NATIONAL CREDIT UNION ADMINISTRATION
1775 Duke Street, Alexandria, VA 22314

LETTER TO FEDERAL CREDIT UNIONS

DATE: September 1998 LETTER NO.: 98-FCU-4

TO: FEDERAL CREDIT UNIONS

SUBJECT: Interpretive Ruling and Policy Statement 98-2 Examiner Guidance

At its April 1998 meeting the NCUA Board adopted Interpretative Ruling and Policy Statement (IRPS 98-2), *Supervisory Policy Statement on Securities and End-User Activities.* It has an effective date of October 1, 1998.

Examiners will apply IRPS 98-2 if they are concerned the risk management process is inadequate for the size, scope and complexity of a credit union's investment activity, or where they have concerns about potential safety and soundness issues.

This information is provided to you to aid in understanding NCUA's standards for risk management of investment activity. Three separate documents are enclosed. The paper (Enclosure 1) Examiner Guidance for Interpretative Ruling and Policy Statement 98-2 provides additional information on IRPS 98-2. The questionnaire (Enclosure 2) is part of the examination process. Examiners may use it to help them review your investment activities, although it is not required. To ease their use, both the questionnaire and the paper contain identical appendices. Each appendix contains: (1) questions that can be used to assess the level of understanding of investments; (2) appropriate investment documentation and monitoring; (3) reporting requirements under Part 703; and (4) specific citations from the IRPS that can be used by examiners in discussions with management. A copy of IRPS 98-2 (Enclosure 3) is also provided.

IRPS 98-2 is a statement of "best practices." For credit unions with simple investment portfolios consisting of insured, short-term corporate credit union and bank deposits without embedded options, compliance with Part 703 of the NCUA Rules and Regulations may be sufficient. Credit unions which invest in more complex and longer-term investments may find the standards adopted in IRPS 98-2

to be helpful guidance. You may find the questionnaire useful in a self-assessment of your investment practices.

All of this material is available on the NCUA website.

For the National Credit Union Administration Board

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Norman E. D'Amours
Chairman

Enclosures

EXAMINER GUIDANCE FOR

INTERPRETATIVE RULING AND POLICY STATEMENT 98-2

Enclosure 1

EXAMINER GUIDANCE FOR
INTERPRETATIVE RULING AND POLICY STATEMENT 98-2

The following provides users of Interpretive Ruling and Policy Statement No. 98-2 (IRPS 98-2) with NCUA staff's perspective on assessment of portfolio value, measurement of net interest income, and asset-liability management of the investment portfolio. The NCUA Board adopted the Federal Financial Institution's Examination Council's (FFIEC) *Supervisory Policy Statement on Investment Securities and End-User Derivatives Activities* as IRPS 98-2, with an effective date of October 1, 1998.

Introduction

The Federal Credit Union Act and NCUA Rules and Regulations Part 703 establish minimum standards for investments and investment activities. IRPS 98-2 is an NCUA Board-approved policy statement establishing standards for federal credit unions for managing investment risks. Examiners should apply the statement when there are safety and soundness concerns.

The policy statement describes the practices that a prudent manager would normally follow and is not intended to be a checklist. IRPS 98-2 is identical to the FFIEC statement which applies not only to credit unions but also to commercial banks and thrifts. Therefore, it includes provisions for bank and thrift risk management activities (e.g., off-balance sheet items and derivatives) that do not apply to individual credit unions unless the credit union is operating under the pilot program provisions of §703.140. Credit unions should adhere to the sound business practices in IRPS 98-2 that are pertinent to their operation, unless there is a conflict with the Federal Credit Union Act or Part 703.

I. Purpose

IRPS 98-2 sets standards for safe and sound practices for managing investment-related risk at the individual investment, portfolio, or balance sheet level. IRPS 98-2 does not replace the examiner's professional judgment. However, it provides guidance for examiners and credit unions when assessing risk management.

Complying only with Part 703 will likely be sufficient for credit unions with strong capital and simple investment portfolios, e.g., certificates of deposit (CDs) and deposits in corporate credit unions without embedded options and short-term bullet Treasury and agency securities.

More is required of the risk management process for credit unions with complex investment portfolios and/or weak capital positions. In determining whether investments are complex, examiners may apply the same criteria used in §703.70 and

§703.90, which specify that complex investments have one or more of the following characteristics:

- Embedded options (e.g., calls, prepayments, caps, floors);
- Remaining maturity (based upon the final stated maturity) greater than three years; or
- Coupon formulas related to more than one index, inversely related to an index, or multiples of an index.

When credit unions elect to increase risk exposure and/or increase the complexity of investments, standards for investment knowledge, analysis, and risk management also rise. The standards established by IRPS 98-2 help to ensure that risks are properly identified, measured, monitored, controlled, and reported.

There are cases where management complies with the minimum regulatory standards, but does not adequately understand and/or manage the risks of investment activities or its balance sheet. In these instances IRPS 98-2, as an NCUA Board approved policy statement, can be used by examiners to cite safety and soundness concerns and to identify unsound practices.

