Interest rate risk
in the French banking system

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Although most bank failures and banking problems historically have been attributable to poorly managed exposures to credit risk, inadequate management of interest rate risk can give rise to the same types of problems, as illustrated by the U.S. 'savings and loan crisis' of the early 1990s. Interest rate risk is one of the principal risks inherent in the maturity transformation activity of banks. Excessive or poorly managed exposure to interest rate risk can menace both the financial balance of specific credit institutions and the overall stability of the financial system.

The current environment of low interest rates, ongoing developments in regulatory and accounting standards, and the structural burden of the fixed-rate investment strategy of French banks – and of continental European banks in general – all combine to make exposure to and management of interest-rate risk a leading concern of the different actors involved in ensuring financial stability.

In this environment, prudential authorities, along with other authorities responsible for overall financial stability, need to have accurate indicators of levels and trends in exposure to interest rate risk in the financial system. However, the diversity of this risk makes it very difficult to select such indicators. The choice depends heavily on the nature of the interest rate risk – in particular, on the volume of assets and liabilities containing embedded options –, on the financial structure of the specific institution, and on its overall strategy. This explains the diversity of practices observed today in the monitoring and management of interest rate risk. The same factors also make it extremely difficult to establish a harmonised system of quantitative reporting.

As with other types of risk, the first line of defense against the vulnerabilities associated with interest rate risk is the soundness and robustness of internal management and control systems. The new capital framework envisages a tailored supervisory review.
Variations in interest rates can have profound microeconomic and macroeconomic consequences. Understanding how these consequences affect financial intermediaries is of central importance in reaching an overall assessment of financial stability.

The development of analytic tools and quantitative standards for measuring and regulating overall risk exposure, like those that have proved useful in assessing other types of banking risk, is rendered extremely difficult, if not impossible, by the close link between the measure of interest rate risk and the particular financial characteristics (type of activity, method of financing) and financial strategies (hedging of exposures, voluntary position-taking) of each credit institution. Because the measurement of interest rate risk depends on the specific characteristics of each institution, it does not lend itself to uniform treatment.

Nevertheless, the significance of this risk for individual credit institutions, and its potential systemic consequences for the economy as a whole, calls for bank supervisors, and indeed all authorities responsible for financial stability, to examine these questions very closely.

The concern of regulators is heightened by current developments in the financial environment and by changes in regulatory and accounting standards which are likely to increase the sensitivity of certain institutions to interest rate risk (section 1).

In order to assess the exposure of the French banking system to interest rate risk, the General Secretariat of the Banking Commission surveyed seven large banking groups1 during the second quarter of 2004. In addition to gathering information on the asset-liability management (ALM) systems of the institutions concerned (organisation, risk-measurement systems, and hedging strategies), the Secretariat administered stress tests to evaluate the institutions’ ability to withstand a sudden, large increase in interest rates – a scenario which cannot be completely ruled out in light of the current historically low level of interest rates.

The analysis revealed a high degree of expertise at the major banking groups, but also a broad diversity in their practices and strategies. The stress tests indicated that the French banking system is well able to withstand a significant increase in interest rates (section 2).

However, with the development of accounting standards based on market valuation, interest rate risk is likely to have a greater and more frequent impact on bank balance sheets and earnings in the future, making it necessary to strengthen, rationalise, and harmonise internal control systems for interest rate risk, particularly in the context of implementation of Pillar 2 of the new capital framework (section 3).

1 | Relevance of Interest Rate Risk

1.1 A risk inherent in banking activity

The role of credit institutions as financial intermediaries exposes them to a structural transformation or interest rate risk, arising from their use of demand deposits and other forms of short-term resources to finance assets with long maturities. There are two explanations for this situation (reviewed by Maes, 2004).

In the first place, financial intermediaries, as a natural consequence of their activity, assume mismatches in maturity and/or interest rate mismatches. This is because non-financial actors are risk-averse (they are structurally short-term lenders and long-term borrowers) and because lenders have relatively little access to information about the credit quality of borrowers. They therefore transact through intermediaries – banks – which are better able to manage problems of imperfect information about borrowers (Jaffe and Stiglitz, 1990), to make a choice between different loan demands, and to ensure that their investments are properly monitored. Monitoring allows banks to limit the risk that a borrower will use a loan for purposes other than those for which the loan was contracted, and thereby protects the funds of depositors.

