433.39	387.07	388.54	395.28	28.37	28.70	38.11
Trading Liabilities	10.90	13.00	21.81	6.19	9.96	19.71	4.70	3.04	2.10
Liabilities to Banks	273.79	268.97	264.66	273.79	268.97	264.66	0.00	0.00	0.00
Certified Liabilities	112.27	112.12	115.79	100.00	100.00	100.00	12.27	12.12	15.79
Hedge Derivatives	0.00	0.00	0.00	4.70	3.04	2.10	-4.70	-3.04	-2.10
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	12.65	18.48	23.15	-1.43	2.39	6.57	14.08	16.09	16.58
Accumulated OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	5.83	4.67	7.98	3.81	4.18	2.24	2.02	0.49	5.74
Total Liabilities & Equity	415.44	417.24	433.39	387.07	388.54	395.28	28.37	28.70	38.11
Net Interest Income	5.83	4.67	7.98	5.57	6.23	5.50	0.26	-1.56	2.48
Net Trading Income	0.00	0.00	0.00	-1.75	-2.05	-3.26	1.75	2.05	3.26
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	5.83	4.67	7.98	3.81	4.18	2.24	2.02	0.49	5.74
OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Comprehensive Income	5.83	4.67	7.98	3.81	4.18	2.24	2.02	0.49	5.74

Table IV.4a (down): Comparison of New IAS (w/ Cash Flow Hedge) with Economic Accounting

- Fully Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	**1997**	**1998**	**1996**	**1997**	**1998**	**1996**	**1997**	**1998**
Trading Assets	102.37	105.50	113.18	102,37	105,50	113,18	0,00	0,00	0,00
Loans and Advances	224.54	224.24	231.58	200,00	200,00	200,00	24,54	24,24	31,58
AFS	54.70	53.04	52.10	54,70	53,04	52,10	0,00	0,00	0,00
HTM	33.82	34.46	36.54	30,00	30,00	30,00	3,82	4,46	6,54
Hedge Derivatives	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Other Assets	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Total Assets	415.44	417.24	433.39	387,07	388,54	395,28	28,36	28,70	38,11
Trading Liabilities	23.17	25.12	37.60	2,37	5,50	13,18	20,80	19,62	24,42
Liabilities to Banks	280.00	280.00	280.00	280,00	280,00	280,00	0,00	0,00	0,00
Certified Liabilities	112.27	112.12	115.79	100,00	100,00	100,00	12,27	12,12	15,79
Other Liabilities	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Hedge Derivatives	0.00	0.00	0.00	20,80	19,62	24,42	-20,80	-19,62	-24,42
Retained Earnings	0.00	0.00	0.00	0,00	0,00	3,04	0,00	0,00	-3,04
Accumulated OCI	0.00	0.00	0.00	-14,08	-16,09	-19,62	14,08	16,09	19,62
OCI	0.00	0.00	0.00	-2,02	-3,53	-5,74	2,02	3,53	5,74
Net Income	0.00	0.00	0.00	0,00	3,04	0,00	0,00	-3,04	0,00
Total Liabilities & Equity	415.44	417.24	433.39	387,07	388,54	395,28	28,36	28,70	38,11
Net Interest Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Trading Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Gains AFS	0.00	0.00	0.00	0,00	3,04	0,00	0,00	-3,04	0,00
Net Income	0.00	0.00	0.00	0,00	3,04	0,00	0,00	-3,04	0,00
OCI	0.00	0.00	0.00	-2,02	-3,53	-5,74	2,02	3,53	5,74
Comprehensive Income	0.00	0.00	0.00	-2,02	-0,49	-5,74	2,02	0,49	5,74

Table IV.4b (down): Comparison of New IAS (w/ Cash Flow Hedge) with Economic Accounting