II. Scope

IRPS 98-2 applies to federally chartered credit unions. However, the prudent practices addressed in IRPS 98-2 are also relevant for federally insured state-chartered credit unions. The IRPS applies to all hold-to-maturity (HTM) and available-for-sale (AFS) securities as well as all CDs and corporate credit union deposits.

While the risk management process will differ among credit unions, there are certain elements that are fundamental to sound risk management. These elements include board and senior management oversight and an effective system to identify, measure, monitor, control, and report. IRPS 98-2 describes sound practices for managing and controlling the risks of investment activities, which include:

- Market (interest rate sensitivity);
- Credit (default or deterioration of issuer or counterparty);
- Liquidity (inability to sell quickly at a fair price);
- Operational (accounting, settlement, reconcilement, separation of duties); and
- Legal (inability to enforce terms due to contract provisions).

IRPS 98-2 indicates that failure to understand and adequately manage these risks represents unsafe and unsound practices.

The examiner's approach to IRPS 98-2 should be similar to that used when evaluating asset-liability-management (ALM). ALM weaknesses are typically discussed in examination reports and recommendations are made to strengthen this area when necessary. A similar procedure can be used when the examiner determines that there are safety and soundness concerns arising from a credit union's investment activities.

III. Board and Senior Management Oversight

Board Responsibilities

The board responsibilities identified in IRPS 98-2 are very similar to those addressed in Part 703. The board is responsible for:

- Approving investment policies with risk limits;
- Ensuring management is qualified to comply with the policy;
- Reviewing portfolio activity and risk levels to ensure compliance with the policy; and
- Having an adequate understanding of investment activities or obtaining professional training or education to ensure its understanding. Refer to Table 1 of the Appendix for help in determining if management has an adequate understanding and justification for its decisions.

Part 703 requires the board to adopt an investment policy, specify risk tolerance parameters, and review the policy at least annually. The board must state how the credit union will manage interest rate risk, including the amount of risk that can be taken with investments in relation to net capital and earnings. If the credit union has an ALM policy addressing interest rate risk (IRR), it need not establish a separate policy addressing IRR in the investment portfolio (see Preamble to Part 703). If the credit union addresses IRR as part of the investment policy, it should state net capital, earnings or investment income may not vary by more than a certain percentage and/or dollar amount for an immediate, parallel and sustained shift in interest rates.

Although there is a requirement to review this policy annually, the board should be assessing its limits periodically, particularly after a significant change in market interest rates or when there are significant changes in the way a particular instrument is viewed in the marketplace. Any policy revisions should receive careful review. Discussion of changes in risk limits and their justification should be reflected in the board minutes.

When a board elects to increase risk exposure and/or broaden the types of investments it authorizes, standards for investment knowledge, assessment, analysis and risk management must also rise to ensure that risks are properly identified, measured, monitored, controlled, and reported.

In most cases, the board will delegate investment authority to senior management or to an investment-related committee. The qualifications of those with investment authority must be addressed in the investment and/or personnel policies (e.g., through position descriptions) and should be commensurate with the complexity of the investment portfolio authorized by the board. Qualifications should be based on education and experience. Higher standards are expected if the policy authorizes complex investments.

Part 703 specifies the reporting requirements for various investment and investment-related risk reports. The reports permit the board to determine risk and overall compliance with policy risk limits. If risk levels approach or exceed policy limits the board minutes should reveal there were meaningful discussions outlining a specific course of action.

Senior Management Responsibilities

Management training and education is an integral part of the risk management process. Therefore, it is especially a concern if senior management, the investment related committee, or board members exhibit signs of weakness in particular areas of investments or investment-related activities. Outside assistance through league training or meetings with other local credit unions with strong investment expertise are options. Training from the investment community (brokers) should be taken with a healthy degree of skepticism. While many seminars provide useful educational information, management should be aware the "free seminars" provided by a brokerage firm may be a sales pitch for products in the firm's inventory.

To ensure management understands risk assessment, examiners should verify that management is familiar with the details of the assumptions, the method used to discount cash flows (discount rate) and the logic used in performing the assessments. As an example, individuals authorized to invest in mortgage-backed securities should understand that these securities have prepayment and extension risk. If it benefits borrowers (declining rates) to prepay mortgages, they will often refinance. The resulting return of excess cashflow must be reinvested by the credit union at lower rates. On the other hand, if rates rise, borrowers are much less likely to prepay (refinance). This practice reduces the credit union's cashflow and hinders management's ability to reinvest at the higher rates. Individuals authorized to invest in securities that have cap and call provisions should understand that an instrument will be called when rates fall and the cap will reduce the interest income that could otherwise have been received from an uncapped variable rate investment.

In addition to the ability to explain these very basic characteristics, individuals with investment authority should understand the impact of these characteristics on the risk of these investments. It is useful to take specific complex investments (or loans) to the person in charge of ALM/investment data input and ask how the system captures the

various types of risk presented by the instrument. (See Table 1 of the Appendix for a list of possible questions to ask management to help determine their understanding.)