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1 Basel-II information-gathering missions to BNP-Paribas, Société Générale, Crédit Agricole, Crédit Mutuel, Caisses d’Épargne, Natexis Banques Populaires, and CCF.

2 At a given maturity, the amount of assets and the amount of liabilities are not equal.
The interest rate mismatch provides a measure of the sensitivity of the interest margin (the amount of interest paid minus interest received, resulting from transactions in the banking book) to fluctuations in market interest rates.

And in any case differs from that implied by the theory of perfect foresight, which assumes that the return on a long-term risk-free bond is exactly equal to the combination of the short-term returns of which it is composed.

The return which the holder of a long-term security expects to receive, relative to the return on a short-term security. The amount of the risk premium can vary over time; it is not necessarily either constant, or proportional to the level of interest rates.
It is interesting to note that while interest rate risk has always been present – because it is intrinsic to the transformation function of banking – banks have only recently begun to address this risk in their internal control systems. In fact, the magnitude of interest rate risk has increased as a direct consequence of the increased volatility in interest rates following the collapse of the Bretton Woods system of fixed exchange rates and the liberalisation of capital movements.

Interest rate risk is reflected in the income statement through its effect on interest margins on banking operations. In addition, the present values of assets, liabilities, and off-balance-sheet items are altered, because changes in the interest rate alter the value of the future cash flows that they generate. Effective and prudent management of interest rate risk is critical to the overall quality of banks’ internal management, and, consequently, to the soundness of banks and the stability of the banking system.

Today, the environment for managing interest rate risk is susceptible to rapid change: a situation that calls for heightened attention on the part of bank supervisors and other authorities responsible for financial stability.

- To begin with, banks have enjoyed a long period of stable interest rates at historically low levels. A reversal of this situation would be likely to affect existing balances, and could have a direct impact on the exposure of credit institutions to interest rate risk, particularly in a context characterised by heavy concentrations in real estate loans.

- Furthermore, the regulatory framework is evolving (interest-bearing demand deposits, changes in interest rates for regulated savings accounts).

- Finally, new accounting standards (International Accounting Standards) could have an impact on asset-liability management.

**1/2 A volatile environment**

**Historically low interest rates**

The current economic environment is characterised by historically very low interest rates in many G-10 countries.

This situation is unusual. Institutions should therefore carefully assess their ability to absorb the effects of a significant increase in interest rates, which would have an immediate impact on transformation margins: the cost of financing would generally rise more rapidly than the return on assets, by virtue of the maturity transformation effected by the banks.

In fact, outstanding credit at fixed rates and variable-rate loans with an original rate fixation period over one year represented 66 percent of total outstanding on-balance-sheet credit extended to domestic borrowers as of September 2004. The largest and most rapidly growing component of this fixed-rate lending was residential real estate lending (half of all fixed-rate loans). From mid-2003 to mid-2004, new residential real estate loans have been granted at low rates, generally between 4.20 and 4.30 percent, compared with an average interest rate of 4.76 percent for the entire euro zone in September 2004. In these circumstances, and in the absence of an appropriate system of asset-liability management that enables banks to measure their exposures precisely and to hedge their interest rate risk, an increase in interest rates could expose them to a scissor effect in which the cost of funding increases while the interest produced by assets remains for the most part frozen.

**An evolving regulatory framework**

Like their European peers, French banks finance a large proportion of their assets with demand and term deposits. On October 31, 2004, deposits (excluding the deposits of other financial institutions, central government agencies, and depositors from outside the euro area) represented 24.1 percent of the aggregate balance sheets of French financial and...
monetary institutions (FMI) and 30.1 percent of financial and monetary institutions in the euro area. Both percentages have remained relatively stable since 1999. However, this stability may be upset by structural changes affecting the volume of deposits and the spread between market rates and interest rates on deposits. In France, structural changes are foreseeable in at least two areas:

- since August 1, 2004, interest rates on savings accounts (livrets d’épargne) have been adjusted every six months according the following automatic indexing formula:

  \[
  \text{Interest rate} = 0.5 \times (3\text{-month Euribor} + 12\text{-month inflation rate excluding tobacco}) + 0.25;
  \]

- the prohibition on interest-bearing current accounts has been lifted by the Court of Justice of the European Community.

