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I. PURPOSE


Examiners must determine the institution’s exposure to interest rate risk (IRR) and evaluate how effectively management addresses IRR exposure. The complexity of the institution’s balance sheet must be evaluated as well as policies and procedures necessary to manage an institution’s interest rate risk.

II. PRIMARY REGULATIONS/REFERENCES

1. Michigan Credit Union Act:
 - a. [Section 342\(4\)\(b\): Determine interest rates on loans and shares](#)
 - b. [Section 401 \(2\)\(yy\): Investments in interest rate derivatives](#)
2. [OCU Letter 2014-CU-02: Using the UFIRS to Individually Assess the Sensitivity to Market Risk Exposure](#)
3. [NCUA Letter 10-CU-03: Concentration Risk](#)
4. [NCUA Supervisory Letter 14-02: Derivative Exam Guidance](#)
5. [NCUA Appendix B to Part 741: Guidance for IRR Policy and an Effective Program](#)
6. [NCUA Guide to Using NCUA’s IRR Examination Procedures Workbook](#)
7. [FFIEC Interagency Advisory on Interest Rate Risk Management](#)

III. MINIMUM PROCEDURES


1. Review IRR policies and procedures to ensure they are adequate. The policy should be consistent with business strategies and reflect the Board of Directors’ risk tolerance, taking into consideration the financial condition and risk measurement systems. The scope of the policy will vary depending on the complexity of the institution’s balance sheet. At minimum, an IRR policy should:
 - a. Identify committees, persons or other parties responsible for review of the IRR exposure;
 - b. Direct appropriate actions to ensure management takes steps to manage IRR so that IRR exposures are identified, measured, monitored, and controlled;
 - c. State the frequency with which management will report on measurement results to the Board to ensure routine review of information that is timely (e.g. current and at least quarterly) and in sufficient detail to assess the credit union’s IRR profile;
 - d. Set risk limits for IRR exposures based on selected measures (e.g. limits for changes in repricing or duration gaps, income simulation, asset valuation, or net economic value);
 - e. Choose tests, such as interest rate shocks, management will perform using the selected measures;

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- f. Provide for periodic review of material changes in IRR exposures and compliance with board approved policy and risk limits;
 - g. State actions and authorities required for exceptions to the policy, limits, and authorizations;
 - h. Provide for assessment of the IRR impact of any new business activities prior to implementation (e.g. evaluate the IRR profile of introducing a new product or service); and
 - i. Provide for at least an annual evaluation of policy to determine whether it is still commensurate with the size, complexity, and risk profile of the credit union.

2. Ensure the basis of the IRR measurement corresponds with the complexity of the balance sheet:
 - a. For simple balance sheets that primarily consist of short-term investments and non-mortgage related assets, gap and simplistic (short-term) income simulation can be sufficient.
 - b. Credit unions with more complex balance sheets require more sophisticated earnings simulations and economic valuation models (e.g., shocked mortgage and investment [asset] valuation or NEV.)
 - i. At a minimum, credit unions should apply a +/- 300 basis point (bp) instantaneous, permanent, and parallel rate shock.
 - ii. The accuracy of ALM model inputs (e.g., rate sensitivity factors, prepayment speeds, non-maturity deposit runoff rates) will drive the model outputs, and should accurately represent the credit union's balance sheet and risk profile.
 - iii. Periodic assessments should be performed to compare the credit union's actual performance with forecasted results. This enables management to:
 1. Identify inaccurate or unreasonable assumptions or other causes for discrepancies; and
 2. Improve the validity of future projections.

3. Ensure IRR management processes are included as part of the strategic and financial planning. Overall, examiners should review the following to determine if management adequately integrates IRR management and planning:
 - a. Management considers the effect of future events on its IRR exposure;
 - b. Management adopts strategic plans after considering the risk/return relationship. The credit union appropriately analyzes and measures the IRR associated with new products, services, or investments;
 - c. ALCO and other persons with ALM responsibilities are included in the strategic planning process;