- Partially Hedged Bank/Decreasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1996	**1997**	**1998**	**1996**	**1997**	**1998**	**1996**	**1997**	**1998**
Trading Assets	102.37	105.50	113.18	102,37	105,50	113,18	0,00	0,00	0,00
Loans and Advances	224.54	224.24	231.58	200,00	200,00	200,00	24,54	24,24	31,58
AFS	54.70	53.04	52.10	54,70	53,04	52,10	0,00	0,00	0,00
HTM	33.82	34.46	36.54	30,00	30,00	30,00	3,82	4,46	6,54
Hedge Derivatives	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Other Assets	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Total Assets	415.44	417.24	433.39	387,07	388,54	395,28	28,36	28,70	38,11
Trading Liabilities	10.90	13.00	21.81	2,37	5,50	13,18	8,53	7,50	8,63
Liabilities to Banks	273.79	268.97	264.66	273,79	268,97	264,66	0,00	0,00	0,00
Certified Liabilities	112.27	112.12	115.79	100,00	100,00	100,00	12,27	12,12	15,79
Other Liabilities	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Hedge Derivatives	0.00	0.00	0.00	8,53	7,50	8,63	-8,53	-7,50	-8,63
Retained Earnings	12.65	18.48	23.15	1,93	6,21	14,07	10,72	12,27	9,08
Accumulated OCI	0.00	0.00	0.00	-3,36	-3,82	-7,50	3,36	3,82	7,50
OCI	0.00	0.00	0.00	-0,47	-3,68	-2,07	0,47	3,68	2,07
Net Income	5.83	4.67	7.98	4,28	7,86	4,31	1,55	-3,19	3,67
Total Liabilities & Equity	415.44	417.24	433.39	387,07	388,54	395,28	28,36	28,70	38,11
Net Interest Income	5.83	4.67	7.98	4,28	4,82	4,31	1,55	-0,15	3,67
Net Trading Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Gains AFS	0.00	0.00	0.00	0,00	3,04	0,00	0,00	-3,04	0,00
Net Income	5.83	4.67	7.98	4,28	7,86	4,31	1,55	-3,19	3,67
OCI	0.00	0.00	0.00	-0,47	-3,68	-2,07	0,47	3,68	2,07
Comprehensive Income	5.83	4.67	7.98	3,81	4,18	2,24	2,02	0,49	5,74

Table IV.1a (up): Comparison of Old IAS (with Hedge Accounting) with Economic Accounting

- Fully Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B Old IAS			Panel C Differences		
	1989	1990	1991	1989	1990	1991	1989	1990	1991
Trading Assets	114.45	119.33	113.37	114.45	119.33	113.37	0.00	0.00	0.00
Loans and Advances	182.87	176.20	182.67	200.00	200.00	200.00	-17.13	-23.80	-17.33
Investment Securities	74.12	72.58	75.30	80.00	76.57	76.57	-5.88	-3.99	-1.27
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	371.43	368.10	371.33	394.45	395.90	389.93	-23.01	-27.80	-18.60
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	91.43	88.10	91.33	100.00	100.00	100.00	-8.57	-11.90	-8.67
Other Liabilities	0.00	0.00	0.00	14.45	15.90	9.93	-14.45	-15.90	-9.93
Retained Earnings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total liabilities & Equity	371.43	368.10	371.33	394.45	395.90	389.93	-23.01	-27.80	-18.60
Net Interest Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Trading Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income from Investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table IV.1b (up): Comparison of Old IAS (with Hedge Accounting) with Economic Accounting

- Partially Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1989	**1990**	**1991**	**1989**	**1990**	**1991**	**1989**	**1990**	**1991**
Trading Assets	105.88	107.42	104.70	105.88	107.42	104.70	0.00	0.00	0.00
Loans and Advances	182.87	176.20	182.67	200.00	200.00	200.00	-17.13	-23.80	-17.33
Investment Securities	74.12	72.58	75.30	80.00	76.57	76.57	-5.88	-3.99	-1.27
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	362.87	356.20	362.67	385.88	383.99	381.27	-23.01	-27.80	-18.60
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liabilities to Banks	276.90	278.93	282.26	276.90	278.93	282.26	0.00	0.00	0.00
Certified Liabilities	91.43	88.10	91.33	100.00	100.00	100.00	-8.57	-11.90	-8.67
Other Liabilities	0.00	0.00	0.00	5.88	3.99	1.27	-5.88	-3.99	-1.27
Retained Earnings	1.29	-5.47	-10.83	2.40	0.70	1.07	-1.11	-6.17	-11.90
Net Income	-6.76	-5.36	-0.09	0.70	-2.03	-3.33	-7.46	-3.34	3.24
Total Liabilities & Equity	362.87	356.20	362.67	385.88	383.99	381.27	-23.01	-27.80	-18.60
Net Interest Income	-6.76	-5.36	-0.09	0.70	-2.03	-3.33	-7.46	-3.34	3.24
Net Trading Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income from Investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	-6.76	-5.36	-0.09	0.70	-2.03	-3.33	-7.46	-3.34	3.24