The prohibition on interest-bearing current accounts will not significantly alter the conditions for asset-liability management in France. If the interest paid is modest – reflecting the current low level of market interest rates and the stated intention of some banking groups not to offer interest on current accounts, or to set below-market rates – there may be only a relatively modest effect on aggregate demand-deposit balances, since in this case interest expense would represent a relatively small increment to the overall cost of deposit collection (cost of branch networks and other fixed costs). In addition, it is likely that the remuneration will most often be set in terms of an adjustable ladder of fixed rates, rather than a continuously variable rate set automatically by reference to an external index.

Still, the manner in which banks will react to the lifting of the prohibition on interest-bearing demand deposits remains very unpredictable. Behavior that is inconsistent with sound interest rate risk management could significantly alter the magnitude and nature of overall interest rate risk.

**The impact of IFRS standards**

In theory, the transition to the IAS/International financial reporting standards (IFRS) framework, which expands the market valuation of financial instruments (“fair-value accounting”), could represent an opportunity for convergence between the perspectives of asset-liability managers and financial reporting requirements. However, the asset-liability managers of French banks are far from satisfied with the IAS/IFRS framework. Some of the provisions of the new international accounting standards – in particular, standard IAS 39 – do not correspond, in their current versions, to the financial and economic reality of credit institutions, particularly with respect to their hedging policies.

Adapting to the new framework will require extensive work on the part of the banks. It is difficult to predict the ultimate effects of the accounting changes, but it is already clear that they will increase the volatility of bank capital and earnings.

This artificial increase in volatility may encourage some institutions to transfer their interest rate risk (and also their liquidity risk) to other economic actors, by extending more variable-rate loans or by shortening the term of transactions. These other economic actors may not be the agents best able to bear and manage these risks.
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2| LESSONS FROM THE FRENCH BANKING SYSTEM

2|1 Diversity of systems for measuring and managing interest rate risk

Before considering the overall capacity of the banking system to withstand changes in interest rates, it should be noted that an examination of the systems used by French banking groups to measure and manage interest rate risk reveals a considerable degree of diversity, both in terms of organisation and management and in terms of the parameters used. This conclusion is based on periodic reports submitted to the Banking Commission and on interviews conducted in the first quarter of 2004. The Commission assessed the ability of credit institutions to avoid excessive levels of risk through the adoption of prudent strategies and the use of risk measurement and management systems suited to their individual situations.

OBJECTIVES OF ALM

The principal objective of the interest rate risk management policies of the major French banking groups is to reduce their exposure to this category of risk. In all of the institutions surveyed, the asset-liability management function is not considered as a profit center in itself; instead, the gains stemming from asset-liability management are generally redistributed to the different business lines according to distribution rules specific to each institution.

Banking groups do not necessarily hedge their interest rate risk completely. Indeed, one of the purposes of asset-liability management is to decide whether and in what proportion to hedge interest-rate mismatches. In most financial institutions, the asset-liability management function manages persistent open interest rate positions arising from the partial hedging of interest rate risk, particularly on mismatches in the longest maturities. These exposures are kept within bounds by internal limits which reflect the level of risk that the institution is willing to accept. On the other hand, voluntary position-taking falls naturally outside the scope of ALM, since the goal of ALM is to limit risk and position-taking seeks to assume risk.

Two broad hedging strategies are employed by institutions: macro-hedging and micro-hedging.

Macro-hedging

Macro-hedging, which is used by virtually all French banks, consists of hedging the net interest rate risk generated by all of the bank’s intermediation activities. Assets and liabilities in the same maturity band generate offsetting interest rate risk exposures. These exposures are netted, and the bank hedges the residual risk. This practice, used for all activities, is well suited to the circumstances of the major French banking groups, which can be described as universal banks whose balance sheets are characterised by a large proportion of fixed-rate assets and liabilities in highly diversified retail portfolios.

The principal danger in an asset-liability management based on macro-hedging is that it may encourage to take speculative positions that are inconsistent with the central objective of reducing the bank’s overall exposure to interest rate risk. Transactions using financial futures can give rise – intentionally or unintentionally – to interest rate positions (resulting from insufficient hedging, incorrect assignment of transactions to maturity bands, etc.) that are not easily detected by external analysts because they are only reflected to a limited degree in the bank’s financial statements. For this reason, French accounting standards require that macro-hedging with financial futures must satisfy strict conditions in order to be recognised as hedges for accounting purposes.

