

Financial Instruments Fair Value Accounting for (not against) the Banking Industry

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December 2002

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Abstract

The paper analyses the effects of three sets of accounting rules for financial instruments – Old IAS before IAS 39 became effective, Current IAS or US GAAP, and the Full Fair Value (FFV) model proposed by the Joint Working Group (JWG) – on the financial statements of banks. We develop a simulation model that captures the essential characteristics of a modern universal bank with investment banking and commercial banking activities. We run simulations for different strategies (fully hedged, partially hedged) using historical data from periods with rising and falling interest rates.

We show that under Old IAS a fully hedged bank can portray its zero economic earnings in its financial statements. As Old IAS offer much discretion this bank may also present income that is either positive or negative. We further show that because of the restrictive hedge accounting rules, banks cannot adequately portray their best practice risk management activities under Current IAS or US GAAP. We demonstrate that - contrary to assertions from the banking industry - mandatory FFV accounting adequately reflects the economics of banking activities.

Our detailed analysis identifies, in addition, several critical issues of the accounting models that have not been covered in previous literature.

JEL Classifications: G21, M41

Keywords: Financial Instruments, Fair Value Accounting, Hedge Accounting, Accounting for Banks, IAS, US GAAP, Bank Simulation

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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 to 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 measurements for all derivative instruments (SFAS 133, IAS 39) or extending fair value accounting to all financial instruments, as recommended by the Financial Investments Joint Working Group of Standard Setters (hereafter JWG)¹. Representatives of the banking industry argue that the proposals or standards do not adequately portray the economics of the banking business.²

The objectives of this paper are to carefully analyse 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 through internal contracts with the trading book. We run simulations for our model bank following different banking strategies (fully hedged and partially hedged risks) using historical interest rates from periods with rising interest rates and from periods with decreasing interest rates.

Our application of different sets of accounting rules – IAS before IAS 39 became effective the “Old IAS”), “Current IAS or US GAAP”, with and without hedge

accounting under IAS 39 or SFAS 133 and the full fair value model of the JWG Draft Standard – to the activities of our model bank in the different interest rate scenarios, yields 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 allows much discretion, a fully hedged bank may as well present income that is either positive or negative, for example, by not applying hedge accounting that is optional but not required under Old IAS.

We further show that under Current IAS or US GAAP, banks can not adequately portray their investment banking and commercial banking activities because of the restrictive hedge accounting rules, which do not allow best practice asset liability management activities to be adequately reflected in the financial statements.

We demonstrate that application of the mandatory full fair value model of the JWG Draft Standard bank adequately reflects the economics of the banking activities. The fully hedged bank has to present zero net income, if the bank hedges only part of its risks this will result in non-zero net income. The model does not allow discretion in presenting the results of the banking operations. This is the essential difference to the optional fair value model proposed by the International Accounting Standards Board (IASB) in the IAS 32 and IAS 39 Improvement Exposure Draft issued in June 2002. The latter does allow banks to adequately portray their business but does not require them to do so.

Our detailed analysis of the different sets of accounting rules, in addition, identifies critical issues of the different accounting models that have not been covered in previous 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. Sections III. to V. present and discuss the different accounting models: The banks' preferred "mixed model" developed under Old IAS, Current IAS rules (including IAS 39) and the JWG Full Fair Value Accounting model. The application of these rules yields different accounting results which are compared and discussed. Section VI. summarizes the main conclusions and proposes areas for further research.

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.³ 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 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.

Most universal banks organize risk management according to the classical distinctions of market price risk, credit risk, interest rate 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 counterparties, industry segments and geographical location.⁴ However, recent developments in the financial markets, in particular with respect to asset securitization and credit derivatives, enable banks to manage their loan portfolios and therefore their entire credit risk exposure 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.⁵ 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. However, except for credit trading departments specializing in asset securitization, corporate bonds, and credit derivatives, most universal banks have not yet started with active credit portfolio management of their entire credit risk exposure, so that the traditional role of loan departments still prevails.

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 interest rate risk and the liquidity risk of the banking book⁶ positions (i.e. loans and issued bonds) are managed by the asset liability management (ALM) so that the loan portfolio has no interest rate risk and no liquidity risk. The ALM plays a central role in maintaining a transparent and managed interest rate and liquidity risk exposure of the entire bank.⁷

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.⁸ 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 counterparty. 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 noted that the volume of internal transactions in large universal banks might comprise a substantial share of their total volume of transactions.

An example as displayed in Figure 1 shows how the ALM may become involved when external transactions occur.⁹ Consider a bank that currently maintains its desired risk exposure. This bank is now involved in two new customer-driven transactions. The first transaction is a loan of EUR 100 million with a fixed rate of interest at 6 per cent annually and 5 years maturity. The second transaction is a 6 months deposit of EUR 50 million at 3.45 per cent. These two transactions add to the risk position of the bank in three dimensions. The loan implies additional (1) credit risk. As the deposit cannot match the loan in maturity or volume there is additional (2) liquidity risk and also additional (3) interest rate risk.

[Insert Figure 1 about here]

If the bank wants to re-establish its preferred – and previously held – risk position, it can issue a bond with a structure similar to that of the loan, buy interest rate swaps or sell interest rate futures. 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 liquidity (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 or underwritten. Interest rate futures can be

contracted immediately.¹⁰ Interest rate swaps are more often used as hedging instruments of interest rate risk, especially if individual transactions are to be hedged. They can be customized to match any cash flow structure and they are also highly liquid instruments.

The ALM may hedge transactions on an individual basis so that the hedging instrument is directly linked to the hedged financial instrument. These hedges are referred to as micro hedges. The ALM usually applies micro hedges only to large transactions with high market risk exposures, to transactions with embedded option components, and to transactions where accounting departments prescribe micro hedges in order to demonstrate particular hedge relationships. In general, however, the ALM manages market price risks at the portfolio level. The risk exposure of individual financial instruments is only considered 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 1988 Capital Accord ("Basel I") and amendments promoted the development of more advanced approaches relying on complex statistical models to report the risk exposure of portfolios ("value at risk").¹¹

In ALM banking practice, interest rate (and liquidity) risk of a portfolio with deterministic cash flows is often analysed by the creation of time buckets for the aggregated cash flows of all transactions in the portfolio, usually distinguished by currencies. 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. Activities and Assumptions of the Model Bank

We develop a model that captures the essential characteristics of a universal bank. In order to reduce the complexity of the model its focus is limited to interest rate products either belonging to the banking book or to the trading book and to the interest rate risk management. Other products and other risks can be included in extensions of the model.

The model bank can be described as a set of two portfolios, the banking book 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 optimise 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 both the banking and trading book.

Two banking strategies will be analysed. 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 as well as in the financial accounting results under an appropriate set of accounting rules. Under the second strategy, the bank hedges only partially against changing interest rates. Here we expect gains or losses directly correlating to changing interest rates in the economic performance and financial accounting results. Under both strategies we apply micro

hedges to reduce the interest rate risk from fixed rate assets to short term interest rate exposure.¹² The short term interest rate exposure is hedged on a portfolio level by term deposits, which also provide the funding of the assets.

The individual transactions of the model bank under both banking strategies are displayed in Table 1 for a scenario of decreasing interest rates using actual market data from the period 1994 to 1998. The same transactions are used under the scenario of increasing interest rates, however, with different interest rate coupons due to different market rates, again based on actual market data from the period 1987 to 1991. The number of transactions for each product category is kept to a minimum so that the differences resulting from applying different sets of accounting rules can be more easily identified. For each transaction, the nominal volume is displayed in Table 1 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.

[Insert Table 1 about here]

Our model (bank) is based on the following assumptions:

- (1) The bank maintains its original portfolio structure containing only interest rate products in one currency (DEM). It engages in no new transactions except for short term funding.
- (2) The bank operates in an economy without regulatory capital and liquidity requirements, credit and liquidity risk.

- (3) The bank operates at zero cost, pays no taxes and earns no fee or commission income.

With respect to the cash flow mapping of interest rate products, some further assumptions facilitate an interpretation of the economic and accounting results:

- (4) The day count convention for the money and capital markets is 360/360 days. Each banking year consists of 360 days.
- (5) Trade and value dates are identical and transactions may only occur on the last day of a year.
- (6) There are no bid/ask spreads.

Consider, for example, the hedges of the loans and bonds. Under the full hedge strategy the DEM 100 million fixed rate bond issue and a DEM 100 million interest rate payer-swap hedge the DEM 200 million fixed rate loan. Under the partial hedge strategy only the DEM 100 million fixed rate bond issue hedges the DEM 200 million fixed rate loan. The missing interest rate swap is the cause of 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 thus translates into a long position of the bank.¹³ Since both internal and external swaps are missing in the hedge of the loan, the trading book remains in a fully hedged position in the partially 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.