Board members may not know the answers to the sample questions included in Table 1 of the Appendix, but senior management and the individual(s) with investment authority should be able to fully address these issues. Determining if the individual(s) with authority is qualified depends on: (a) examiner judgment; (b) meetings and conversations; (c) a review of the entire balance sheet structure; and (d) his/her understanding of the credit union's risk profile and management's history of managing risk.

If management cannot explain, does not understand, or cannot properly assess the risks of an authorized investment, or unknowingly exposes the credit union to unnecessary risks, it is an unsafe and unsound practice until those with investment authority obtain the appropriate knowledge and the credit union has the necessary assessment tools.

Management should also work to ensure there is an adequate segregation of duties. For example, those with investment authority should not verify confirmations, reconcile investments, perform accounting functions, or prepare risk-related reports for the board. In small credit unions where segregation of duties is difficult, it becomes the responsibility of the board or supervisory committee to become part of the internal control structure. Even if those performing the audit function do not fully understand risk characteristics, the fact that oversight occurs is an important part of internal control.

IV. Risk Management Process

An effective risk management process includes:
- policies, procedures, and risk tolerance parameters;
- identification, measurement, and reporting of risk exposures; and
- a sound system of internal controls.

Policies, Procedures, and Limits

A written investment policy, with annual board review, is required by Part 703. A credit union's investment policy can be part of its ALM policy. Risk can be managed at the individual investment, total portfolio and/or balance sheet level, depending on the size and/or complexity of the investments and balance sheet. Risk limits established in the investment and/or ALM policy should include risk tolerance parameters at each level (investment, portfolio, balance sheet).

The investment policy can be integrated with the ALM policy to ensure all levels of risk limits are consistent. When integrated, it could be acceptable for a credit union to purchase an individual security or group of securities with higher risk as long as

management can effectively demonstrate that the investment portfolio or balance sheet remains within acceptable risk parameters. The policy must describe risk characteristics (e.g., issuer, maturity, index, cap, floor, coupon, coupon formula, call provision, average life, and interest rate risk and concentration limits) that shape the institution's portfolio risk profile. Although prepurchase analysis is not required for all types of investments, credit union policies would be expected to address pre-purchase requirements for all complex investments where these investments could have a material impact on the balance sheet or future income.

Limits on securities with complex characteristics should be defined and quantified at the instrument, portfolio, and/or the balance sheet level. However, it is difficult to analyze the portfolio or balance sheet unless the characteristics of the individual investments are known. Therefore, managing risk through a total portfolio or balance sheet analysis will also require a risk evaluation of individual instruments. It is a sound practice for a credit union to document risk analysis in each investment folder. In order to comply with §703.90, portfolio level analysis is required if complex securities exceed the credit union's net capital.

Portfolio risk limits may include limits on a portfolio's duration[1] (e.g., the portfolio cannot have a duration greater than two years). However, duration measurements become more inaccurate the larger the potential shock and can substantially underestimate risk for large changes when the portfolio contains a significant amount of embedded options. Therefore, it is particularly important, when instruments with embedded options are authorized, that risk tolerances in the policy statement reflect the total decline in value in relation to capital, rather than only duration.

A balance sheet risk limit will also likely be stated in terms of net capital. Terms such as NEV[2] (net economic value), and MVPE[3] (market value of portfolio equity) are used and mean essentially the same thing. If risk is evaluated at the balance sheet level using one of these concepts, a credit union likely will establish policies which limit the change in NEV for a 100, 200, and 300 basis point shock in interest rates. If the balance sheet does not have complex assets and liabilities, gap policy limits may be sufficient when coupled with an analysis measuring the effect on net income.

Risk Identification, Measurement and Reporting

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[1] **Duration:** a measure of the sensitivity of an instrument's price to changes in yields. Duration and McCauley's duration are expressed in terms of years. Modified and effective duration are expressed as the percentage change in the price of a security for a 100 basis point change in market interest rates. A security with an effective duration of 2.56% will decline in price by 2.56% for a 100 basis point rise in market interest rates and rise in price by 2.56% for a 100 basis point decline in market interest rates.

[2] NEV - Net economic value is the sum of the fair values of all assets minus the sum of the fair values of all liabilities. That is, it is the fair value of the credit union's equity.

[3] MVPE - Market value of portfolio equity. See NEV.

Credit unions should understand that IRPS 98-2 broadens risk management standards. The pre-purchase high risk security test (HRST), coupled with special subsequent reporting requirements, induced credit unions to avoid CMOs and to substitute other types of investments that had similar or even greater risk. The rescission of the HRST test does not mean that it is acceptable to buy any CMO or other investment without adequate analysis. Instead, pre-purchase analysis standards have been expanded to a broad range of investments, not just CMOs.