7 Banking groups are subject to regulatory requirements relating to the measurement and monitoring of their interest rate risk and they must submit annual reports on their exposures to the Banking Commission (Article 43 of Regulation No. 97-02 of the Committee on Banking and Financial Regulation, on internal control).
Micro-hedging

In most banking groups, business units and the ALM function also have the option of micro-hedging: using financial instruments to hedge clearly specified individual exposures. Some banks use micro-hedging systematically, and it can even replace macro-hedging as a method for managing interest-rate risk. The difference between micro and macro-hedging is that the former manages exposures individually, transaction by transaction, whereas the latter manages the bank’s overall exposure on its net positions in each maturity band.

The financial instruments most frequently used in micro-hedging (in decreasing order of importance) are: swaps and forward rate agreements (used by 100 percent of French banking groups), options and bond instruments (57 percent) and loans and borrowings (43 percent). Hedging strategies are designed to cover two different components of the interest margin. (See Demey, Frachot and Riboulet, 2003). The certain portion of the interest-rate mismatch (i.e., transactions for which the timing and amount of all cash flows is known and the sensitivity of customers’ interest rates to market interest rates is constant) is hedged using swaps. The uncertain portion (i.e. explicit or embedded options) is generally hedged using options (for example, caps covering the optional features of certain loans).

UNDERLYING METHODOLOGIES AND ASSUMPTIONS

The Banking Commission’s examination of the individual systems used by French banking groups to measure and manage interest rate risk, indicates that the methodologies used by the different banks are on the whole fairly similar. On the other hand, the examination reveals a wide diversity in assumptions, particularly those relating to the characteristics of certain lines of credit and to the behavior of customers.

To measure their ability to withstand an interest rate shock, institutions analyse the sensitivity of their activities to interest rates. These analyses are generally based on a series of measures or indicators of overall interest rate risk which reflect the uncertainties involved in forecasting interest rates and bank earnings.

The principal measures used are interest rate mismatches and indicators of the sensitivity to changes in interest rates of net earnings, the net present value of the banking book, net banking income, and bank capital.8

The uniqueness of asset-liability management in banking lies in the fact that its measurement of overall interest rate risk depends on the positions and cash flows generated by balance-sheet and off-balance-sheet transactions. The calculations involved in measuring this risk require, at a minimum, decomposing the outstanding balances and interest flows associated with assets and liabilities as a function of their maturities and interest rates. For certain items – primarily demand deposits, capital, and certain saving accounts (Plan d’épargne logement – PEL, Livret d’épargne populaire – LEP, Compte pour le développement industriel – CODEVI, and other regulated savings accounts) – a maturity structure and/or an interest rate cannot be clearly defined. In these cases, the banks make assumptions about the timing of cash flows and the levels of remuneration, based on their forecasts of changes in the economic environment and in the behavior of their customers, and also on the particular strategies pursued by individual banks.

A comparative analysis of the assumptions made regarding the duration of items without predefined maturity reveals a significant degree of variation from one institution to the next. For example, the duration assigned to demand deposits varies from 2 to 15 years.

If products contain embedded options, this necessitates a further modeling effort, using modeling techniques that reflect the institution’s strategies in the associated business lines. Such modeling is required, in particular, for behavioral options which alter the characteristics of loans, such as prepayment options, and changes in duration (for example, lengthening the term of housing savings loans) or in remuneration (transition from fixed rate to variable rate, a change in interest rate, etc.).

8 See footnote 3.
After conducting the analyses described above, the institutions conduct sensitivity analyses, which consist of simulating the impact of an interest rate shock. The simulations may be either static (the scenario is an instantaneous shock to the interest rate) or dynamic (the scenario incorporates changes in the structure of the banking portfolio resulting from the interest rate shock, over a given time horizon).

In addition to using simple scenarios consisting of parallel shifts in rates (typically an increase of 100 or 200 basis points over the entire yield curve), institutions conduct simulations using more sophisticated scenarios, to quantify the effects on bank portfolios of a change in the shape of the yield curve. These may include a prolonged drop or rise in interest rates, a flattening or steepening of the yield curve. The assumptions used in these scenarios vary from one bank to the next, which provides part of the explanation for the great diversity observed in the results of the simulations. Indeed, this diversity reflects differences in assumptions (for example, assumptions about changes in customer behavior following a shift in interest rates) much more than differences in methodologies, which are generally fairly similar. The diversity of results is indicative of the difficulty involved in establishing consistent methods for comparing institutions and for estimating the overall effect on the banking system of changes in interest rates.