[Insert Figure 2 about here]

Assumptions 1 – 3 imply that the economic performance of the model bank is completely determined by the cash flows of interest rate products. The model is applied to two actual interest rate periods in Germany, with rising interest rates from 1989 to 1991 and decreasing interest rates from 1996 to 1998 as displayed in Figure 2. In both periods the bank starts with the same set of transactions, which are built up in the two preceding years (1987/88 and 1994/95 respectively). We choose the interest rate swap curve as the standard valuation curve for each product. Application of the rates from the interest rate swap curves to the outstanding cash flows from the financial instruments yields the fair values of the financial instruments.¹⁴

The performance of each financial instrument i in year t^* (PFI_{i,t^*}) is calculated as follows:

$$PFI_{i,t^*} = PV_{i,t^*} - PV_{i,t^*-1} + CF_{i,t^*}$$

where PV_{i,t^*} = Sum of discounted future cash flows $CF_{i,t}$, for years t^*+1 to maturity
 m ($t = 0 \dots m$; $0 < t^* < m$), with discount factors derived from the yield curve at year t^*
 CF_{i,t^*} = Cash flow of financial instrument i in year t^*

Thus, economic performance measurement considers expectations which are reflected in the yield curve and result in capital gains or losses. While the sum of the fair value

differences of the assets equals the sum of the fair value differences 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. In the partially hedged model with no interest rate swaps to hedge the loan, there is a change in the liabilities to banks and a change in the valuation results of the trading assets or trading liabilities.

The model bank has a performance of zero in all accounting periods when it is fully hedged. This is the benchmark result that should be displayed in the financial statements. In the case of the partial hedge, the long position of the model bank book leads to a negative (positive) performance for rising (decreasing) rates of interest, while the trading book still has a performance of zero. Thus, we expect negative (positive) net interest income and net income for rising (decreasing) interest rates also in the financial statements.

In the following sections we describe different sets of accounting rules for financial instruments and the results of their application to the activities of our model bank under different interest rate scenarios and under different hedging strategies. We present the results for Old IAS rules , for Current IAS rules (including IAS 39) and the similar US GAAP rules after SFAS 133 became effective, and for the mandatory full fair value model proposed by the JWG Draft Standard. Further, we will discuss the proposed amendments of IAS 39 that offer an optional full fair value model.

III. Accounting under IAS before Effectiveness of IAS 39 (“Old IAS”)

Deutsche Bank in 1995 became the first German bank to present consolidated financial statements in accordance with IAS, by then in addition to its statutory German GAAP group accounts. Today most German and Swiss private banks publish group accounts according to IAS. Deutsche Bank changed to full US GAAP by 2001 when listing at the New York Stock Exchange (NYSE). We discuss IAS rules for financial instruments before IAS 39 became effective in 2000 because this is the “mixed model” still preferred by the banking industry.¹⁵

1. Accounting under Old IAS without Hedge Accounting

Under Old IAS recognition and measurement of financial instruments have been dealt with only in IAS 25. All financial assets are initially recognized at historical cost, where cost is represented by the fair value of the consideration given.¹⁶ 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 re-valued 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.¹⁷

In the absence of explicit rules for the recognition and measurement of financial assets and liabilities under Old IAS, the banking industry developed a “best industry practice” based on the distinction of trading activities and other banking (book) activities. Fair value measurement is applied to all trading book assets and liabilities including derivative instruments. All changes in the fair value of trading book assets and

liabilities are recognized immediately in net income. This practice had been well established previously with US investment banks.¹⁸

All banking book financial assets and liabilities are measured on an amortized cost basis under Old IAS. The option in IAS 25.23b of 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” contracts that may require making provisions for losses from unperformed contracts.

The first anomaly of these measurement rules is that identical financial instruments are reported differently depending on their allocation either to the trading book or to the banking book. If, for example, a bank purchases government bonds and designates them in part as trading and in part as banking book, increases in asset fair value due to declining interest rates will only be included in the valuation of the trading book assets.

Old IAS comprise no explicit hedge accounting rules. Special hedge accounting is not required for the trading book as changes in fair value of trading book assets and liabilities are offset in net income by changes in fair value of the derivative hedging instruments (“compensating valuation”). The offset will be perfect for perfect hedges; for imperfect hedges any inefficiencies will show up in net income. Table 2 gives examples of hedges of interest rate risk for financial assets and liabilities with interest rate swaps that have identical maturities and fixed interest rates.

Changes in the fair value of loans and liabilities of the banking book due to rising or falling interest rates are not recognized in net income under Old IAS. However, derivative hedging instruments might have a negative fair value (with rising rates for receiver swaps and falling rates for payer swaps) requiring the setting up of a provision

for unrealised losses from unperformed contracts. Thus, we observe mismatches in earnings for fully hedged fixed assets in the banking book with declining interest rates or fully hedged fixed liabilities with increasing interest rates.

[Insert Table 2 about here]

With rising interest rates, fixed income securities in the banking book must be written-down, whereas the unrealised gains made on the derivative hedges may not be recognized in the income statement under Old IAS rules without hedge accounting. This results in an earnings mismatch for a fully hedged banking book position of investment securities for both rising and declining interest rates.

Under Old IAS, hedge accounting is mainly based on interpretations and thus is optional. All German banks presenting IAS group financial statements have opted to use hedge accounting. Therefore, we will refrain from presenting the results of applying Old IAS to our banking model without hedge accounting.

2. Old IAS with Banking Industry Hedge Accounting

In an attempt to overcome the earnings mismatches identified above, banks interpret Old IAS rules as being open to an “off balance sheet” hedging approach. Under this approach, banking book derivative 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 corresponding non-valuation – or better said: compensating misevaluation – assumes the existence of a perfect hedge where changes in fair value of both the hedged item and the hedging instrument fully offset each other. Therefore, the approach does not display hedge inefficiencies that result, for example, from differences in the changes of fair value due to the differing counterparty risks of securities 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, which require the setting up of a provision. An overhang of unrealised gains remains unconsidered - this is the so-called zero line approach.¹⁹

Non-valuation of banking book hedges (“compensating misevaluation”) 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 accepted less if the hedge inefficiency was caused by maturity gaps (e.g., 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). Cross currency hedges of weakly correlated currencies were not accepted. Table 3 summarises Old IAS hedge accounting for the banking book.

[Insert Table 3 about here]

Banks have interpreted Old IAS as allowing macro hedge accounting. In a macro hedge a portfolio of banking book assets and liabilities is defined as a hedged item. Unlike micro-hedging, which can also involve more than one hedging instrument or hedged item, macro-hedging proceeds on in a dynamic way. This means that the hedging derivatives are adjusted with any new transaction (see Figure 1 above) or change in the contractual conditions (e.g. prolongation of a loan). Risk management techniques permit the measurement of interest rate risk (e.g. by basis point values) and demonstrate that hedging reduces the risk exposure. If a banking book portfolio is managed with a near to zero risk limit (working balance) macro hedge accounting in banks has been widely considered to be an acceptable interpretation of Old IAS.

Universal banks often manage risks in the banking book using internal derivatives contracts. In the example in Table 4 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 interest rate payments over the term of the loan. The trading desk enters into an offsetting interest rate swap with a third-party who receives the fixed rate.

[Insert Table 4 about here]

Even though the positions of the trading book and the banking book fully hedge each other, the bank will have to show a positive trading income with rising interest rates and a negative trading income with falling interest rates, as the internal swap will have to be

eliminated upon consolidation. 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 internal swap in the banking book will also be eliminated upon consolidation and thus the offsetting earnings effect of the internal swap is not taken into account in the consolidated net interest income and net income.

In the trading book the positive fair valuation effect of the payer swap, comprising the present value of all future fixed rate swap payments, is recognised in net income immediately in a period of rising interest rates. The compensating effect of lower net interest income in the banking book shows up only over the term of the hedge. Thus, net income of the bank becomes volatile even though economically the bank faces no interest rate risk.

This mismatch in accounting earnings has been overcome by an interpretation of Old IAS that allows to treat internal transactions like external ones²⁰ if contracted at arms' length and valued under the same assumptions as external deals. However, accounting for internal derivatives leads to an abnormal difference in the accounting treatment of internal derivative contracts in the trading book and in the banking book. While the trading book side of the deal is marked at fair value, the banking book side remains unvalued or in the case of securities, the measurement results are compensated off balance sheet under the zero line approach as described above.

Internal derivatives do not qualify as assets or liabilities.²¹ Therefore, positive and negative fair values and changes in fair values from internal derivatives have to be eliminated upon consolidation. The differing measurements of the internal derivatives in the trading book and in the banking book then require the entry of a balancing item

(“plug”) under the assets or liabilities – a peculiarity forced by the logic of double entry book keeping.

It could be argued that banks should designate the external deal in the trading book as a (micro) hedge of the banking book loan. This would work in simple settings and also in our 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 Current IAS or US GAAP accounting rules.

3. Application of Old IAS with Hedge Accounting to the Model Bank

Table 5 Panel A presents the results of applying Old IAS to our fully hedged model bank in the scenario of declining interest rates. Due to the decline of interest rates the fair values of the fixed rate assets and liabilities increase. 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.

[Insert Table 5 about here]

The model bank has “natural hedges”; of trading book securities carried at fair value and hedged by trading book derivatives carried at fair value (“compensating valuation”); and of banking book fixed rate assets and liabilities both carried at cost (“compensating misevaluation”). From increases in the fair value of loans (1996: $112.27 - 100.00 = 12.27$) and the fair value of investment securities (1996: $88.53 - 80.00 =$

8.53),²² the net long position in banking book fixed rate assets results in an unrecognized gain (1996: 20.80). The corresponding losses on the external derivative hedging instruments of the banking book (1996: -20.80) appear in net income. Without hedge accounting under Old IAS the fully hedged model bank would have to present negative net income in the scenario of declining interest rates. Here hedge accounting under Old IAS requires inserting a “plug” asset (1996: 20.80) created by credits to net income in order to arrive at the fully hedged bank presenting zero net income and to adequately portray the economic situation.

