

BANKING GUIDANCE NOTE (BGN 7.0)

Interest Rate Risk Management

31st March 2006



Financial Supervision Commission Barrantee Oaseirys

Contents **Page No.**

Part 1 – Banks incorporated in the Isle of Man

1	Rationale for Interest Rate Risk Management	2
2	Overview of the Commission’s Approach to Interest Rate Risk Management	2
3	Interest Rate Risk Management Policy	3
4	Procedures and Systems	6
5	Quantitative Requirements	7
6	Measurement of Interest Rate Risk - The Maturity Mismatch Approach	7

Part 2- Banks operating in or from the Isle of Man which are incorporated outside the Isle of Man (“branches”)

1	Rationale for Interest Rate Risk Management	8
2	Overview of the Commission’s Approach to Interest Rate Risk Management	8
3	Interest Rate Risk Management Policy	8
4	Procedures and Systems	9

Appendix 1 – Methodology

Appendix 2 - Glossary

Part 1 – Banks incorporated in the Isle of Man

1. Rationale for Interest Rate Risk Management

- 1.1 Interest rate risk is the exposure of a bank to financial loss through movements in interest rates. Most banks are in the business of maturity transformation, as they largely take deposits on a demand or short term basis, and use these deposits to fund longer term credit facilities to clients, often on a fixed interest basis. (This is termed “*general risk*”).

However, any deal that affects a bank’s position at a future date gives rise to an interest rate exposure as well as a position in an underlying instrument (as example above), unless it is fully hedged. This is because the present value of the cash flow when the position changes at a future date is calculated by discounting back to arrive at the net present value. Any changes in interest rates before the future date will alter the discount factor and hence the net present value of the future change in the position. Therefore, interest rate risk is present for a bank across a far wider range of activities than those that may be headlined as interest rate instruments. This is termed “*specific risk*”.

- 1.2 Accepting interest rate risk is a normal part of banking. However, where the amount of risk is excessive, or where it is not properly monitored and controlled, it can produce a significant threat to a bank’s earnings by producing fluctuations in:
- a) Its net interest income and the level of other interest sensitive income and operating expenses; and
 - b) The underlying value of a bank’s assets, liabilities and off balance sheet instruments because the present value of future cash flow (and, in some cases, the cash flows themselves) changes when the interest rates change.
- 1.3 An effective risk management process that maintains interest rate risk within prudent levels is therefore essential to the safety and soundness of banks.

2. Overview of the Commission’s Approach to Interest Rate Risk Management

- 2.1 The Commission requires banks to have a prudent interest rate risk policy and appropriate systems in place to measure and monitor the risk, and to ensure that the policy is adhered to. The bank’s Board must approve the written policy and changes thereafter.
- 2.2 The Commission requires banks to monitor interest rate risk using a residual maturity approach, reporting on a quarterly basis. A capital charge is allocated to such risk via forms SR-3B and SR-1. In addition banks are expected to carry out periodic (minimum six monthly) stress testing exercises to assess the potential cost of interest rate shocks of 300 and 500 basis points, as appropriate to the business.

- 2.3 Whilst the Commission does not seek to impose specific limits on interest rate risk exposure, banks are not expected to assume risk that, in a stress testing model based on a sudden movement in interest rates of 200 basis points, would constitute a potential cost of in excess of 20% of a bank's LECB.

3. Interest Rate Risk Management Policy

- 3.1 The Commission requires banks to take reasonable steps to maintain appropriate systems for the management of interest rate risk and requires banks to provide the Commission with a copy of their interest rate risk management policy. It is the responsibility of senior management to draw up the appropriate policy in the light of the particular circumstances of the bank. The interest rate risk management policy should be approved by the Board. It is important that the Board understands the risks inherent in interest rate exposure and ensures that appropriate and prudent management policy and procedures are established.
- 3.2 The Board and/or senior management should define the risk appetite of the bank, approving the risk management policy and procedures, and delegating day-to-day responsibility for managing interest rate risks to an appropriate individual or body.
- 3.3 The interest rate risk management policy should be regularly reviewed (annually or more frequently if necessary) to reflect changing circumstances and to ensure that it remains appropriate and prudent.
- 3.4 When approving interest rate risk management policies and procedures, the Board and/or appropriate committee should consider if those policies and procedures are:
- a) Sufficient to control and monitor the risks associated with the sale and administration of interest rate related products and services
 - b) Sufficient to safeguard the bank's assets (including the prevention and detection of fraud)
 - c) Adequate to address those risks associated with changes in the internal structure of the business, changes in the markets in which the business is operating, changes in the legal and regulatory environment, and the issuance of new products and services.
- 3.5 Once documented policies and procedures have been implemented, the Board and/or Audit Committee are responsible for ensuring that internal reviews of those documented policies and procedures are performed periodically. Internal reviews should be used to ensure that documented policies and procedures continue to address identified risks and to ensure the business complies with the Commission's requirements.