Risks from all investment transactions should be identified and measured prior to purchase and periodically thereafter. Part 703 does not mandate periodic testing in all circumstances, but the credit union's policy should describe pre-purchase documentation and state intervals (or conditions) for subsequent periodic analysis. For example, the policy may state that a risk assessment of complex investments should be completed quarterly and a complete risk assessment should be conducted if there is a material change in interest rates (e.g., a 200 basis point change in a 12-month period or a 50 basis point change in one quarter).

Management must be able to demonstrate that it has an understanding of the risk of a security if it chooses not to conduct a more formal pre-purchase risk assessment. The credit union will be in compliance with Part 703 for "non complex" securities if an investment folder contains a basic description of the investment, a purchase confirmation and a second price. Management should understand the risk (price change or duration) of these instruments. Pre-purchase risk analysis should have been conducted on all complex investments where there is the potential for material risk to the credit union's portfolio or balance sheet.

Many credit unions rely on third party sources for both pricing and risk assessment of individual instruments and their portfolio. While the credit union's use of an independent third party is preferred, many credit unions obtain this information from their broker. An individual with investment responsibility must understand the characteristics of the model used in this assessment. This is even more important if the credit union depends on analysis provided by the broker. It is relevant even if the broker uses an independent third party provider (e.g., Bloomberg, CMS BondEdge, or Sendero) rather than the broker's proprietary model.

Credit union management must understand how the model could be altered to reduce the appearance of risk or to indicate that a price offered by the broker is the appropriate market price. It is quite possible, for example, for a broker to manipulate option adjusted spread (OAS)[4] or interest rate volatility to alter the reported fair value or

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[4] OAS - Option Adjusted Spread - represents an expected incremental return over Treasury rates, considering any embedded options. It is expressed in terms of basis points. A three year agency security with an OAS of 35 means, based upon some assumptions about future cash flows, that security is expected to provide a return that is 35 basis

reduce the reported risk. It is management's responsibility to ensure these assumptions are reasonable and to have a basic understanding of the methodology used to calculate the risk of these investments.

The risk assessment methodology used to measure investment, portfolio, or balance sheet risks must be sufficient to adequately capture and evaluate the risks of authorized investments, particularly those reflected in embedded options (e.g., caps, calls, prepayment and extension risk). If basis, yield curve, or repricing risk could affect the credit union's safety and soundness, the risk assessment methodology should also consider their impact. If the board authorizes the purchase of CDs and corporate credit union deposits with complex characteristics, the risks of material positions in these instruments must also be evaluated despite the difficulties associated with modeling these investments. A credit union unable to internally conduct this analysis or obtain adequate analysis should refrain from purchasing these investments.

The methodology the credit union uses for risk assessment should reflect the complexity of individual investments, the portfolio, the balance sheet and its capital position. The methodology should:

1. Use values determined from market prices or those which were calculated from market prices of similar securities. For example, the credit union's investment may have characteristics which are very close to another security where there is a ready market price. Alternatively, the credit union's investment's yield may have a spread to another security, e.g., a spread of 7 basis points over a similar maturity Treasury.
2. Use discount cash flows applying the zero-coupon Treasury curve (spot) rates. This discount rate is particularly important for securities with longer cash flows, e.g., maturities in excess of five years; and
3. Calculate values that reflect option pricing. Typically these models show a value greater than zero for out-of-the money options (e.g., a cap influences the price of the security even when the coupon rate on the security is below the cap and a call provision influences the price even when current rates are above the rate where the security would be called). Models calculated in OAS mode typically account for these options. This methodology is important for mortgage-related securities.

Modifying and managing risk profiles requires the board to receive and evaluate risk-related reports (§703.70, §703.80, and §703.90) to document compliance with risk parameters. Examiners can obtain a better comfort level if management is producing and continuously reviewing internal audit reports and "actual versus allowable" risk parameter reports. Prior to purchase, management should quantify the risks of all

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points over the equivalent (3-year) Treasury. A Treasury bullet security will have an OAS of zero, since, it has no embedded options and no credit risk.

complex investments and all “non-complex” investments when these investments could contribute to a significant change in the capital or income of the credit union. The credit union’s policy should indicate authorized investments and both the pre-purchase and subsequent analysis standards. Complex investments require more frequent analysis.

A list of documents to help reflect an adequate risk analysis is shown in Table 2 of the Appendix.

Reports provided to the board should indicate the risk characteristics of the portfolio. For example, callable securities and adjustable-rate securities should be identified. Standards for disclosure should include identifying the risk characteristics of variable rate instruments. If floating rate securities are reported without disclosing the indexes and spreads, the reporting is considered inadequate. If securities tied to different indexes are reported simply as “floating rate securities,” the reporting is considered inadequate. For example, assume a credit union has securities linked to the following indexes: (1) 1-year Treasury +150 basis points; (2) 10-year Treasury minus 6-month LIBOR + 80 basis points; and (3) 6-month LIBOR. If these securities are reported as floating rate investments, without their formulas, this would not constitute full disclosure to the board. The reports should: (1) have a column for each risk characteristic of the investment; (2) list the issuer, individual and total dollar value; and (3) include a brief description of the terms. The credit union should not purchase investments if it cannot or will not accurately and fully report all the material risks associated with the investments.