The “plug” asset (or with increasing interest rates the “plug” liability) is a very interesting item as it represents the net change in fair value of the banking book assets and/or liabilities and attributable to the risk that has been hedged via internal contracts with the trading book.²³ 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 6 Panel A demonstrates this for the partial hedge strategy where the long position in loans (100) remains unhedged and the amount of the “plug” asset decreases correspondingly (1996: 8.53).²⁴

German banks appear to handle the “plug” items as a technical issue presumably viewed as immaterial in most cases and probably therefore not disclosed separately in financial statements. Reviewing the 2000 fiscal year end annual reports we find no bank disclosing or explaining such an item in the notes to financial statements.

[Insert Table 6 about here]

Under the partial hedge strategy in Table 6 Panel A, the model bank does not close the long position in fixed rate assets in the market and thus shows positive net interest income (1996: 4.28) with decreasing interest rates because of the reduced variable interest cost to refinance. There is no effect on trading income because we assume that the trading department in our model bank closes all risks from traded securities and the internal derivative hedging of the investment securities, in the market.

Securities held by the model bank are measured at the lower of cost or market under Old IAS. The model bank hedges securities with off balance derivatives under both strategies (fully and partially hedged bank). As we assume the hedges to be perfect (i. e. we use one interest curve for the bond and the swap) there is no need to write down securities to lower fair values (as expected with increasing interest rates) under the Old IAS hedge accounting approach as described above.

We further assume that the model bank sells 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.²⁵ The sale results in a realized gain (3.04) in the scenario of decreasing interest rates. The question arises whether a corresponding (unrealized) loss (-3.04) on the internal hedging instrument should be included in net income from investments.²⁶

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 Old IAS – and also for Current IAS – 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. Else there would be an incentive for earnings management (“cherry picking”). However, identifying the compensating gain or loss of the hedging instrument is realistic only with micro hedges. For a bank following dynamic macro hedging strategies there is often no possibility to identify a single hedging derivative that must be close out upon sale of a security. A similar problem arises when hedging derivatives are terminated before maturity of the hedged item. The argument for the matching principle interpretations of Old IAS is that with micro hedging, the recognition of closed out payments in net income is not immediate but is spread over the remaining term of the hedged item.²⁷ This implies that realized gains have to be included under liabilities and realised losses under assets – another strange implication of Old IAS accounting practice. In a macro hedge environment there are again serious problems on how to allocate close out payments to hedged items with a defined maturity.

To summarize, for a fully hedged bank the interpretations of Old IAS enable the presentation of zero net income and thus to present the economic results in an adequate manner. 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” under other assets or other liabilities. Fair value changes of fixed rate banking book assets and liabilities that form “natural hedges” show up neither in the balance sheet nor in the income statement (“compensating misevaluation”) and thus do not display any existing inefficiencies of the hedges. As hedge accounting under Old IAS is optional, companies may choose not to present the economics of their hedging strategy in such a manner. However, German banks typically have chosen 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. Changes in the fair value of unhedged 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. Thus, the net income effects of running open positions in the banking book are spread over the following periods.

IV. Accounting under Current IAS and US GAAP

As part of its comprehensive project on the accounting for financial instruments, the FASB issued SFAS 115 requiring a fair valuation for certain investments in securities and SFAS 133 requiring that all derivative financial instruments be marked to fair value. SFAS 133 also introduces explicit rules for hedge accounting. IAS 39 closely follows the US rules. In the following sections we parallel both IAS and US GAAP. We will start with a discussion of current rules without hedge accounting, as the requirements for hedge accounting in IAS 39 and SFAS 133 are burdensome and may be most difficult to comply with for banks following best practice risk management, which is based on macro portfolio hedging.

1. Accounting under Current IAS and US GAAP without Hedge Accounting

Although the Current IAS or US GAAP 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 with all changes in fair value to be included in net income.

Fair value measurement also applies to available for sale financial assets. For income recognition of gains and losses from available for sale financial assets, an enterprise may choose, under IAS 39.103b only, between; the immediate recognition in net income and; presentation in other comprehensive income (OCI) with a recycling to net income in the following periods. Most banks choose the second option, which is the only one permitted under US GAAP. Loans originated by the bank, held to maturity investments, and all non-trading liabilities continue to be measured at amortised cost. Under Current IAS and US GAAP, originated loans and held to maturity securities

require an impairment test. However, both Current IAS and US GAAP do not allow the writing down of such assets to lower fair value as a consequence of increasing market interest rates. Impairments only consider the probability of non-collectibles in respect of all payments (interest, principal) due under the contractual terms. Further, both Current IAS and US GAAP prescribe using the original effective interest rate method to determine the present value of expected future cash flows and thus avoid measurement at fair value.²⁸

Under Current IAS and US GAAP all derivative instruments are considered to be rights or obligations that meet the definition of assets or liabilities.²⁹ All derivatives are to be measured at fair value 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. Table 7 summarises the recognition and measurement rules of financial assets and financial liabilities, under Current IAS and US GAAP without hedge accounting.

[Insert Table 7 about here]

Under these rules earnings mismatches occur because the banking book assets and liabilities and the related hedging derivative instruments are measured differently. Whereas all derivatives are measured at fair value with changes being immediately reflected in net income originated loans, held to maturity investments and non-trading liabilities are measured at cost, with the effect of changes in interest rates only being shown in net income over time. For available for sale assets, a mismatch may also arise

between net income and other comprehensive income. For “natural” hedges 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 misevaluation 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.

2. Application of Current IAS and US GAAP without Hedge Accounting

For our model bank, we allocate investment securities in part to the category “available for sale” (50.00) and “held to maturity” (30.00). All derivatives are measured at fair value with all changes in fair value to be included in net income as here we do not apply the hedge accounting options offered by IAS 39 or SFAS 133.

Banking book assets classified as “originated by the enterprise” and “held to maturity” and banking book liabilities continue to be carried at cost under Current IAS or US GAAP. Banking book assets classified as “available for sale” are measured at fair value. We apply the option offered by IAS 39.103b to show all changes in fair value in other comprehensive income as is the case with most banks.

Table 5 Panel B shows the results of a fully hedged bank in the scenario of declining interest rates. The change in fair value of fixed rate loans (1996: 24.54) and of the held to maturity securities (1996: 3.82) and the corresponding loss on the issued bonds (1996: -12.27) forming partially a natural hedge are again not recognised. The related hedging derivatives are measured at fair value with the decline in fair value recognized in net income (1996: $-12.27 - 3.83 = -16.10$). They are displayed as trading liabilities together with the fair value of the hedge of the trading book assets and the hedge of

available for sale securities (1996: $-16.10 - 2.37 - 4.70 = -23.17$). Even though all banking book assets and liabilities are fully hedged, Current IAS require a bank not applying hedge accounting, to present non zero accounting income because of the different measurement rules for hedged items and derivative hedging instruments.

Available for sale securities are hedged via internal derivatives by external swaps in the trading book. With decreasing interest rates, the gain of increasing fair values of available for sale securities is allocated to other comprehensive income (1996: 4.70). The change in fair value of the external hedging derivative is negative (1996: -4.70) and recognized in net trading income. Thus, we observe a mismatch between net income and other comprehensive income.

Upon sale of the available for sale securities in 1997, the gain realized $(3.04)^{30}$ is reallocated from other comprehensive income to net income. This possibility of recycling gains (or losses in a scenario of increasing interest rates) allows some discretion for net income management under the current rules.

For the fully hedged bank we observe in Table 5 Panel B, negative net income (1996: -1.96) with decreasing interest rates, as opposed to the zero economic results that we presented under Old IAS with hedge accounting properly applied, as in Table 5 Panel A. Net interest income is positive (1996: +7.47) and results from the interest payments on the banking book assets and liabilities and also from the interest allocated to the refinancing of the trading book.³¹ Net trading income measured on a fair value basis is negative (1996: -9.43). 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: 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 (Table 9 Panel B).

[Insert Table 8 and 9 about here]

The results for the partial hedging strategy under Current IAS or US GAAP without hedge accounting are presented in Table 6 Panel B. Net income is positive in this scenario of decreasing interest rates (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. 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. As the effect of maturity transformation on open positions can be recognised by the change to the fair values of the banking book's assets and liabilities, Old IAS may be criticized for not showing the full extent of this change immediately. However, with Current IAS or US GAAP, without application of hedge accounting, the effect that open positions have on net interest income is not identifiable at all.

The trading component of net income is less volatile for the model bank under the partial hedging strategy than under the fully hedged strategy. The net long position of the trading book is reduced because of 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 not to hedge available for sale and held to maturity securities. Thus, Current IAS rules may discourage economically sensible hedges for which hedge accounting is either not accepted or not practical. As banks cannot leave the banking book completely un-hedged they have to look for interpretations of hedge accounting that can be applied to their existing strategies or for amendments to their strategies.

Current IAS without hedge accounting are similar to the accounting standards prior to the development of modern risk management techniques and the increasing usage of derivatives, which require 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 that are acceptable under Old IAS will no longer be qualified under the current rules. Therefore, the Current IAS 39 and SFAS 133 rules have been heavily criticized as they discourage the application of best practice risk management.