More generally, there is currently no consensus on standard indicators in asset-liability management in the banking sector, unlike the management of market risks, for which standard indicators (VaR – value at risk – measures and standard stress scenarios) have gained broad acceptance. This situation is due to the following factors, which distinguish banking ALM from the management of market risks (Demey, Frachot and Riboulet, 2003):

- the positions covered by asset-liability management result from transactions which remain on the balance sheet for long periods of time, in contrast with market risks, which generally involve short-term exposures;
- the concept of interest rate risk in asset-liability management is not the same as in the management of market transactions. Asset-liability management is concerned with future interest flows generated by balance-sheet and off-balance-sheet transactions, whereas market risk management is concerned with uncertainty about the market value (“mark to market”) of positions;
- asset-liability management is a method of controlling the future disequilibrium between customers’ demand for financing (bank assets) and customers’ deposits (bank liabilities);
- the behavior of banking customers differs from that of market participants;
- banking assets are booked in terms of interest accrued, and not in terms of market value as in the trading book. Thus, until now, the interest margin has been more important than market value.

**THE ORGANISATION OF THE ALM FUNCTION IN THE BANKING GROUP**

The degree of sophistication of asset-liability management systems varies from one banking group to the next, as does its use by management as a tool for setting policy for the group.

One indicator of the importance accorded to asset-liability management in the daily operations of the bank is the presence or absence of a “Funds Transfer Pricing” (FTP) system that ensures central management of interest rate risk across all business units. Only 43 percent of the major French banking groups surveyed for this study currently have state-of-the-art FTP systems covering all of their transactions and business units. The systems used in these groups can be very detailed, and may even involve a transaction-by-transaction treatment of interest rate risk. The remaining financial institutions are less advanced, using a wide variety of methods and different levels of detail to manage their overall interest rate risk. In 14 percent of the groups surveyed, the development of Funds Transfer Pricing systems has not proceeded beyond the conceptual stage.

These differences in management techniques are the result of broader organisational choices. Groups whose Funds Transfer Pricing systems are less advanced are generally those which have a decentralised management culture. The asset-liability management function in these groups is provided at the level of the business units, rather than being directed by the lead institution. Central management
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of interest rate risk consists in monitoring limits and setting uniform procedures. In some groups, it can be difficult to aggregate exposures to interest rate risk on a consolidated basis. This form of management can nevertheless be appropriate for regional institutions or specialised subsidiaries.

In conclusion, there is no single accepted approach to the organization of asset-liability management. Two general types of organization coexist:

- some banking groups have installed comprehensive centralised systems that measure and manage interest rate risk on a consolidated basis using Funds Transfer Pricing systems (with, in some cases, local execution of ALM management under central oversight, and refinancing centers);
- other banking groups conduct macro-hedging at the level of individual legal entities, with a central control function.

In the absence of a universally applicable indicator for measuring interest rate risk in the banking book, the first line of defense against the vulnerability of banking portfolios to interest rate risk is the soundness and robustness of internal risk management and control systems. In this connection, greater involvement on the part of decision-making bodies and internal control system managers would be highly desirable.

2|2 Impact of a persistent large increase in interest rates

The robustness of the French banking system to an unusually large shock to the level of interest rates can be measured using stress tests.

An exercise of this kind was carried out during the first quarter of 2004 by the General Secretariat of the Banking Commission and the Department of Economics and International Affairs of the Banque de France, in the context of the "Financial Sector Assessment Program" run by the International Monetary Fund. Stress tests were conducted on the seven major French banking groups, which represented more than 60 percent of total net banking income in the banking system in 2003 and 80 percent of total banking assets. The tests measured the ability of the banks to withstand a set of shocks to interest rates (De Bandt and Oung, 2004). In addition to the scenarios provided by the IMF, which related to the banks' trading books, the General Secretariat of the Banking Commission asked banks participating in the tests to run an additional scenario operating on the yield curve: a uniform increase in rates of 300 basis points over a forecast horizon of two years.