- 3.6 The interest rate risk management policy should take into account the nature of the bank's business and the various types of interest rate risk that arise from it.
- 3.7 Banks may wish to consider the following limits and authorities when formulating interest rate risk policy:
- a) Listing the products and instruments traders are authorised to use in the management of interest rate risk
 - b) Specific limits for some specified risks or instruments
 - c) An overall interest rate cap limit set in accordance with the bank's appetite for risk.

3.8 **Nature of risk**

The nature of the various aspects of interest rate risk should also be considered, and the following paragraphs provide examples of how interest rate risk can arise; the list is not intended to be exhaustive, and should be considered for guidance only.

3.8.1 *Re-pricing risk*

This is the primary form of interest rate risk and arises where there are timing differences in the maturity (for fixed rate) or re-pricing (for floating rate) of a bank's assets, liabilities and off balance sheet positions.

It can arise if a bank's positions are fixed rate, but have different maturities or re-pricing dates, and also if floating positions are "matched" against fixed positions. For example, a bank that funded a long-term fixed rate loan with short-term deposits could face a decline in both the future income arising from the position and its underlying value if interest rates increase. The decline arises because the cash flows on the loan are fixed over its lifetime, while the interest paid on the funding is variable, and increases after the initial short-term deposit matures.

3.8.2 *Yield curve risk*

Re-pricing mismatches can also expose a bank to loss in the event of changes in the slope and shape of the yield curve. Yield curve risk is the risk that unanticipated shifts in the yield curve will have adverse effects on a bank's income or underlying value.

For example, the underlying economic value of a long position in ten-year government bonds hedged by a short position in five-year government bonds could decline sharply if the yield curve steepens, even if the position is hedged against parallel movements in the yield curve.

3.8.3 *Basis risk*

This risk arises when there is an imperfect correlation in the adjustment of the rates earned and paid on different instruments with otherwise similar re-pricing characteristics.

When interest rates change, these differences may give rise to unexpected changes in the cash flow and earnings spread between assets, liabilities and off balance sheet instruments of similar maturities or re-pricing frequencies.

For example, a strategy of funding a 1-year loan that re-prices monthly based on the 1 month US Treasury Bill rate, with a 1-year deposit that re-prices monthly based on 1 month LIBOR, exposes the bank to the risk that the spread between the two index rates may change unexpectedly.

3.8.4 *Embedded options*

Risks arise from the options embedded in many bank's assets, liabilities and off balance sheet portfolios. Interest rate risk is present in a far wider range of activities than may be supposed.

An option may be embedded within an otherwise standard instrument; this is more common within non-trading activities. The instruments include various types of bonds and notes with call or put provisions, loans that give borrowers the right to prepay balances (e.g. some mortgages and mortgage backed securities) and various types of deposit that give the depositor the right to withdraw funds prior to final maturity without penalties.

If not adequately managed, the asymmetrical pay-off characteristics of such instruments can pose significant risks, particularly to those who sell them, since the options, both implicit and embedded, are generally exercised to the advantage of the holder and the disadvantage of the seller. Moreover, increasing arrays of options involve significant leverage that can magnify the influences (both negative and positive) of option positions on the financial condition of the bank.

3.9 ***The Commission's requirements***

The interest rate risk management policy should reflect the Commission's requirements of the bank, and the bank's obligation to report its interest rate risk position to the Commission and to its group or parent.

3.10 ***Measuring & reporting***

The interest rate risk management policy needs to identify who is responsible for measuring and reporting interest rate risk internally within the bank, the frequency of internal reporting and how senior management monitors interest rate risk.

3.11 ***Relationships between group entities***

The Interest Rate Risk Policy should describe the interrelationships between group entities in respect of interest rate risk management, and clearly define procedures and responsibilities. Where treasury management is outsourced to another group entity, formal legal agreements should be in place, and the regulator in the managing entity's jurisdiction should be made aware of the arrangement. Similarly, where the bank carries out treasury management duties for other group members, legal agreements should be in place, and the regulator in the jurisdiction of the group member should be made aware of the arrangement.

It should be noted that the Board retains responsibility for the interest rate risk policy even where the management of the policy is outsourced.

4. Procedures and Systems

4.1 The Commission requires banks to monitor their interest rate risk on a frequent and timely basis. In practice most major retail banks are able to measure and monitor their liquidity continuously and the Commission would expect most banks to be in a position to measure their interest rate profile daily. It follows from this that a bank must have adequate procedures and systems for monitoring interest rate risk. This means:

- a) A clear allocation of the responsibility for measuring and reporting interest rate risk
- b) The maintenance of reliable systems that can produce accurate interest rate risk reports promptly
- c) Active senior management involvement in, and clearly allocated responsibility for interest rate risk reporting and monitoring
- d) Regular reporting to group or parent companies
- e) Adequate segregation of duties between front, middle and back offices.