Risk analysis should occur at the instrument, portfolio, and/or balance sheet level depending upon the complexity of the investments, the characteristics of the balance sheet, and the sophistication of the modeling methodology. Sections 703.70 and 703.90 describe (minimum) reporting requirements in more detail than IRPS 98-2. When the regulation is more restrictive than IRPS 98-2, apply the regulation. See Table 3 of the Appendix for a summary of Part 703 reporting requirements. In defining complex investments, the regulation focuses on final stated maturity. This differs from AIRES Critical Investment Input and the 5300 Report, where a security’s weighted average life and/or next repricing date are used. The reports may need to be tailored to include more than the minimum requirements. The ALM or investment policy must set risk limits and the reports must indicate the level of compliance with the board approved limits.

Internal Controls

IRPS 98-2 reinforces the importance of separation of duties which is vital for internal control. A system should be in place to enforce lines of authority relating to investments and investment decisions. An independent review of investment activities is important to ensure the person(s) making investments is not also controlling the

accounting and reporting functions. Internal and external audits should include a review of the internal control structure. Internal control recommendations are standard in many CPA audit reports. The findings, recommendations, and follow-up by the credit union should be reviewed by the examiner.

The board also has responsibility to review policies and related reports to ensure compliance with set guidelines and risk limits. If staff size limitations preclude a distinct separation of some duties, individuals at the board or supervisory committee level need to review reports to ensure risk is accurately portrayed and reports are produced in a timely and accurate manner. The board should review the risk management system to verify it is sufficient in light of the complexity of the balance sheet.

V. The Risks of Investment Activities

Market Risk

Market risk is the risk to an institution resulting from adverse changes in interest rates and is best measured at the balance sheet level. Market risk measurements at the investment portfolio or balance sheet level provide a more comprehensive risk assessment. However, Part 703 is an investment rule, not an ALM rule. Therefore, no requirements were established for evaluating a credit union's balance sheet. As a sound business practice, the need to provide risk assessment at the balance sheet level would occur when the credit union has substantial concentrations of:

- residential mortgage loans and/or mortgage securities (including CMOs/REMICs) or amortizing securities that have cash flow patterns that mimic the pattern of mortgage cash flows (e.g., indexed amortizing notes);

- variable rate mortgage loans and/or securities with period or life time caps that would severely limit their ability to receive higher rates under the shocked interest rate scenarios;

- variable rate residential mortgage loans or securities linked to longer indexes (e.g., constant maturity Treasuries (CMTs) of 3 years or more); or,

- securities with unusual coupons (e.g., dual indexes, inverse floaters, range floaters, and variable rate securities linked to the multiple of an index).

It is the responsibility of credit union management to provide an adequate risk assessment for the complexity and risk characteristics of the balance sheet. Failure to do so is an unsound practice.

ALM income simulation models are often used to determine the impact on earnings when the entire balance sheet is "shocked" up and down 100, 200, and 300 basis

points. Most, however, do not capture risk to capital and evaluate income risk only over the next twelve months. A credit union can best capture its risk exposure if it uses separate measures, one to evaluate its short-term income risk and another the potential impact on capital. If a credit union is only using an income model with a 12-month horizon, it will miss the potential adverse income impact of factors which can influence its balance sheet after the 12 months, e.g., embedded options which have an impact after the first year. Therefore, if a credit union is conducting an ALM analysis limited to an income model, it should be encouraged to extend the analysis longer than 12 months, to 2-3 years, at least.

A management team that does not understand the relationship between the change in the value of its balance sheet and the potential change in the credit union's future income does not understand all of the risks reflected in its investments and its balance sheet structure. See Table 1 for sample questions to assess management's knowledge of investments. An adequately capitalized credit union with a complex portfolio that could be seriously hurt by changes in interest rates would require a substantially greater understanding of the relationship between the level of capital and the risk characteristics of the balance sheet than one with stronger capital and less complex investments. Examiners should distinguish between a safety and soundness issue (DOR) and a recommendation for prudent practice (Examiner Finding). Potential examiner cites are included in Table 4 of the Appendix.

An ALM risk assessment that captures the impact on capital will use discounted cashflows to calculate the present value of the balance sheet and it will reflect changes in net economic value (NEV), economic value of equity (EVE), or market value of portfolio equity (MVPE) -- they are all different terms for the same concept. These assessments calculate the value of capital in base case (no rate change) and shocked interest rate scenarios. Projected cashflows are discounted by appropriate interest rates (e.g., a specific index or product offering rate) to arrive at the NEV.