For this scenario, the macroeconomic model of the Banque de France (Mascotte) was used to simulate the effects on French economic activity of a rate

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Box 2

Funds Transfer Pricing

Funds Transfer Pricing (FTP) rates are the interest rates at which business units place their funds and refinance their assets with a central unit of the bank (for example, the department of financial management or balance-sheet management). FTP rates reflect market prices; that is, they are the rates that the business unit would pay if, instead of dealing with the internal unit responsible for balance sheet management, it had to go directly to the market. They are set using a methodology which is identical for loans and deposits, and are quoted in relation to market interest rates as a function of the maturity of transactions. FTP rates can be calculated transaction by transaction for all 'contractual' balance-sheet items, as a function of their currency, term, the nature of the interest rate, and the presence of any embedded options. For fixed-term transactions, the FTP rate corresponds to the swap rate increased by the funding cost, which can add several basis points. For other balance-sheet items (such as demand deposits), the maturity structure of each product is modeled and Funds Transfer Pricing matches sources and uses of resources flow by flow.

The implementation of asset-liability management requires a strict separation of responsibilities between operational (deposit-taking and lending, profit centers) and functional (ALM unit) departments in the management of intermediation margins.
increase persisting for two years (an increase of 150 basis points in the first year, with a further increase of 150 basis points in the following year). The shift in the yield curve resulted in a slowing of economic activity (a reduction of 0.4 percentage points in the forecast for economic growth in 2005), with particularly large effects on private consumption, investment, and above all credit to businesses and households (a reduction of 5.4 percentage points in the forecast for credit growth in 2005).

Using the results of the rate-increase scenario and models developed by the General Secretariat of the Banking Commission, it was possible to analyse the initial impact on the French banking system – and on bank profitability and solvency effects in particular – of the impact on economic activity and credit growth associated with the stress scenario. The results of this analysis are presented in the table following.

The simulations carried out by the Banking Commission indicate that the profitability of the banks would decline by an average of 13 percent at the end of two years (compared to a decline of 9 percent predicted by simulations carried out by the banks themselves), as the result of an increase in risks and a contraction in loan demand. The outcomes generated by this stress scenario, while certainly significant for the banking system, remain manageable in view of the size of the initial shock.

### Monitoring Interest Rate Risk

The leading concern of bank supervisors, and, more generally, of the authorities responsible for financial stability, is to ensure that banks have sufficient capital to cover their interest rate risk exposures in case the risk should materialise, and that this risk is properly monitored and managed.

This concern is heightened by the current context of accounting and regulatory reform (see above). In particular, new accounting valuation standards based on market value are likely to result in larger and more frequent materialisations of interest rate risk on bank balance sheets. This necessitates improvement, rationalisation, and harmonisation of the internal control of interest rate risk, in particular in the implementation of Pillar 2 of the new capital framework.

### 3|1 Current requirements

The 1996 Market Risk amendments to the original Basel Accord introduced capital charges for interest rate risk only in the trading book. Bank policies regarding the treatment of interest rate risk in the banking book remain varied, reflecting the diversity of their strategies and financing structures. In light of the multiplicity of methods, particularly for assessing the interest rate risk of products with indefinite maturities such as demand deposits, supervisors have chosen not to set a capital charge for interest rate risk in the banking book.

The Basel Committee remains convinced, however, of the importance of interest rate risk in the banking book. The attention of supervisory authorities is therefore drawn to the Basel Committee’s principles for the management of interest rate risk (Basel Committee, 1997), implemented in French national rules by Regulation CRBF No. 97-02 relating to internal controls. Only a few other national supervisors (the Office of Thrift Supervision in the United States, the Belgian Banking, Finance and Insurance Commission, and the Swiss Federal Banking Commission) have instituted more detailed disclosure requirements.

### Impact of a 300 basis points increase for all maturities over two years

(amounts in millions of euro, ratios, impact and % changes)

<table>
<thead>
<tr>
<th>Basis end-2003</th>
<th>Macro stress simulation with 2005 horizon</th>
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<tbody>
<tr>
<td></td>
<td>Net earnings</td>
</tr>
<tr>
<td>Bank simulations</td>
<td>11,474 136,419 94,863</td>
</tr>
<tr>
<td>Supervisor’s simulations</td>
<td>11,474 136,419 94,863</td>
</tr>
</tbody>
</table>
3|2 Benefits of the new capital framework