Table IV.2a (up): Comparison of New IAS (without Hedge Accounting) with Economic Accounting

- Fully Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1989	1990	1991	1989	1990	1991	1989	1990	1991
Trading Assets	114.45	119.33	113.37	114.45	119.33	113.37	0.00	0.00	0.00
Loans and Advances	182.87	176.20	182.67	200.00	200.00	200.00	-17.13	-23.80	-17.33
AFS	46.72	46.57	48.13	46.72	46.57	48.13	0.00	0.00	0.00
HTM	27.40	26.01	27.17	30.00	30.00	30.00	-2.60	-3.99	-2.83
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	371.43	368.10	371.33	391.16	395.90	391.49	-19.73	-27.80	-20.16
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	91.43	88.10	91.33	100.00	100.00	100.00	-8.57	-11.90	-8.67
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	2.19	14.45	15.90	-2.19	-14.45	-15.90
Accumulated OCI	0.00	0.00	0.00	-0.90	-3.28	0.00	0.90	3.28	0.00
OCI	0.00	0.00	0.00	-2.38	3.28	1.56	2.38	-3.28	-1.56
Net Income	0.00	0.00	0.00	12.26	1.45	-5.96	-12.26	-1.45	5.96
Total Liabilities & Equity	371.43	368.10	371.33	391.16	395.90	391.49	-19.73	-27.80	-20.16
Net Interest Income	0.00	0.00	0.00	0.79	-4.34	-6.39	-0.79	4.34	6.39
Net Trading Income	0.00	0.00	0.00	11.46	9.22	0.43	-11.46	-9.22	-0.43
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	-3.43	0.00	0.00	3.43	0.00
Net Income	0.00	0.00	0.00	12.26	1.45	-5.96	-12.26	-1.45	5.96
OCI	0.00	0.00	0.00	-2.38	3.28	1.56	2.38	-3.28	-1.56
Comprehensive Income	0.00	0.00	0.00	9.87	4.73	-4.40	-9.87	-4.73	4.40

Table IV.2b (up): Comparison of New IAS (without Hedge Accounting) with Economic Accounting

- Partially Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1989	1990	1991	1989	1990	1991	1989	1990	1991
Trading Assets	105.88	107.42	104.70	105.88	107.42	104.70	0.00	0.00	0.00
Loans and Advances	182.87	176.20	182.67	200.00	200.00	200.00	-17.13	-23.80	-17.33
AFS	46.72	46.57	48.13	46.72	46.57	48.13	0.00	0.00	0.00
HTM	27.40	26.01	27.17	30.00	30.00	30.00	-2.60	-3.99	-2.83
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	362.87	356.20	362.67	382.60	383.99	382.83	-19.73	-27.80	-20.16
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liabilities to Banks	276.90	278.93	282.26	276.90	278.93	282.26	0.00	0.00	0.00
Certified Liabilities	91.43	88.10	91.33	100.00	100.00	100.00	-8.57	-11.90	-8.67
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	1.29	-5.47	-10.83	3.48	8.98	5.06	-2.19	-14.45	-15.90
Accumulated OCI	0.00	0.00	0.00	-0.90	-3.28	0.00	0.90	3.28	0.00
OCI	0.00	0.00	0.00	-2.38	3.28	1.56	2.38	-3.28	-1.56
Net Income	-6.76	-5.36	-0.09	5.49	-3.91	-6.05	-12.26	-1.45	5.96
Total Liabilities & Equity	362.87	356.20	362.67	382.60	383.99	382.83	-19.73	-27.80	-20.16
Net Interest Income	-6.76	-5.36	-0.09	0.93	-4.07	-6.29	-7.69	-1.29	6.19
Net Trading Income	0.00	0.00	0.00	4.56	3.59	0.23	-4.56	-3.59	-0.23
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	-3.43	0.00	0.00	3.43	0.00
Net Income	-6.76	-5.36	-0.09	5.49	-3.91	-6.05	-12.26	-1.45	5.96
OCI	0.00	0.00	0.00	-2.38	3.28	1.56	2.38	-3.28	-1.56
Comprehensive Income	-6.76	-5.36	-0.09	3.11	-0.63	-4.49	-9.87	-4.73	4.40