3. Fair Value Hedge Accounting under Current IAS and US GAAP

IAS 39 and SFAS 133 offer two basic forms of hedge accounting – fair value hedge accounting and cash flow hedge accounting – if certain qualification criteria are met.³² Fair value hedge accounting can be applied to the exposure of changes in fair value of a recognised asset or liability, or – only under US GAAP – a firm commitment. For example, a USD denominated Argentina government bond can be hedged with a total return swap covering all risk categories involved. Alternatively, each single risk factor

(e.g. benchmark interest rate, counterparty risk, foreign currency risk) can be hedged with a suitable derivative.³³ Held to maturity assets may not be designated as hedged items in a hedge of interest rates changes (IAS 39.127; SFAS 133.426).

Under fair value hedge accounting all changes in the fair value of a derivative hedging instrument are recognised in net income. The carrying amount of a hedged item in a fair value hedge is adjusted for its change in fair value, attributable to the risk being hedged. A bank may designate its interest risk management activities either as a fair value hedge or as a cash flow hedge.³⁴ In Table 10 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 combination of the fixed rate financial asset and the swap creates a synthetic variable rate financial asset whose fair value does not change with changes in interest rates. The interest rate payer swap can be considered as a hedge of the variability of the fair value of a fixed rate loan (i.e. fair value hedge).

[Insert Table 10 about here]

Internal derivatives may not be designated as hedging instruments under Current IAS or US GAAP as they have to be eliminated upon consolidation. As an exception they can be designated as hedging instruments for interest rate risk only if they are directly offset by third party contracts³⁵. This requirement restricts the possibilities to bundle internal risk by specialist internal market makers. In the example of a fair value hedge in Table

11 we assume that the third party contract offset can be demonstrated. The swaps are recorded in a special hedging book.

[Insert Table 11 about here]

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, Current IAS or US GAAP 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 trouble for practical application in a modern bank risk management environment where dynamic macro hedging strategies are followed.

4. Application of Fair Value Hedge Accounting under Current IAS and US GAAP

We assume the model bank does use the option of fair value hedge accounting and is able to fulfill the burdensome requirements of IAS 39 or SFAS 133. For our model bank it is easy to document micro hedge relationships as required by the new rules.

Table 5 Panel C presents 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 current rules in IAS 39 or SFAS 133 again create a mismatch in net income. The fair value change of the derivative hedging instrument is recognized in net

income (1996: -3.82), whereas the fair value change of the held to maturity securities does not appear either in the balance sheet or in net income.

Our model bank hedges the loans with issued bonds and with swaps. The natural hedge of the loan and the issued bond both carried at cost does not appear either in the balance sheet or in the income statement (“compensating misevaluation”). The change in fair value of the external swap hedging the remaining interest rate risk of the loans (1996: -12.27) is recognised and displayed under hedging derivatives, together with the swap hedging the available for sale securities (1996: -4.70).³⁶

The offset in net income is achieved for the loans by a fair value basis adjustment of the carrying amount of the hedged item. We assume a perfect hedge and thus the change in fair value of the loans with regard to the risk being hedged equals the change in fair value of the derivative hedging instruments. This basis adjustment (1996: $200.00 + 12.27 = 212.27$) allocates the “plug” to the carrying amount of the hedged item carried at cost.³⁷

Available for sale securities are measured at fair value with the change in fair value (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 under 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 a basis 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).

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. The combined effect on net income (1996: -0.47) represents the fair value change of the external hedging swap, which has no contra entry, because the hedged held to maturity security is valued at cost.

Table 6 Panel C presents the results of applying IAS 39 or SFAS 133 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 observe 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). This is the result of interest earned on the held to maturity securities (1996: 2.37) being financed by variable rate deposits (1996: -1.08) and of the positive interest margin due to interest earned on the loan (7.89)³⁸ that is also financed by variable rate deposits (-3.61).

5. Cash Flow Hedge Accounting under Current IAS and US GAAP

Cash flow hedge accounting may be applied to hedges that offset the variability of cash flows, which are attributable to a particular risk associated with a recognized asset or liability or an unrecognized firm commitment. IAS 39.137 also applies cash flow hedge

accounting to hedges of unrecognized firm commitments even though they have a fair value exposure. Under cash flow hedge accounting the change in fair value of the derivative hedging instrument attributable to the hedged risk is included in other comprehensive income and "recycled" to net income at the time when the hedged transaction affects earnings.³⁹

The concept of cash flow hedge accounting is demonstrated in Table 12 using the same instruments as in Table 10.

[Insert Table 12 about here]

Under cash flow hedge accounting, the variable interest received on the payer swap is thought to offset the variable interest expenses on the term deposits and thus eliminating the exposure to changes in future interest cash flows. This requires the assumption that the variable rate term deposits are rolled over and can be interpreted as forecasted transactions.⁴⁰

6. Application of Cash Flow Hedge Accounting under Current IAS and US GAAP

Table 5 Panel D demonstrates the results of applying cash flow hedge accounting to all hedges of our model bank. Assets and liabilities are carried either at cost or at fair value as already explained in section IV.2 for the situation without hedge accounting under Current IAS. With cash flow hedge accounting there are no (basis) adjustments to the value carried of the hedged items.

IAS 39.127 prohibits the designation of 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”. This strange line of argument accepts the application of cash flow hedge accounting also to held to maturity investments.

Derivative hedging instruments are carried at fair value and displayed in Table 5 Panel D separately, as trading liabilities (1996: 2.37) and as hedge derivatives of the variable refinancing of the banking book (1996: 20.80). These instruments are comprised of the swaps hedging available for sale securities (-4.70), held to maturity securities (-3.82) and loans (-12.27). All changes in fair value of the swaps designated as cash flow hedging instruments are included in other comprehensive income. There is an offsetting change in fair value of available for sale securities (1996: 4.70). There is no offset for the changes in fair value of the swaps hedging the variable rate refinancing of the loans and held to maturity securities included in prior periods and current period other comprehensive income (1996: $-3.82 - 12.27 = -16.09$). Thus, the mismatch due to the fair value measurement of the swaps and the cost basis of the hedged items appears as a “plug” in other comprehensive income. In the absence of detailed presentation rules, we strongly recommend that these components of other comprehensive income should be disclosed as separate line items in the statement of changes in equity.

In Table 5 Panel D we find zero net income for economic performance measurement and also zero net interest income and zero trading income under Current IAS or US GAAP, with cash flow accounting for the fully hedged bank. The volatility in net income is completely removed if all hedges can be and 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 Current IAS or US GAAP without hedge accounting (Table 5 Panel B) with comprehensive income under Current IAS with all hedges designated as cash flow hedges (Table 5 Panel D), 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 a bank 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.

To summarize, cash flow hedge accounting reallocates the mismatches resulting from different measurements of hedged items and hedging instruments to other comprehensive income. The resulting volatility of equity is a serious disadvantage. The equity base of a bank changes although, from an economic point of view there is no volatility. This is difficult to explain to users of financial statements. Never-the-less, cash flow hedge accounting remains an alternative chosen by a number of banks because it might be easier to demonstrate the required hedge effectiveness.⁴¹

7. Hedge Accounting for Portfolios under Current IAS and US GAAP

The current standards IAS 39 and SFAS 133 require that the 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 not hedge the assets and the liabilities but only the net position of 10 million through an interest rate swap.

Both IAS and US GAAP do not allow the designation of 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 realistic in an environment of daily changing banking book positions.

Furthermore, portfolios of dissimilar items are not accepted under both IAS 39 and SFAS 133 hedge accounting. Rather the hedged items must react proportionally in a narrow range to changes of the defined risk factor.⁴² 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 bands for hedge accounting purposes. The understanding of portfolios under US GAAP and IAS is quite different from portfolio theory, which forms the 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 may be a almost perfect hedge from an economic point of view⁴³.

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 bands by their remaining term. It designates the net long position (maturity band 1999: 50 available for sale security; maturity band 2002: 100 loans) as gross to external hedging payer swaps (band 1999: 50 and band 2002: 100) at 1st January 1995, which can be expected to offset the changes in fair value within the required range of 80% to 125%⁴⁴ within each maturity band of similar hedging instruments.⁴⁵ At financial year-end 1996 the hedge is assumed to be still effective in prospective as well as in retrospective. At 3rd January 1997 the risk position may have changed because the bank has 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 maturity band 2002 (loans of 100 versus issued bonds of 200), 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 the hedging payer swap to the trading book and to amortize the basis adjustment (12.27) of the hedged loan until maturity in 2002.⁴⁶ In principle, with each new transaction the bank would have to terminate old hedges and to find new qualifying hedge relationships. Clearly, this is not workable for an actively managed banking book. However, some banks have developed IT based routines that portray their macro hedging strategies as fair value hedges under IAS 39 or SFAS 133, not completely but to an acceptable degree.

V. Accounting under a Full Fair Value Model

Current IAS and US GAAP rules for financial instruments have been labelled interim solutions that should be overcome by a comprehensive standard of accounting for all financial instruments as soon as possible. The debate on a comprehensive standard has been intensive and controversial. In December 2000 the JWG issued a Draft Standard proposing a mandatory full fair value model of accounting for all financial instruments.⁴⁷ The JWG Draft Standard has been heavily criticized, in particular, by representatives from the banking industry for not adequately mirroring the economics of the banking business.