The new capital framework (Basel II) improves the recognition of banking risks (Thoraval and Duchâteau, 2003), but it does not impose an explicit regulatory capital requirement for interest rate risk under Pillar 1. It does, however, mandate a review of interest rate risk in the banking book under Pillar 2. The purpose of Pillar 2 is to capture risks which are difficult to formalise or harmonise within the framework of Pillar 1. Then, under the oversight of their supervisors, institutions calculate the amount of economic capital they need to cover all of their risk exposures: those covered in a harmonised fashion under Pillar 1 and those covered by Pillar 2. Institutions must also furnish their supervisors with the results produced by their internal risk-measurement systems when confronted with a standard interest rate shock, defined as an instantaneous parallel shift of 200 basis points. At present, 30 percent of French banking groups apply the approach recommended by the Basel Committee i.e., measuring the sensitivity of their economic capital to interest rate shocks.

Box 3

Pillar 2 of the New Basel Accord

Pillar 2 is a central element of the new capital framework. Its objectives are two fold:

For supervisors, the objective is to ensure that institutions have adequate systems for evaluating and monitoring all of their risks, and that they maintain capital levels commensurate with their risk profile. This involves assessing each type of risk to which banks are exposed. European bank supervisors also verify that the various risks covered by Pillar 2 are managed in conformity with the criteria set forth in European Directives. This assessment constitutes the “supervisory review and evaluation process” (SREP), which is outlined in the following diagram:

<table>
<thead>
<tr>
<th>PILLAR 1</th>
<th>PILLAR 2</th>
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</thead>
<tbody>
<tr>
<td>Explicit capital charges to cover risks:</td>
<td>Elements for assessment by supervisors, focusing on risk measurement and control:</td>
</tr>
<tr>
<td>• credit risk</td>
<td>• interest rate risk in the banking book</td>
</tr>
<tr>
<td>• market risk</td>
<td>• residual risk</td>
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<tr>
<td>• operational risk</td>
<td>• risks associated with securitisation</td>
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<td></td>
<td>• stress testing</td>
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<td></td>
<td>• settlement risk</td>
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<td></td>
<td>• information technology, continuity, and reputation risk</td>
</tr>
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<td></td>
<td>• liquidity risk</td>
</tr>
</tbody>
</table>

Based on the results of these analyses, the supervisor can require an institution to take corrective actions, and in particular to increase its prudential capital.

For institutions, the objective is to develop techniques for controlling and managing their risks and to put in place a process for assessing economic capital which is adapted to the institution’s risk profile and business strategies. In this process – the “Internal Capital Adequacy Assessment Process” (ICAAP), the institution calculates its minimum capital requirement under Pillar 1, and also calculates the amount of economic capital that it needs to allocate internally to cover all of the risks to which it is exposed.
The experience gained by banks and supervisors in monitoring and managing interest rate risk clearly indicates the absence of any universally accepted indicator for asset-liability management. This is in contrast with the management of market risk, for which there is a broad consensus on the use of Value at Risk (VaR) models and the choice of stress scenarios.

This absence of an accepted benchmark, in an environment marked by a certain volatility in financial securities, makes it indispensable that bank supervisors, and, more generally, the authorities responsible for financial stability, should have the clearest possible conception of the sensitivity of the banking system to interest rate risk, and of the banking system's ability to transmit interest rate change to the economy as a whole.

The value of the Basel II framework, from the perspective of macro-prudential oversight of the banking system, is that it provides a methodology for comparative analysis based on the variation in the economic value of credit institutions resulting from a standard interest rate shock.

Moreover, proposals to standardise parameters and to establish detailed supervisory formulas for calculating interest rate risk in the banking book do not have the unanimous support of bank supervisors. Such standardisation would provide a uniform measure of interest rate risk for the banking system, but that measure would be less precise and farther removed from the specific circumstances of individual banks. Indeed, the estimation of parameters and the choice of behavioral models are typically based on studies supported by historical data corresponding to the circumstances and customer relationships of individual institutions. The determination and evolution of these internal parameters should be reviewed periodically by the institutions' internal control units.
In addition, while the application of a standard interest rate shock to the entire yield curve has the advantage of simplicity, and facilitates comparisons between different institutions, it is not capable of identifying exposures resulting from other scenarios, such as a negatively sloped yield curve or shifts in slope in the yield curve. These scenarios are an essential component of interest rate risk management and internal control systems as set forth in French banking regulation, following the principles laid down by the Basel Committee and implemented by French bank supervisors in a manner tailored to the characteristics of the regulated institutions.
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