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- d. The Board and management updates IRR policies and risk limits as necessary and in a timely manner to reflect the projected risk profile;
 - e. ALCO minutes document the committee actively assesses risk and makes recommendations to the Board to mitigate risk or improve the IRR management program; and
 - f. Management conducts periodic assessments to compare actual performance with the plan.
4. Ensure an adequate system of internal controls has been established to ensure the integrity of all elements of the IRR management process, including the adequacy of corporate governance, compliance with policies and procedures, and the comprehensiveness of IRR measurement and management information systems. These controls should be an integral part of the overall system of internal controls and should promote effective and efficient operations, reliable financial and regulatory reporting, and compliance with regulations and institution policies.
- a. Validating IRR models is a fundamental part of any institution’s system of internal controls. An important element of model validation is independent review of the logical and conceptual soundness. The scope of the independent review should involve assessing the institution’s measurement of IRR, including the reasonableness of assumptions, the process used in determining assumptions, and the back-testing of assumptions and results. Management also should implement adequate follow-up procedures to monitor management’s corrective actions. The results of these reviews should be available for examiner review.
 - b. Smaller institutions that do not have the resources to staff an independent review function should have processes in place to ensure the integrity of the various elements of their IRR management processes. Often, smaller institutions will use an internal party that is sufficiently removed from the primary IRR functions or an external auditor to ensure the integrity of their risk management process.
 - c. Institutions that use vendor-supplied models are not required to test the mechanics and mathematics of the measurement model; however, the vendor should provide documentation showing a credible independent third party has performed such a function. Large and complex institutions, or those with significant IRR exposures, may need to perform more in-depth validation procedures of the underlying mathematics. Validation practices could include constructing an identical model to test assumptions and outcomes or using an existing, well-validated “benchmark” model, which is often a less costly alternative. The benchmark model should have theoretical underpinnings, methodologies, and inputs that are as close as possible to those used in the


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model being validated. Large and more complex institutions have used “benchmarking” effectively to identify model errors that could distort IRR measurements. The depth and extent of the validation process should be consistent with the materiality and complexity of the risk being managed.

IV. RISK MEASUREMENT METHODS

The following provides a general guide to risk measurement methods. An IRR measurement system may rely on a variety of different methods. Common examples of methods available to credit unions are GAP analysis, income simulation, asset valuation, and net economic value. Any measurement method(s) used by a credit union to analyze IRR exposure should correspond with the complexity of the credit union's balance sheet to identify any material sources of IRR.

- 1. GAP Analysis:** GAP analysis is a simple IRR measurement method that reports the mismatch between rate sensitive assets and rate sensitive liabilities over a given time period. GAP can only suffice for simple balance sheets that primarily consist of short-term bullet type investments and non-mortgage-related assets. GAP analysis can be static, behavioral, or based on duration.
- 2. Income Simulation:** Income simulation is an IRR measurement method used to estimate earnings exposure to changes in interest rates. An income simulation analysis projects interest cash flows of all assets, liabilities, and off-balance sheet instruments in a credit union's portfolio to estimate future net interest income over a chosen timeframe. Generally, income simulations focus on short-term time horizons (e.g. one to three years). Forecasting income is assumption sensitive and more uncertain the longer the forecast period. Simulations typically include evaluations under a base-case scenario, and instantaneous parallel rate shocks, and may include alternate interest-rate scenarios. The alternate rate scenarios may involve ramped changes in rates, twisting of the yield curve, and/or stressed rate environments devised by the user or provided by the vendor.
- 3. NCUA Asset Valuation Tables:** For credit unions lacking advanced IRR methods that seek simple valuation measures, the NCUA Asset Valuation Tables are available and prepared quarterly by the NCUA. These measures provide an indication of a credit union's potential interest rate risk, based on the risk associated with the asset categories of greatest concern (e.g., mortgage loans and investment securities). The tables provide a simple measure of the potential devaluation of a credit union's mortgage loans and investment securities that occur during ± 300 basis point parallel rate shocks, and report the resulting impact on net worth.

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4. **Net Economic Value (NEV):** NEV measures the effect of interest rates on the market value of net worth by calculating the present value of assets minus the present value of liabilities. This calculation measures the long-term IRR in a balance sheet at a fixed point in time. By capturing the impact of interest rate changes on the value of all future cash flows, NEV provides a comprehensive measurement of IRR. Generally, NEV computations demonstrate the economic value of net worth under current interest rates and shocked interest rate scenarios. One NEV method is to discount cash flows by a single interest rate path. Credit unions with a significant exposure to assets or liabilities with embedded options should consider alternative measurement methods such as discounting along a yield curve (e.g. the U.S. Treasury curve, LIBOR curve) or using multiple interest rate paths. Management should apply and document appropriate methods, based on available data (e.g. utilizing observed market values), when valuing individual or groups of assets and liabilities.