1. Accounting under the JWG Draft Standard Mandatory Full Fair Value Model

For measurement purposes the JWG Draft Standard in principle does not distinguish between different types of financial instruments but applies fair value measurement to all financial assets and all financial liabilities. Excluded from the scope of the JWG Draft Standard are certain financial instruments for which there are existing IAS (e.g. investments in subsidiaries (IAS 27), associated companies (IAS 28), and equity instruments issued by the reporting entity) and certain insurance contracts. There is also an exception for certain private equity investments when in rare circumstances it is not practicable to arrive at a reliable fair value measurement.⁴⁸

All gains and losses resulting from changes in fair value are to be recognised in net income in the period in which the change in fair value arises. An exception is made for certain foreign currency translation gains and losses, which have to be presented separately as a change in equity according to IAS 21.30 or SFAS 52.13.⁴⁹

For presentation purposes the JWG Draft Standard requires separate disclosure of certain financial assets and financial instruments on the face of the balance sheet or in the notes to the financial statements.⁵⁰ The fair value measurement principle is applied to all financial instruments as outlined above.

The JWG Draft Standard in particular does not permit special hedge accounting for financial instruments that are entered into for purposes of risk management. All gains and losses from changes in fair value of hedging financial instruments are to be included in net income just as for any other financial instrument. Additional disclosures are required on the objectives and policies of risk management and on the financial risk position. Gains or losses on financial instruments hedging anticipated transactions in future reporting periods may be separately disclosed in the income statement together with a detailed description of the risk management strategies followed.⁵¹ For the presentation of interest revenues and expenses in the income statement, the JWG Draft Standard requires application of the concept of fair value interest to be calculated using the current yield to maturity or the yield curve of current market forward rates.⁵²

2. Application of the JWG Draft Standard

All financial instruments of our model bank fall within the scope of the JWG Draft Standard and therefore are recognised as assets and liabilities and measured at fair value with all changes in fair value to be included in net income. Thus, we do not have a mixed model for financial instruments that causes earnings mismatches.⁵³ Our presentations of results do not apply the presentation rules of the JWG Draft Standard but retain the balance sheet and income statement classification of Current IAS or US GAAP in order to clearly demonstrate the differences.

Table 5 Panel E presents the results for the fully hedged bank in the scenario of decreasing interest rates. The model bank shows as expected zero net income and also zero net interest income and zero net trading income in each period. Separate disclosure of gains or losses from the sale and repurchase of (available for sale) securities is not necessary as net income under a full fair value model is not affected by the decisions to hold or sell a financial instrument.

All financial assets and liabilities of the trading book and of the banking book are presented at fair value in the balance sheet reflecting all changes in market interest rates immediately. There is no need for the presentation of “plug” assets or liabilities as under Old IAS and for a separate disclosure of hedging derivatives as under Current IAS or US GAAP. The “plugs” are included in the fair values of the financial instruments.

For the partially hedged bank Table 6 Panel E demonstrates positive net income (1996: 5.83) in the scenario of decreasing interest rates as it is to be expected from the unhedged long position in fixed rate loans. Trading income is zero because the bank takes no risk positions in the trading book. As the model bank takes the position in the banking book we display the result under net interest income.

The partially hedged bank shows negative results (-6.76) in the scenario of increasing interest rates (Table 9 Panel E), due to the decline of fair value of the net position in fixed rate assets. Any change in market interest rates (like any other valuation parameter not included in our model) will show up immediately in the fair valuation and thus in net income. Consequently, a successful or a failed maturity transformation becomes transparent immediately and not over the remaining terms of the financial instruments.

3. Accounting under the IAS 39 Improvement Proposal of an Optional Fair Value Model

In June 2002 the IASB issued an IAS 32 and IAS 39 Improvement Exposure Draft proposing an optional fair value model.⁵⁴ At the initial application of the amended standard IAS 39, applicants may designate financial assets (e.g. loans originated by the enterprise) and financial liabilities (e.g. issued bonds) previously not classified as trading for measurement at fair value. This option is not granted for available for sale financial assets.⁵⁵ Financial instruments designated to this new category should be presented separately from financial instruments entered for the purpose of generating a trading profit, for example as “financial instruments at fair value (through net income)”.⁵⁶ After initial application of the amendment, designation for full fair value accounting is only allowed at initial recognition of financial assets and liabilities. A financial instrument should not be reclassified into or out of the trading category.⁵⁷

This proposed optional fair value model allows accounting to overcome some of the anomalies resulting from different measurement methods, as the natural offset of fair value changes eliminates the need for burdensome hedge accounting or the bifurcation of embedded derivatives. According to the basis for conclusions the Board does not intend “to force entities to measure more financial instruments at fair value”.⁵⁸ For banks designating all financial instruments that are included in portfolios hedged via macro hedging strategies, the amendment offers a way out of the current hedge accounting problems.

The optional fair value model will not make comparisons between enterprises easier. A bank that runs open positions in the banking book with financial instruments carried at cost may temporarily not be distinguishable from a fully hedged bank.

VI. Conclusions

The application of different sets of accounting rules for financial instruments to the model bank provides important insights. We demonstrate for different scenarios of rising and falling interest rates that only under Old IAS or under a full fair value model we can arrive at financial statements that adequately portray the economic (zero) results of a fully hedged bank (Table 5 Panels A, E; Table 9 Panels A, E).

However, under Old IAS this result is only achieved by entering “plug” assets or liabilities created by debits or credits to net income in order to compensate the changes in fair value of the derivative hedging instruments included in net income. Such “plug” assets and liabilities are not compatible with the definitions of assets and liabilities either in the IAS Framework or in the FASB Concepts Statements. They are hedge accounting artifacts.

Hedge accounting under Old IAS is based on interpretations and thus is optional. Banks may choose whether to adequately portray their activities or not. For the fully hedged model bank this means that we can arrive at zero net income for all periods but we also can produce non zero accounting results by not applying hedge accounting to all economic hedges.

Conversely, zero net income does not imply that a bank is fully hedged under Old IAS. If a bank runs open positions in fixed rate financial assets and liabilities carried at cost, changes in fair value will not affect net income under Old IAS. Thus, the total effect of an interest rate change appears in net income only over the remaining term of the financial instruments and related derivative hedging instruments.

The Old IAS mixed model has been the preferred model of the banking industry arguing that this model allows an adequate presentation of banking activities. The major problems with the Old IAS mixed model are the conceptual problems of the hedge accounting approach and its optionality, offering ample opportunities for creative accounting.

Current IAS and US GAAP appear to be even worse. We demonstrate that a fully hedged bank cannot present zero net income even if all possibilities of fair value hedge accounting are used (Table 5, 9). Under IAS 39 or SFAS 133 fair value hedge accounting, the “plugs” identified before are not recognized as assets or liabilities but included as basis adjustments in the carrying amounts of the hedged items. Thus, we have strange valuations of hedged items that are neither cost nor market but again hedge accounting artifacts. Under Current IAS or US GAAP cash flow hedge accounting banks can remove the measurement problems from net income but not from comprehensive income. A fully hedged bank will have to present changes in equity with changing interest rates – a result not easily explained to users of financial statements.

The key problems of modern universal banks following dynamic macro hedging techniques are the narrow micro hedging concept implied in IAS 39 and SFAS 133. Hedge accounting under Current IAS or US GAAP is granted as an exception and comes with a price in the form of the burdensome documentation requirements. Banks often are not able or willing to fulfill these requirements and therefore opt not to choose hedge accounting for all hedging activities. Not applying hedge accounting – voluntary or involuntary - might present a fully hedged bank with more volatile net income than a partially hedged bank, as demonstrated by our model results. As a consequence,

financial statements of banks are hardly comparable for users under Current IAS or US GAAP.

Application of the mandatory full fair value model proposed in the JWG Draft Standard results in financial statements adequately portraying the economic activities of the model bank. The fully hedged bank presents zero net income and no changes in equity (Table 5 Panel E; Table 9 Panel E). The partially hedged bank with a long position in the banking book presents positive net income with decreasing interest rates and negative net income with increasing interest rates. Changes in interest rates affect the (fair) values of all fixed rate financial instruments, derivative instruments and net income as well as equity immediately and fully, in the period of the rate change and are not spread over subsequent periods. There is no need to introduce hedge accounting artefacts like “plug” assets or liabilities or basis adjustments.

The mandatory full fair value model offers no choices in the preparation of accounts and results in financial statements that are easier to compare, at least in the world of our bank model. Certainly there are additional problems to overcome when extending fair value measurements to more classes of financial assets and liabilities. These problems then need to be addressed and resolved. This is in our opinion the most promising way ahead, out of the unsatisfactory current situation. Fighting the full fair value model with the argument that this does not adequately portray the economics of the banking business has been discarded by the results of our analysis.

The optional fair value model proposed by the IASB in the recent IAS 32 and 39 Improvement Exposure Draft is not an acceptable long term solution to this important accounting problem area. It may be a useful interim solution providing the option to

gain experience with an extended use of fair values. We expect that in the light of the difficulties that banks face under Current IAS or US GAAP a considerable number of banks will at least carefully consider the use of this option and hopefully a representative group of banks will voluntarily adopt an extended fair value model.

Our analysis quite clearly contradicts repeated statements from the banking industry that a full fair value model does not adequately depict the economics of the commercial banking (lending) business. Unfortunately, those statements have not been accompanied by a rigorous analysis of the issues. We hope that our analysis will help to make the ongoing debate more rational by clearly identifying the implications of different accounting models under different banking strategies in different scenarios. We will develop our analysis further to incorporate other relevant aspects (e.g. credit risk) and offer our cooperation to all interested parties, including standard setters and the banking industry, involved in the debate on adequate accounting for financial instruments.