Problems observed among some risk-measurement models, typically at the level of the entire balance sheet, are the following: (1) change in income occurs when individual instruments, the portfolio or a balance sheet is shocked by a rate change, but the timing of cashflows or prepayments do not change; (2) income from adjustable rate mortgage assets (loans or investments) increase or decrease by 300 basis points even when the assets are limited to a 200 basis point annual interest rate cap or by a floor; (3) embedded calls are ignored and models continue to show interest payments after a security would have been called; and (4) there is improper aggregation (e.g., securities with call provisions are combined with bullet agencies). Where aggregation occurs, management should be able to explain the similarity of risk which permits this aggregation.

NEV models should reflect the risks arising from prepayments, caps, and calls. The base case NEV should support the book value of capital, i. e., the fair value of assets in the base case minus the fair value of liabilities in the base case should equal the book

value of capital. A more important comparison involves the base case NEV and shocked NEV. The difference between these two NEV calculations reflects the potential impact on capital if rates were to change. For example, if a $100 million credit union had 10 percent capital ($10 million), and the NEV calculation indicated NEV would decline by $4.3 million, following a +300 basis point interest rate shock, the new capital level (that is, the shocked NEV) would be $5.7 million.

It is sound practice for a credit union that does not have an adequate ALM model or a model which reflects the risk of its entire portfolio to establish risk limits for each investment or investment category. A policy may state that no investment will be purchased if it will change in price by more than 10 percent for a 300 basis point change in rates. Alternatively, separate limits could be established for each investment category. The examiner should be assured:

- When the limits are aggregated to the portfolio level it results in reasonable risk to the credit union in relation to its capital;
- There is confidence in the method used to assess the risk of each investment category; and
- Credit union management understands the method used in the assessments.

The credit union's policy should clearly state the required analysis and limits for each characteristic type identified (§703.30(b)). Since the credit union will likely not know the impact without an assessment of potential risk, any material purchase or change in policy should reflect a full analysis of the risk prior to the action.

Reports/screens are available from industry recognized information providers (e.g., Bloomberg, CMS), as well as from brokers, to estimate the price sensitivity of individual securities. A common practice is to estimate the fair value changes for immediate and parallel shifts in the yield curve for plus and minus 300 basis points. This is supplemented by nonparallel analysis to assess the impact of changes in the shape of the yield curve, changes in volatility, and basis risk where these changes could have a material impact.

At least annually, the supervisory committee or external auditor is responsible for verifying the value of complex securities. Refer to §703.80(c) for more detail. Particular attention should be given to: (1) securities without an accurate market price that are compared to a similar security; and (2) a default price of 100, since it may not be a good indication of fair value. If there is any confusion, examiners may consult with the regional investment specialist and/or the Office of Investment Services.

<u>Credit Risk</u>

Credit risk is the risk not all principal will be returned from an issuer or a counterparty (the party on the other side of a transaction). [Note: Counterparty risk with respect to brokers would occur in transactions involving repurchase agreements or securities lending.] Credit unions understand credit risk in the loan portfolio, but this concept is not always transferred to the investment portfolio. Some policies limit investments to those fully insured or guaranteed. Many times the same policies ignore credit risk from uninsured deposits (e.g., federal funds and deposits over $100,000 in other federally insured institutions). Part 703 mandates credit analysis of the issuing entity or investment prior to purchase, including annual updates, when there is credit risk exposure.

Credit analysis (ratings) using an outside rating agency is permissible under Part 703, but credit union personnel should be able to interpret this external credit analysis, especially if the potential credit exposure is material. Limits should be established for each issuer and total credit exposure should be established in relation to the credit union's capital position. Risk parameters must be stated in the policy and approved by the board so the person making any uninsured investments is not setting the limits.

Policies must specify institutions, issuers, and counterparties (or criteria for selection) and limits on the amounts invested with each. IRPS 98-2 states "institutions are legally required to meet certain quality standards for security purchases." However, Part 703 only sets rating standards for municipal securities, whereby the ratings are required to be investment grade (the top four categories used by the various rating agencies). IRPS 98-2 discusses credit exposure at, or prior to, settlement.

Section 703.60 requires all purchases and sales to be delivery versus payment (DVP). DVP means payment for an investment occurs simultaneously with its delivery, thereby eliminating credit exposure in the settlement process.

Not all issuers or investment issues are publicly rated. Uninsured funds should not be invested in a non-rated institution unless the credit union has the ability to perform and document a credit analysis. Management should review an institution's income (earnings), capital, financial trends, liquidity, and loan losses at a minimum.

<u>Liquidity Risk</u>

Most credit unions refrain from selling investments to meet liquidity needs and usually "cherry-pick" (sell the ones trading at a gain) when they need to sell. Some prefer to attract "hot money" (above market rate) shares rather than book a loss from an investment sale. When they must make a quick sale because of cash flow needs, illiquid instruments often cannot be sold at fair value. Securities with greater price volatility, small initial issues, and odd lots, often fall into this category. When cash flows are based on complex embedded options, multiples of an index or several indexes the securities also are less liquid. An inability to readily obtain a realistic price from several

brokers or obtain a risk assessment (plus or minus 300 basis point shock) are signs of illiquidity.