4.2 The system that produces the interest rate risk reports should be linked to the bank's core systems and the data used in the interest rate risk reports should be capable of being reconciled back to base financial data. Such reconciliations should be a regular part of the bank's quality control procedures over the accuracy of its interest rate risk reports.

4.3 Interest rate risk reports should follow the principles of good management information, for example:

- a) Clarity
- b) Highlight key information, in particular breaches or exceptions
- c) Explicitly highlight trends and anomalies
- d) Use an exception based commentary.

5. Quantitative Requirements

For all banks a weighted mismatch approach should be used. The Commission accepts that general risk is the principal form of interest risk facing banks on the Isle of Man, and will therefore allow banks to report on this basis only. However, should a bank identify a material specific risk (e.g. a long dated, fixed rate government bond), this should be reported as an addendum to Form SR-3B. The Commission also reserves the right to call for more detailed reports, including reports on specific risk, at its sole discretion.

6. Measurement of Interest Rate Risk – The Maturity Mismatch Approach

6.1 Market practice for the measurement and management of interest rate risk revolves around the following techniques:

- a) Value at risk models
- b) Sensitivity analysis
- c) Stress testing and scenario analysis.

6.2 The risk profiles of banks in the Isle of Man generally do not warrant the imposition of complex interest monitoring techniques, but a standard approach to measurement is required. The Commission has therefore adopted an interest rate sensitivity model on the residual maturity band approach. It is recognised that some banks are subsidiaries of major international banking groups, and will have access to sophisticated risk measurement systems. These systems may continue to be used to monitor risk internally, but quarterly returns using the maturity bands should also be made.

6.3 Potential losses arising from interest rate risk positions are calculated and weighted at 100%, and included in the assessment of the bank's capital adequacy. The methodology for this calculation is set out in **Appendix 1**.

Part 2 – Banks operating in or from the Isle of Man which are incorporated outside the Isle of Man (“branches”)

1. Rationale for Interest Rate Risk Management

- 1.1 Interest rate risk is the exposure of a bank to financial loss through movements in interest rates. Most banks are in the business of maturity transformation, as they largely take deposits on a demand or short-term basis, and use these deposits to fund longer term credit facilities to clients, often on a fixed interest basis. (This is termed “*general risk*”). However, any deal that affects a bank’s position at a future date gives rise to an interest rate exposure as well as a position in an underlying instrument (as example above), unless it is fully hedged.
- 1.2 Accepting interest rate risk is a normal part of banking. However, where the amount of risk is excessive, or where it is not properly monitored and controlled, it can produce a significant threat to a bank’s earnings by producing fluctuations in:
 - a) Its net interest income and the level of other interest sensitive income and operating expenses; and
 - b) The underlying value of a bank’s assets, liabilities and off balance sheet instruments because the present value of future cash flow (and, in some cases, the cash flows themselves) changes when the interest rates change.
- 1.3 An effective risk management process that maintains interest rate risk within prudent levels is therefore essential to the safety and soundness of banks.

2. Overview of the Commission’s Approach to Interest Rate Risk Management

The Commission requires all branches to be subject to a prudent interest rate risk policy and have appropriate systems in place to measure and monitor the risk. The policy should be reviewed annually by senior management. The Commission recognises that appropriate systems and controls for interest rate risk will vary with the scale, nature and complexity of a branch’s activities, and that the branch is likely to be part of the wider policies and procedures of the bank.

3. Interest Rate Risk Management Policy

- 3.1 Senior management of the branch should be aware of the interest rate risk policy of the bank and any reporting and monitoring requirements with which it must comply.

The policy should be reviewed on a regular basis by senior management, normally at least annually, to ensure that it remains appropriate.

- 3.2 The interest rate risk management policy should take into account the nature of the branch's business and the various types of interest rate risk that arise from it.

4. Procedures and Systems

- 4.1 The Commission requires branches to monitor their interest rate risk on a frequent and timely basis. Such reporting and monitoring may be performed at the bank rather than the branch itself. It follows from this that a bank must have adequate procedures and systems for monitoring interest rate risk. This means:

- a) A clear allocation of the responsibility for measuring and reporting interest rate risk within the group
- b) The maintenance of reliable systems that can produce accurate interest rate risk reports promptly
- c) Active senior management involvement in, and clearly allocated responsibility for interest rate risk reporting and monitoring
- d) Regular reporting to/from the branch

- 4.2 The system that produces the interest rate risk reports should be linked to the bank's core systems and the data used in the interest rate risk reports should be capable of being reconciled back to base financial data.

- 4.3 Interest rate risk reports should follow the principles of good management information, for example:

- a) Clarity
- b) Highlight key information, in particular breaches or exceptions
- c) Explicitly highlight trends and anomalies
- d) Use an exception based commentary.