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- ¹ See JWG (2000).
- ² See JWG (1999); Joint Working Group of Banking Associations (1999).
- ³ 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 (Johnson, 2000).
- ⁴ Trading departments may take (implicit) credit risk as part of their trading activities within credit risk limits allocated by loan departments.
- ⁵ Schroder Salomon Smith Barney (2001).
- ⁶ 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.
- ⁷ See also Bessis (2002), 131-89.
- ⁸ 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 unchanged. If the higher internal funding costs were passed on to the customer, the bank would earn more or lose market share.
- ⁹ 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.
- ¹⁰ 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. In our example, futures may serve as temporary hedges until the issued bonds will be placed to fund the cash flows of new loans.
- ¹¹ See for example Bessis (2002), 25, 396-416.
- ¹² Banks usually use portfolio hedges. We deviate from best banking practice in order to demonstrate the different accounting concepts as clear and as simple as possible.

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- ¹³ A long position 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 to prevail (“riding the yield curve”) or that the short-term funding costs will fall or remain below existing long-term yields.
- ¹⁴ For quoted financial instruments measured at fair value standard setters prefer the use of current market prices. See, for example, IAS 39.99. We do not address fair value measurement issues in this paper.
- ¹⁵ See Joint Working Group of Banking Associations (1999), 11.
- ¹⁶ See IAS Framework, §100a.
- ¹⁷ See IAS 30.52.
- ¹⁸ See Krumnow et al. (1994), 452-3.
- ¹⁹ For an example of the zero line approach see paper of the same authors, pp. xxx.
- ²⁰ As far as we know there are no written sources, which explicitly refer to IAS. We refer to the arguments in Krumnow (1995), 17; Naumann (1995), 183-4; Wittenbrink and Goebel (1997), 27-8; Scharpf and Luz (2000), 242. US GAAP is more restrictive as it does not allow accounting for internal derivatives except for those transacted before 01.01.1998. This “grandfathering” rule has been suspended with implementation of SFAS 133.
- ²¹ See the definition of financial instruments in IAS 32.5 and IAS 39.8.
- ²² Since the operations of the bank start in 1995 the numbers represent the accumulated gain.
- ²³ See Wittenbrink and Göbel (1997), 272.
- ²⁴ With the partial hedge strategy only the change in fair value of investment securities (1996: 8.53) is hedged via internal deals with external trading swaps (1996: -8.53).
- ²⁵ In order to simplify the presentation of the argument we disregard a bid/ask spread and transaction costs (see section II.2).
- ²⁶ The situation is comparable to prepayment penalties, paid at early termination of a loan.
- ²⁷ See Krumnow et al. (1994), 468-9.
- ²⁸ See IAS 39.113; SFAS 114.13.
- ²⁹ 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.
- ³⁰ OCI decreases in 1997 by 4.70. This comprises the realized gain of 3.04 and the decrease in market value of the available for sale securities in 1997 of 1.66.

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- ³¹ 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.
- ³² We will not discuss hedges of a net investment in a foreign currency as defined in IAS 21 and SFAS 52.
- ³³ An amendment of SFAS 133 by SFAS 138 permits the hedging of 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.
- ³⁴ See IGC QA 121a; Bundesverband deutscher Banken (2001), 346-53.
- ³⁵ See IGC QA 134-1.
- ³⁶ 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.
- ³⁷ See Gebhardt (2000), 82-3.
- ³⁸ This includes the interest on accumulated profits of prior years (0.07).
- ³⁹ See IAS 39.162; SFAS 133.31.
- ⁴⁰ See IAS 39.142 c; IGC QA 121-2-e.
- ⁴¹ See IGC QA 121-2b.
- ⁴² See SFAS 133.21a(1); IAS 39.132.
- ⁴³ See IGC QA 132-1; Scharpf (2001), 200.
- ⁴⁴ IAS 39.146; there are no guidelines to define highly effective under SFAS 133 but the range of 80% to 125% is also accepted under US GAAP; see PwC (1998), 87.
- ⁴⁵ For simplicity we compare notional amount. Real life hedge accounting would be based on sensitivities or regression analysis.
- ⁴⁶ Alternatively, the swap may not be closed out but transferred to the trading book at fair value.
- ⁴⁷ See JWG (2000).
- ⁴⁸ See JWG (2000), 17-22, 50.
- ⁴⁹ See JWG (2000), 54.
- ⁵⁰ See JWG (2000), 52-3.

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- ⁵¹ See JWG (2000), 58-60, 62-5.
- ⁵² See JWG (2000), 55, 130-4. For a critique see the dissenting view of the German delegation in JWG (2000), 290; Breker, Gebhardt and Pape (2000), 741.
- ⁵³ Different measurement bases will continue to exist even upon adoption of the JWG Draft Standard as most non-financial assets and liabilities will not be carried at fair value for the foreseeable future.
- ⁵⁴ The FASB currently does not follow this proposal but discusses only small technical amendments to SFAS 133.
- ⁵⁵ See amended IAS 39.C61.
- ⁵⁶ See amended IAS 39.18A.
- ⁵⁷ See amended IAS 39.89B.
- ⁵⁸ See amended IAS 39.C55.

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Figure 1: Risk Management of Two Customer Transactions within a Universal Bank

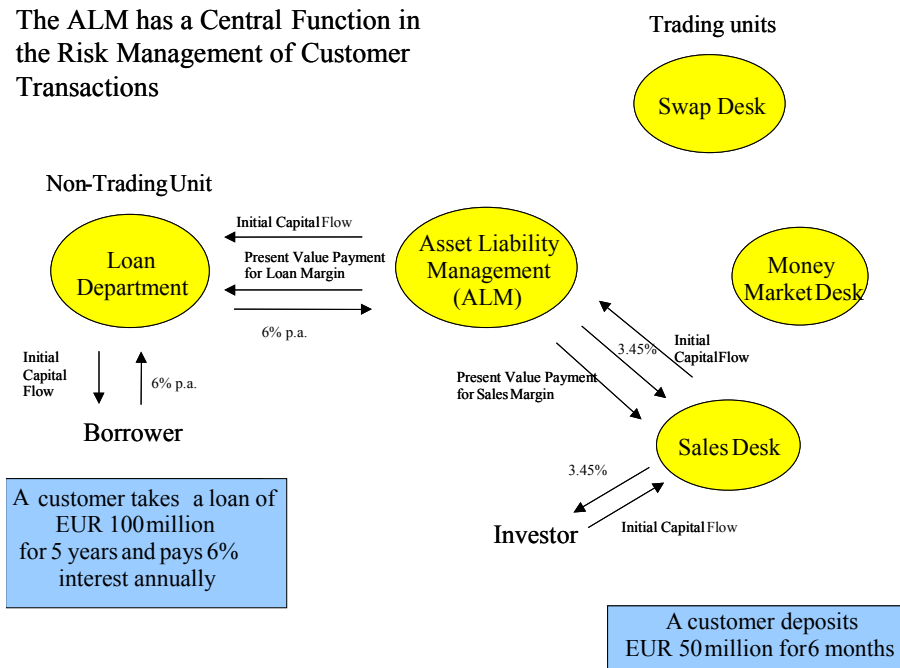
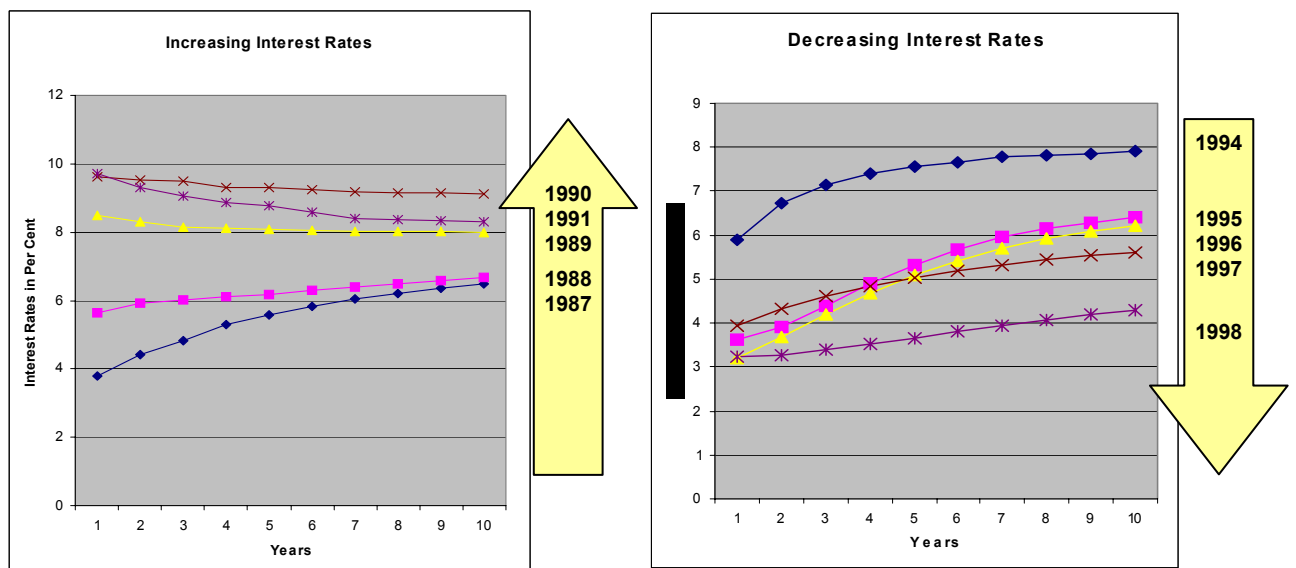