A credit union may not understand that an investment's high yield may reflect its lack of liquidity and only become aware of the problem when it tries to sell. Some brokers may quote an indicative price in a monthly statement, and a much lower price when a credit union needs to sell.

Operational (Transaction) Risk:

Operational risk is the risk that deficiencies in information systems or internal controls will result in loss. Sources include: inadequate procedures, human error, system failure, or fraud. Those making decisions to buy and sell investments should not: transfer the funds; verify the accuracy of purchase confirmations; perform the accounting; or, prepare risk reports for the board. Internal controls that ensure such separation of duties are particularly important.

Portfolio pricing (or valuation) should be obtained from independent third party sources. For most credit unions, monthly prices usually come from the selling broker or safekeeper. If a complex security is priced only by the selling broker, it is recommended the credit union periodically look to other sources for prices. It is acceptable for the broker or safekeeper to provide prices, but the supervisory committee or external auditor must at least sample these prices to ensure reliability of the pricing source. The documentation, for risk analysis of each type security, required by policy should be strictly enforced by management. Federal credit unions may only use board-approved safekeepers regulated by the SEC or by a federal or state depository institution regulatory agency.

IRPS 98-2 recommends a policy prohibiting those with investment authority from using the same securities firm for personal transactions. Part 703 prohibits officials, senior management, and immediate family members from receiving anything of value in connection with investment activities. The preamble for §703.50 states "as an additional control, a credit union should consider prohibiting any official or employee with discretionary investment authority from maintaining a personal account with the same sales representative that the credit union uses."

Legal Risk:

Legal risk is the risk that contracts are not legally enforceable or not documented correctly. Credit unions usually sign an account agreement with a broker and a safekeeping agreement with a custodian. It is possible the account agreement also contains safekeeping language. The account agreements should be in a file at the credit union along with background analysis of the firm and sales representatives used. The custodial safekeeping agreement must be reviewed to ensure the safekeeper and credit union agreed on a level of care as required in the regulation. The safekeeper

must exercise ordinary (due, regular) care and this statement should be included in the agreement. If the language is not clear, the credit union should seek legal counsel to determine if the language complies with Part 703.

Credit unions dealing with repurchase and reverse repurchase agreements must have written agreements in place with the counterparties. These agreements are typically Bond Market Association (BMA) (formerly known as Public Securities Association (PSA)) agreements, but the agreements can be changed by either party. This is why a legal counsel review is strongly recommended.

APPENDIX

Table 1

SAMPLE QUESTIONS FOR ASSESSING KNOWLEDGE OF INVESTMENTS

TYPE of INVESTMENT	SAMPLE QUESTIONS
Short-term Treasuries (3-years & under)	• No comprehensive analysis necessary, unless credit union previously unfamiliar with these securities.
Short-term, fixed-rate agency bullets[(1)] (3-years & under)	• No comprehensive analysis necessary, unless credit union previously unfamiliar with these securities.
Intermediate and long-term bullet and zero Treasuries and, agencies	• What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?)
Agency Callables	• What is a call? • What is the impact of the call on cash flow and price? • What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?) • Does management focus on yield-to-call and ignore the impact of flat or rising rates? • How does management determine that it is adequately compensated for the risks of embedded options ? Does management understand an option adjusted spread (OAS)[(2)] analysis? • Does management understand and assess the estimated spread over a comparable Treasury? • Is the estimated spread worth the potential price deterioration? Note: Most credit unions buy securities with call provisions for the additional yield, but do not purchase securities with maturities beyond 5-years. These investments still have additional risk from their call provision. Management should understand the risk in relation to the return on the investment return prior to purchase.
Mortgage-backed	• How is the cashflow estimate obtained and analyzed?

Securities (MBS)	• Does the credit union understand the concept of average life? • How does management determine that it is adequately compensated for the risks of embedded options ? Does management understand an option adjusted spread (OAS)[2] analysis? Does management understand the prepayment and extension risks of these investments? • What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?) • Is geographic concentration[3] of the mortgage collateral reviewed? NOTE: Some credit unions state that their members do not want real estate loans and these securities fill the void and help liquidity by returning principal and interest each month. This can be a valid statement, however, it is not a reason to ignore risk analysis. Policy limits should assist the risk management process.
Variable-Rate Securities or MBS.	• To what indexes are the securities linked? • Why were securities with these indexes purchased? • Is the coupon formula (index + margin) complex? • Were the impacts of interim and lifetime caps evaluated on potential return? • Is the correlation between the source and use of funds analyzed? (E.g., was a relationship between the index and the cost of funds evaluated?) • What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?) • Are there any policy limitations on floating rate assets with respect to caps or indexes (e.g., must the current yield be 100 or 200 basis points above the cap)?
Fed Funds and Uninsured Corporate Credit Union Deposits	• Do limits (for credit exposure) relate to the credit union's capital? • Who sets these limits? • Does the credit union perform internal credit analysis? • Are external rating services used and updated annually? If ratings are used, how are they obtained?