Appendix I – Methodology (this does not apply to branches)

Measurement and Calculation of Interest Rate Risk – Worked Example

The residual maturity band methodology measures the effect of an adverse increase in interest rates of approximately 1% on net assets or liabilities over specific maturity bands.

The model incorporates a proportionately higher weighting for shorter periods to reflect the greater volatility of interest rates at this area of the yield curve. Exposures are measured (in GBP 000s) in each currency on an individual basis, and each maturity band weighted according to term to maturity. The net total of each maturity band is then calculated for each currency, and the totals for all currencies are then **aggregated**.

Assets and liabilities should be placed into the maturity band where the contract or agreement is due to be repaid, or when the interest rate may be refixed or renegotiated. Banks are expected to take a conservative view in assessing the correct maturity bracket. In general, liabilities should be classified on the earliest date they can fall due for payment, and assets on the latest date upon which repayment can be expected. This is particularly important given the array of products now available that give the depositor an early repayment option without penalty. Great care should also be taken not to confuse the methodology with that used to measure liquidity risk. Whilst at times the two methodologies can produce identical results, they are clearly separate risks.

Currencies that constitute in excess of 25% of total deposit liabilities should be reported separately, and all other currencies aggregated. Those currencies that constitute less than 5% of total deposit liabilities may be ignored.

Net liabilities (assets) are to be reported in the following maturity bands;

Maturity Band	Weighting %
Sight to one month	0.000
One to three months	0.200
Three to six months	0.400
Six to twelve months	0.700
One to three years	1.750
Three to five years	2.750
Over five years	4.000

The following example shows reports for GBP, USD & EUR and is for illustration purposes only. For full details on completing the interest rate risk report, please refer to the Form SR-3B - Interest Rate Risk - Notes to Assist Completion, contained within **Banking Guidance Note (BGN 2.0)**.

GBP

Maturity Band	Net Position (GBP 000s)	Weighting %	Amount at Risk (GBP 000s)
Sight to one month	43,250	0.000	0
One to three months	(23,500)	0.200	(47)
Three to six months	(15,250)	0.400	(61)
Six to twelve months	(3,500)	0.700	(24.5)
One to three years	(750)	1.750	(13.125)
Three to five years	(250)	2.750	(6.875)
Over five years	0	4.000	0.00
Total			(152.5)

USD

Maturity Band	Net Position (GBP 000s equivalent)	Weighting %	Amount at Risk (GBP 000s equivalent)
Sight to one month	(21,000)	0.000	0
One to three months	(6,000)	0.200	(12)
Three to six months	15,000	0.400	60
Six to twelve months	10,000	0.700	70
One to three years	750	1.750	13.125
Three to five years	0	2.750	0
Over five years	1,250	4.000	50
Total			181.125

EUR

Maturity Band	Net Position (GBP 000s equivalent)	Weighting %	Amount at Risk (GBP 000s equivalent)
Sight to one month	30,250	0.000	0
One to three months	(36,250)	0.200	(72.5)
Three to six months	11,250	0.400	45
Six to twelve months	(6,000)	0.700	(42)
One to three years	500	1.750	8.75
Three to five years	0	2.750	0
Over five years	250	4.000	10
Total			(50.75)

The above example shows that if Sterling rates moved up by 1%, the bank suffers a revaluation loss of approximately GBP 152,500, but if U.S. rates moved up by 1%, the bank will generate GBP 181,125 more income on a revaluation basis. Similarly, if EUR rates move up by 1%, the bank's revaluation loss is shown as GBP 50,750.

Thus, the summary of the bank's position, expressed in Sterling, will be:

GBP	(152,500)
USD	181,125
EUR	(50,750)

Assuming that these reflected the total interest rate risk positions of the bank, it would be easy to assume that the overall risk position would be GBP 22,125. However, although there is some correlation between UK, US and EUR interest rates, they are independent of each other and are unlikely to move in the same direction, by the same amount, at the same time. Therefore, a short position in one currency cannot be offset against a long position in another. *Netting within the same currency is allowable as it is reasonable to assume that a change in interest rates will have an impact across the entire yield curve.*

Therefore, the total risk shown in the example above is actually GBP 384,375, the **aggregate** of all the individual currency positions.

Appendix 2 – Glossary

“bank” is the Isle of Man incorporated bank (part 1), or the head office, or otherwise as applicable, of the branch (part 2).

“branch” means a branch in the Isle of Man of a bank incorporated outside the Isle of Man

“large exposures capital base” (“LECB”) is equivalent to Adjusted Capital Base as calculated on form SR-2A and is the sum of allowable Tier 1 and Tier 2 capital, less appropriate deductions. The calculation is usually performed annually and is based on the previous year’s audited financial statements and should be agreed with the Commission for the next financial year.