Figure 2: Scenarios of Rising and Falling Interest Rates



*Table 1: Model Bank—Full Hedge: Decreasing Interest Rates
(Partial Hedge: Idem, but without Transactions in Italics)*

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

Table 2: *Accounting for Financial Instruments under the Old IAS “Mixed Model” without Hedge Accounting*

	<u>“Trading book”</u>		
At fair value	Financial Asset:	Interest rate Swap:	At fair value:
Gain or loss	Maturity 5 years;	Maturity 5 years;	Gain or loss
recognized	Fixed rate 8.00 percent	Pay fixed rate 8.00 percent	recognized
	<u>“Banking book”</u>		
At cost	Financial Asset (Loan):	<i>[Interest rate Swap:</i>	Gain <i>not</i>
Gain or loss <i>not</i>	Maturity 5 years;	<i>Maturity 5 years;</i>	recognized, loss
recognized	Fixed rate 8.00 percent	<i>Pay fixed rate 8.00 percent]</i>	recognized as a
			provision
At lower of cost	Financial Asset (Security):	<i>[Interest rate Swap:</i>	Gain <i>not</i>
or market:	Maturity 5 years;	<i>Maturity 5 years;</i>	recognized, loss
Gain not	Fixed rate 8.00 percent	<i>Pay fixed rate 8.00 percent]</i>	recognized as a
recognized,			provision
loss recognized			
Gain <i>not</i>	<i>[Interest rate Swap:</i>	Financial liability (issued	At cost
recognized, loss	<i>Maturity 5 years;</i>	bond):	Gain or loss <i>not</i>
recognized as a	<i>Receive fixed rate 8.00</i>	Maturity 5 years;	recognized
provision	<i>percent]</i>	Fixed rate 8.00 percent	

Table 3: *Accounting for Financial Instruments under the Old IAS “Mixed Model” with Hedge Accounting*

<u>“Banking book”</u>			
At cost: Gain or loss <i>not</i> recognized	Financial Asset (Loan): Maturity 5 years; Fixed rate 8.00 percent	<i>[Interest rate Swap: Maturity 5 years; Pay fixed rate 8.00 percent]</i>	At cost: Gains or loss <i>not</i> recognized
Non-valuation (“compensating misvaluation”)			
Inefficiencies <i>not</i> measured			
At lower of cost or market: only an overhang of losses recognized	Financial Asset (Security) Maturity 5 years; Fixed rate 8.00 percent	<i>[Interest rate Swap: Maturity 5 years; Pay fixed rate 8.00 percent]</i>	At lower of cost or market: only an overhang of losses recognized
Compensating valuation			
Inefficiencies <i>partly</i> measured (zero line approach)			

Table 4: *Accounting for Financial Instruments under the Old IAS “Mixed Model” with Internal Derivatives Hedging – Scenario of Rising Interest Rates*

<u>“Trading book”</u>			
Consolidated: Loss <i>not</i> 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
<u>“Banking book”</u>			
At cost: Loss <i>not</i> 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 <i>not</i> recognized, interest not accrued

Table 5: Comparison of Accounting Results – Fully Hedged Bank / Decreasing Interest Rates / Balance Sheet

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS with Hedge Accounting			Current IAS without Hedge Accounting			Current IAS with Fair Value Hedge			Current IAS with Cash Flow Hedge			JWG Draft Standard Full Fair Value		
	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	102.37	105.50	113.18	102.37	105.50	113.18	102.37	105.50	113.18
Loans and Advances	200.00	200.00	200.00	200.00	200.00	200.00	212.27	212.12	215.79	200.00	200.00	200.00	224.54	224.24	231.58
Investment Securities	80.00	83.04	83.04												
Available for Sale				54.70	53.04	52.10	54.70	53.04	52.10	54.70	53.04	52.10	54.70	53.04	52.10
Financial Instruments Held to Maturity				30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	33.82	34.46	36.54
Financial Instruments															
Hedge Derivatives				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Other Assets ("Plug")	20.80	16.58	21.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Total Assets	403.17	405.12	417.60	387.07	388.54	395.28	399.34	400.66	411.07	387.07	388.54	395.28	415.44	417.24	433.39
Trading Liabilities	23.17	25.12	37.60	23.17	25.12	37.60	6.19	9.96	19.71	2.37	5.50	13.18	23.17	25.12	37.60
Liabilities to Banks	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00
Certified Liabilities	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	112.27	112.12	115.79
Hedge Derivatives				0.00	0.00	0.00	16.97	15.16	17.89	20.80	19.62	24.42			
Other Liabilities	0.00	0.00	0.00	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	-3.36	-3.82	-4.46	0.00	0.00	3.04	0.00	0.00	0.00
Accumulated Other Comprehensive Income				4.76	4.70	0.00	0.00	0.00	0.00	-14.08	-16.09	-19.62			
Other Comprehensive Income				-0.06	-4.70	-0.94	0.00	0.00	0.00	-2.02	-3.53	-5.74			
Net Income	0.00	0.00	0.00	-1.96	4.21	-4.80	-0.47	-0.64	-2.07	0.00	3.04	0.00	0.00	0.00	0.00
Total Liabilities & Equity	403.17	405.12	417.60	387.07	388.54	395.28	399.34	400.66	411.07	387.07	388.54	395.28	415.44	417.24	433.39

Table 5: Comparison of Accounting Results – Fully Hedged Bank / Decreasing Interest Rates / Income Statement

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS with Hedge Accounting			Current IAS without Hedge Accounting			Current IAS with Fair Value Hedge			Current IAS with Cash Flow Hedge			JWG Draft Standard Full Fair Value		
	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998
Net Interest Income	0.00	0.00	0.00	7.47	8.21	6.88	1.29	1.41	1.19	0.00	0.00	0.00	0.00	0.00	0.00
Net Trading Income	0.00	0.00	0.00	-9.43	-7.03	-11.68	-1.75	-2.05	-3.26	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains Available for Sale	0.00	(3.04- 3.04)	0.00	0.00	3.04	0.00	0.00	0.00	0.00	0.00	3.04	0.00			
Net Income	0.00	0.00	0.00	-1.96	4.21	-4.80	-0.47	-0.64	-2.07	0.00	3.04	0.00	0.00	0.00	0.00
Other Comprehensive Income				-0.06	-4.70	-0.94	0.00	0.00	0.00	-2.02	-3.53	-5.74	0.00	0.00	0.00
Comprehensive Income				-2.02	-0.49	-5.74	-0.47	-0.64	-2.07	-2.02	-0.49	-5.74	0.00	0.00	0.00

Table 6: Comparison of Accounting Results – Partially Hedged Bank / Decreasing Interest Rates / Balance Sheet

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS			Current IAS			Current IAS			Current IAS			JWG Draft Standard		
	with Hedge Accounting			without Hedge Accounting			with Fair Value Hedge			with Cash Flow Hedge			Full Fair Value		
	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998
Trading Assets	102.37	105.50	113.18	102.37	105.50	113.18	102.37	105.50	113.18	102.37	105.50	113.18	102.37	105.50	113.18
Loans and Advances	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	224.54	224.24	231.58
Investment Securities	80.00	83.04	83.04												
Available for Sale				54.70	53.04	52.10	54.70	53.04	52.10	54.70	53.04	52.10	54.70	53.04	52.10
Financial Instruments				30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	33.82	34.46	36.54
Held to Maturity															
Financial Instruments				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Hedge Derivatives															
Other Assets ("Plug")	8.53	4.46	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Total Assets	390.90	393.00	401.81	387.07	388.54	395.28	387.07	388.54	395.28	387.07	388.54	395.28	415.44	417.24	433.39
Trading Liabilities	10.90	13.00	21.81	10.90	13.00	21.81	6.19	9.96	19.71	2.37	5.50	13.18	10.90	13.00	21.81
Liabilities to Banks	273.79	268.97	264.66	273.79	268.97	264.66	273.79	268.97	264.66	273.79	268.97	264.66	273.79	268.97	264.66
Certified Liabilities	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	112.27	112.12	115.79
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	4.70	3.04	2.10	8.53	7.50	8.63			
Retained Earnings	1.93	6.21	11.03	-6.19	-2.32	6.57	0.00	0.00	0.00	1.93	6.21	14.07	12.65	18.48	23.15
Accumulated Other				4.76	4.70	0.00	-1.43	2.39	6.57	-3.36	-3.82	-7.50			
Comprehensive Income				-0.06	-4.70	-0.94	0.00	0.00	0.00	-0.47	-3.68	-2.07			
Other Comprehensive															
Income															
Net Income	4.28	4.82	4.31	3.87	8.88	3.18	3.81	4.18	2.24	4.28	7.86	4.31	5.83	4.67	7.98
Total Liabilities & Equity	390.90	393.00	401.81	387.07	388.54	395.28	387.07	388.54	395.28	387.07	388.54	395.28	415.44	417.24	433.39

Table 6: Comparison of Accounting Results – Partially Hedged Bank / Decreasing Interest Rates / Income Statement