Table IV.3a (up): Comparison of New IAS (with Fair Value Hedge) with Economic
Accounting

- Fully Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1989	1990	1991	1989	1990	1991	1989	1990	1991
Trading Assets	114.45	119.33	113.37	102.60	103.99	102.83	11.85	15.33	10.54
Loans and Advances	182.87	176.20	182.67	191.43	188.10	191.33	-8.57	-11.90	-8.67
AFS	46.72	46.57	48.13	46.72	46.57	48.13	0.00	0.00	0.00
HTM	27.40	26.01	27.17	30.00	30.00	30.00	-2.60	-3.99	-2.83
Hedge Derivatives	0.00	0.00	0.00	11.85	15.33	10.54	-11.85	-15.33	-10.54
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	371.43	368.10	371.33	382.60	383.99	382.83	-11.16	-15.90	-11.49
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	0.00	0.00	0.00
Certified Liabilities	91.43	88.10	91.33	100.00	100.00	100.00	-8.57	-11.90	-8.67
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	0.00	0.00	0.00	0.18	2.60	3.99	-0.18	-2.60	-3.99
Accumulated OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	2.41	1.40	-1.17	-2.41	-1.40	1.17
Total Liabilities & Equity	371.43	368.10	371.33	382.60	383.99	382.83	-11.16	-15.90	-11.49
Net Interest Income	0.00	0.00	0.00	0.26	-0.60	-0.94	-0.26	0.60	0.94
Net Trading Income	0.00	0.00	0.00	2.16	1.99	-0.23	-2.16	-1.99	0.23
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	2.41	1.40	-1.17	-2.41	-1.40	1.17
OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Comprehensive Income	0.00	0.00	0.00	2.41	1.40	-1.17	-2.41	-1.40	1.17

Table IV.3b (up): Comparison of New IAS (with Fair Value Hedge) with Economic Accounting

- Partially Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1989	**1990**	**1991**	**1989**	**1990**	**1991**	**1989**	**1990**	**1991**
Trading Assets	105.88	107.42	104.70	102.60	103.99	102.83	3.28	3.43	1.87
Loans and Advances	182.87	176.20	182.67	200.00	200.00	200.00	-17.13	-23.80	-17.33
AFS	46.72	46.57	48.13	46.72	46.57	48.13	0.00	0.00	0.00
HTM	27.40	26.01	27.17	30.00	30.00	30.00	-2.60	-3.99	-2.83
Hedge Derivatives	0.00	0.00	0.00	3.28	3.43	1.87	-3.28	-3.43	-1.87
Other Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assets	362.87	356.20	362.67	382.60	383.99	382.83	-19.73	-27.80	-20.16
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liabilities to Banks	276.90	278.93	282.26	276.90	278.93	282.26	0.00	0.00	0.00
Certified Liabilities	91.43	88.10	91.33	100.00	100.00	100.00	-8.57	-11.90	-8.67
Hedge Derivatives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retained Earnings	1.29	-5.47	-10.83	2.58	5.69	5.06	-1.29	-11.16	-15.90
Accumulated OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	-6.76	-5.36	-0.09	3.11	-0.63	-4.49	-9.87	-4.73	4.40
Total Liabilities & Equity	362.87	356.20	362.67	382.60	383.99	382.83	-19.73	-27.80	-20.16
Net Interest Income	-6.76	-5.36	-0.09	0.95	-2.62	-4.27	-7.72	-2.74	4.17
Net Trading Income	0.00	0.00	0.00	2.16	1.99	-0.23	-2.16	-1.99	0.23
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains AFS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Income	-6.76	-5.36	-0.09	3.11	-0.63	-4.49	-9.87	-4.73	4.40
OCI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Comprehensive Income	-6.76	-5.36	-0.09	3.11	-0.63	-4.49	-3.11	0.63	4.40

Table IV.4a (up): Comparison of New IAS (with Cash Flow Hedge) with Economic Accounting