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS			Current IAS			Current IAS			Current IAS			JWG Draft Standard		
	with Hedge Accounting			without Hedge Accounting			with Fair Value Hedge			with Cash Flow Hedge			Full Fair Value		
	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998
Net Interest Income	4.28	4.82	4.31	7.54	8.41	7.31	5.57	6.23	5.50	4.28	4.82	4.31	5.83	4.67	7.98
Net Trading Income	0.00	0.00	0.00	-3.67	-2.56	-4.13	-1.75	-2.05	-3.26	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains Available for Sale	0.00	(3.04-3.04)	0.00	0.00	3.04	0.00	0.00	0.00	0.00	0.00	3.04	0.00			
Net Income	4.28	4.82	4.31	3.87	8.88	3.18	3.81	4.18	2.24	4.28	7.86	4.31	5.83	4.67	7.98
Other Comprehensive Income				-0.06	-4.70	-0.94	0.00	0.00	0.00	-0.47	-3.68	-2.07	0.00	0.00	0.00
Comprehensive Income				3.81	4.18	2.24	3.81	4.18	2.24	3.81	4.18	2.24	5.83	4.67	7.98

Table 7: *Accounting for Financial Instruments under Current IAS and US GAAP without Hedge Accounting*

<u>“Trading”</u>			
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
<u>“Available-for-sale”</u>			
At fair value: Gain or loss recognized in other compre- hensive income or (option only under 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
<u>“Held-to-maturity”</u>			
At cost: Gain or loss <i>not</i> 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
<u>“Originated by the enterprise”</u>			
At cost: Gain or loss <i>not</i> 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
		<u>“Non-trading liabilities”</u>	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 <i>not</i> recognized

Table 8: Comparison of Accounting Results – Fully Hedged Bank / Increasing Interest Rates / Balance Sheet

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS			Current IAS			Current IAS			Current IAS			JWG Draft Standard		
	with Hedge Accounting			without Hedge Accounting			with Fair Value Hedge			with Cash Flow Hedge			Full Fair Value		
	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991
Trading Assets	114.45	119.33	113.37	114.45	119.33	113.37	102.60	103.99	102.83	91.86	87.14	90.99	114.45	119.33	113.37
Loans and Advances	200.00	200.00	200.00	200.00	200.00	200.00	191.43	188.10	191.33	200.00	200.00	200.00	182.87	176.20	182.67
Investment Securities	80.00	76.57	76.57												
Available for Sale															
Financial Instruments				46.72	46.57	48.13	46.72	46.57	48.13	46.72	46.57	48.13	46.72	46.57	48.13
Held to Maturity				30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	27.40	26.01	27.17
Financial Instruments															
Hedge Derivatives				0.00	0.00	0.00	11.85	15.33	10.54	22.58	32.19	22.38			
Other Assets ("Plug")	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Total Assets	394.45	395.90	389.93	391.16	395.90	391.49	382.60	383.99	382.83	391.16	395.90	391.49	371.43	368.10	371.33
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	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	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00
Certified Liabilities	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	91.43	88.10	91.33
Hedge Derivatives				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Other Liabilities	14.45	15.90	9.93	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	0.18	2.60	3.99	0.00	0.00	0.00	0.00	0.00	0.00
Accumulated Other				-0.90	-3.28	0.00	0.00	0.00	0.00	1.29	11.16	19.33	0.00	0.00	0.00
Comprehensive Income				-2.38	3.28	1.56				9.87	8.16	-4.40			
Other Comprehensive															
Income															
Net Income	0.00	0.00	0.00	12.26	1.45	-5.96	2.41	1.40	-1.17	0.00	-3.43	0.00	0.00	0.00	0.00
Total liabilities & Equity	394.45	395.90	389.93	391.16	395.90	391.49	382.60	383.99	382.83	391.16	395.90	391.49	371.43	368.10	371.33

Table 8: Comparison of Accounting Results – Fully Hedged Bank / Increasing Interest Rates / Income Statement

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS			Current IAS			Current IAS			Current IAS			JWG Draft Standard		
	with Hedge Accounting			without Hedge Accounting			with Fair Value Hedge			with Cash Flow Hedge			Full Fair Value		
	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991
Net Interest Income	0.00	0.00	0.00	0.79	-4.34	-6.39	0.26	-0.60	-0.94	0.00	0.00	0.00	0.00	0.00	0.00
Net Trading Income	0.00	0.00	0.00	11.46	9.22	0.43	2.16	1.99	-0.23	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains Available for Sale	0.00	(-3.43)	0.00	0.00	-3.43	0.00	0.00	0.00	0.00	0.00	-3.43	0.00	0.00	0.00	0.00
Net Income	0.00	0.00	0.00	12.26	1.45	-5.96	2.41	1.40	-1.17	0.00	-3.43	0.00	0.00	0.00	0.00
Other Comprehensive				-2.38	3.28	1.56	0.00	0.00	0.00	9.87	8.16	-4.40	0.00	0.00	0.00
Income															
Comprehensive Income				9.87	4.73	-4.40	2.41	1.40	-1.17	9.87	4.73	-4.40	0.00	0.00	0.00

Table 9: Comparison of Accounting Results – Partially Hedged Bank / Increasing Interest Rates / Balance Sheet

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS			Current IAS			Current IAS			Current IAS			JWG Draft Standard		
	with Hedge Accounting			without Hedge Accounting			with Fair Value Hedge			with Cash Flow Hedge			Full Fair Value		
	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991
Trading Assets	105.88	107.42	104.70	105.88	107.42	104.70	102.60	103.99	102.83	91.86	87.14	90.99	105.88	107.42	104.70
Loans and Advances	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	182.87	176.20	182.67
Investment Securities	80.00	76.57	76.57												
Available for Sale															
Financial Instruments				46.72	46.57	48.13	46.72	46.57	48.13	46.72	46.57	48.13	46.72	46.57	48.13
Held to Maturity				30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	27.40	26.01	27.17
Financial Instruments															
Hedge Derivatives				0.00	0.00	0.00	3.28	3.43	1.87	14.02	20.28	13.71			
Other Assets ("Plug")	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Total Assets	385.88	383.99	381.27	382.60	383.99	382.83	382.60	383.99	382.83	382.60	383.99	382.83	362.87	356.20	362.67
Trading Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	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	276.90	278.93	282.26	276.90	278.93	282.26	276.90	278.93	282.26
Certified Liabilities	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	91.43	88.10	91.33
Hedge Derivatives				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Other Liabilities	5.88	3.99	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Retained Earnings	2.40	0.70	1.07	3.48	8.98	5.06	2.58	5.69	5.06	2.40	3.10	-2.36	1.29	-5.47	-10.83
Accumulated Other				-0.90	-3.28	0.00				0.18	2.60	7.42	0.00	0.00	0.00
Comprehensive Income															
Other Comprehensive				-2.38	3.28	1.56	0.00	0.00	0.00	2.41	4.83	-1.17	0.00	0.00	0.00
Income															
Net Income	0.70	-2.03	-3.33	5.49	-3.91	-6.05	3.11	-0.63	-4.49	0.70	-5.46	-3.33	-6.76	-5.36	-0.09
Total liabilities & Equity	385.88	383.99	381.27	382.60	383.99	382.83	382.60	383.99	382.83	382.60	383.99	382.83	362.87	356.20	362.67

Table 9: Comparison of Accounting Results – Partially Hedged Bank / Increasing Interest Rates / Income Statement

	Panel A			Panel B			Panel C			Panel D			Panel E		
	Old IAS			Current IAS			Current IAS			Current IAS			JWG Draft Standard		
	with Hedge Accounting			without Hedge Accounting			with Fair Value Hedge			with Cash Flow Hedge			Full Fair Value		
	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991
Net Interest Income	0.70	-2.03	-3.33	0.93	-4.07	-6.29	0.95	-2.62	-4.27	0.70	-2.03	-3.33	-6.76	-5.36	-0.09
Net Trading Income	0.00	0.00	0.00	4.56	3.59	0.23	2.16	1.99	-0.23	0.00	0.00	0.00	0.00	0.00	0.00
Net Gains Available for Sale	0.00	(-3.43)	0.00	0.00	-3.43	0.00	0.00	0.00	0.00	0.00	-3.43	0.00	0.00	0.00	0.00
Net Income	0.70	-2.03	-3.33	5.49	-3.91	-6.05	3.11	-0.63	-4.49	0.70	-5.46	-3.33	-6.76	-5.36	-0.09
Other Comprehensive Income				-2.38	3.28	1.56	0.00	0.00	0.00	2.41	4.83	-1.17	0.00	0.00	0.00
Comprehensive Income				3.11	-0.63	-4.49	3.11	-0.63	-4.49	3.11	-0.63	-4.49	-6.76	-5.36	-0.09

Table 10: IAS 39 Fair Value Hedge Accounting for Interest Rate Risk Management

	<u>Fair Value Hedge</u>		
At cost plus basis adjustment:	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
Gain or loss attributable to the hedged risk recognized as an adjustment of the carrying value		Term Deposit: Maturity 5 month Pay variable rate	At cost

Table 11: IAS 39 Fair Value Hedge Accounting for Hedges using Internal Derivatives

<u>“Hedging book”</u>			
Consolidated: Loss <i>not</i> 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
<u>“Banking book”</u>			
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 <i>not</i> recognized
		Term Deposit (external): Maturity 5 month Pay variable rate	At cost

Table 12: IAS 39 Cash Flow Hedge Accounting for Interest Rate Risk Management

<u>Cash Flow Hedge</u>	
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
	Term Deposit: Pay variable rate
	At fair value: profit or loss deferred in other comprehensive income
	At cost (no basis adjustment)