- Fully Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1989	**1990**	**1991**	**1989**	**1990**	**1991**	**1989**	**1990**	**1991**
Trading Assets	114.45	119.33	113.37	91,86	87,14	90,99	22,58	32,19	22,38
Loans and Advances	182.87	176.20	182.67	200,00	200,00	200,00	-17,13	-23,80	-17,33
AFS	46.72	46.57	48.13	46,72	46,57	48,13	0,00	0,00	0,00
HTM	27.40	26.01	27.17	30,00	30,00	30,00	-2,60	-3,99	-2,83
Hedge Derivatives	0.00	0.00	0.00	22,58	32,19	22,38	-22,58	-32,19	-22,38
Other Assets	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Total Assets	371.43	368.10	371.33	391,16	395,90	391,49	-19,73	-27,80	-20,16
Trading Liabilities	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Liabilities to Banks	280.00	280.00	280.00	280,00	280,00	280,00	0,00	0,00	0,00
Certified Liabilities	91.43	88.10	91.33	100,00	100,00	100,00	-8,57	-11,90	-8,67
Hedge Derivatives	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Other Liabilities	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Retained Earnings	0.00	0.00	0.00	0,00	0,00	-3,43	0,00	0,00	3,43
Accumulated OCI	0.00	0.00	0.00	1,29	11,16	19,33	-1,29	-11,16	-19,33
OCI	0.00	0.00	0.00	9,87	8,16	-4,40	-9,87	-8,16	4,40
Net Income	0.00	0.00	0.00	0,00	-3,43	0,00	0,00	3,43	0,00
Total Liabilities & Equity	371.43	368.10	371.33	391,16	395,90	391,49	-19,73	-27,80	-20,16
Net Interest Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Trading Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Gains AFS	0.00	0.00	0.00	0,00	-3,43	0,00	0,00	3,43	0,00
Net Income	0.00	0.00	0.00	0,00	-3,43	0,00	0,00	3,43	0,00
OCI	0.00	0.00	0.00	9,87	8,16	-4,40	-9,87	-8,16	4,40
Comprehensive Income	0.00	0.00	0.00	9,87	4,73	-4,40	-9,87	-4,73	4,40

Table IV.4b (up): Comparison of New IAS (with Cash Flow Hedge) with Economic Accounting

- Partially Hedged Bank/Increasing Interest Rates -

	Panel A Economic Accounting			Panel B New IAS			Panel C Differences		
	1989	1990	1991	1989	1990	1991	1989	1990	1991
Trading Assets	105.88	107.42	104.70	91,86	87,14	90,99	14,02	20,28	13,71
Loans and Advances	182.87	176.20	182.67	200,00	200,00	200,00	-17,13	-23,80	-17,33
AFS	46.72	46.57	48.13	46,72	46,57	48,13	0,00	0,00	0,00
HTM	27.40	26.01	27.17	30,00	30,00	30,00	-2,60	-3,99	-2,83
Hedge Derivatives	0.00	0.00	0.00	14,02	20,28	13,71	-14,02	-20,28	-13,71
Other Assets	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Total Assets	362.87	356.20	362.67	382,60	383,99	382,83	-19,73	-27,80	-20,16
Trading Liabilities	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Liabilities to Banks	276.90	278.93	282.26	276,90	278,93	282,26	0,00	0,00	0,00
Certified Liabilities	91.43	88.10	91.33	100,00	100,00	100,00	-8,57	-11,90	-8,67
Hedge Derivatives	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Other Liabilities	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Retained Earnings	1.29	-5.47	-10.83	2,40	3,10	-2,36	-1,11	-8,57	-8,47
Accumulated OCI	0.00	0.00	0.00	0,18	2,60	7,42	-0,18	-2,60	-7,42
OCI	0.00	0.00	0.00	2,41	4,83	-1,17	-2,41	-4,83	1,17
Net Income	-6.76	-5.36	-0.09	0,70	-5,46	-3,33	-7,46	0,09	3,24
Total Liabilities & Equity	362.87	356.20	362.67	382,60	383,99	382,83	-19,73	-27,80	-20,16
Net Interest Income	-6.76	-5.36	-0.09	0,70	-2,03	-3,33	-7,46	-3,34	3,24
Net Trading Income	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Income from Hedges (Ineffectiveness)	0.00	0.00	0.00	0,00	0,00	0,00	0,00	0,00	0,00
Net Gains AFS	0.00	0.00	0.00	0,00	-3,43	0,00	0,00	3,43	0,00
Net Income	-6.76	-5.36	-0.09	0,70	-5,46	-3,33	-7,46	0,09	3,24
OCI	0.00	0.00	0.00	2,41	4,83	-1,17	-2,41	-4,83	1,17
Comprehensive Income	-6.76	-5.36	-0.09	3,11	-0,63	-4,49	-9,87	-4,73	4,40

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