Certificates of Deposit (CDs)	• How are CDs purchased (e.g., directly through registered SEC broker, through a regulated depository institution, through a finder?) • How are yields analyzed (e.g., is a CD's bond equivalent yield calculated and compared to Treasury alternatives?) • Plus the same questions as for Fed Funds and Uninsured Corporate Credit Union Deposits if CDs are over the insured limit.
Structured Notes	• How is the cashflow estimate obtained and analyzed? • How does management determine that it is adequately compensated for the risks of embedded options ? Does management understand an option adjusted spread (OAS)[(2)] analysis? • What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?)

(1) **Bullet treasury or agency** - A security that is not subject to a call or prepayment. The entire principal balance is payable at stated maturity.

(2) **Option Adjusted Spread (OAS) -** represents an expected incremental return over Treasury rates, considering any embedded options. It is expressed in terms of basis points. A three year agency security with an OAS of 35 means that based upon some assumptions about future cash flows, that security is expected to provide a return that is 35 basis points over the equivalent (3-year)Treasury. A Treasury security will have an OAS of zero, since, it has no embedded options and no credit risk.

(3) **Geographic Concentration** - a substantial concentration of mortgage loans are in one geographic area. This increases the risk that a single event will result in substantial defaults. While this would probably not result in credit losses because of insurance and collateral protection, it could cause rapid prepayments.

Table 2

RECOMMENDED DOCUMENTATION AND MONITORING

Investment	Characteristics	Documentation	Interim Monitoring
1-year Treasury	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation	None
3 + Year Treasury	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Duration [(1)] • Shocked price sensitivity	None
1-3 Year Agency	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation	None
3 + Year Agency	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation	None
Agency Callable	Call	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Shocked price sensitivity • Effective duration [(2)], if applicable • Option adjusted spread [(3)]	Quarterly
Amortizing Mortgage-Backed Security (MBS)	Prepayment Extension	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Shocked price sensitivity	Quarterly

		• Option adjusted spread • Collateral (coupon and geographic breakdown) • Cash flow table (base and shocked)	
Adjustable-Rate MBS	Index Prepayment Extension	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Shocked price sensitivity • Option adjusted spread • Collateral (coupon and geographic breakdown) • Cash flow table (base and shocked) • Cap (relationship of current coupon to the cap) • Interim (periodic) caps • Relation of index to cost of funds • Effective duration [(2)]	Quarterly
CMOs	Index Prepayment Extension	• All documentation of MBS and High Risk Security Test or Total Return Analysis (TRA) [(4)]	Quarterly

Investment	Characteristics	Documentation	Interim Monitoring
Federal Funds	Credit-worthiness	• Confirmation • Credit Rating (current) • Source of Rating • Internal supporting analysis	Annually
Certificates of Deposit	Insured Credit-worthiness	• Description • Confirmation • Rating or insured status and/or credit analysis • Wire instructions • CD or safekeeping statement or confirmation • Comparison of stated yield vs. Bond Equivalent Yield [(5)]	None

Note: Since monthly prices are required for all securities, this is not repeated as interim analysis.

(1) Duration: a measure of the sensitivity of an instrument's price to changes in yields. Duration and McCauley's duration are expressed in terms of years. Modified and effective duration are expressed as the percentage change in the price of a security for a 100 basis point change in market interest rates. A security with an effective duration of 2.56% will decline in price by 2.56% for a 100 basis point rise in market interest rates and rise in price by 2.56% for a 100 basis point decline in market interest rates.

(2) Effective Duration: See Duration above.

(3) Option Adjusted Spread (OAS): represents an expected incremental return over Treasury rates, considering any embedded options. It is expressed in terms of basis points. A three year agency security with an OAS of 35 means that based upon some assumptions about future cash flows, that security is expected to provide a return that is 35 basis points over the equivalent (3-year)Treasury. A Treasury security will have an OAS of zero, since, it has no embedded options and no credit risk.

(4) TRA - Total Return Analysis: the sum of interest and principal payments, the income earned on the reinvestment of these cash flows, and the change in fair value over a specific holding period (horizon) for a specific security in relation to the amount invested. The TRA screen, in option adjusted mode, is an information screen available on the Bloomberg system for evaluating interest rate risk on securities. If the horizon date is the same as the settlement date the TRA screen shows the impact of an instantaneous shock

(5) Bond-Equivalent Yield (BEY): a comparable measure of the return over the life of a bond, Treasury bill, or other discount instrument, assuming interest is paid semiannually and an actual day year is used. As an example, a two-year Treasury pays interest semiannually and is quoted on a bond equivalent yield basis.

Table 3

SUMMARY OF REPORTING REQUIREMENTS UNDER PART 703

Investments	Report	Frequency
Shares and Deposits in CUs, Banks (CDs)	List all investments	Quarterly to ALCO/ board
Securities	Fair value and dollar change since prior month-end with summary information for the entire portfolio.	Monthly to ALCO/board
Securities	Sum of the fair values of all fixed and variable rate complex securities.	Quarterly to ALCO/board
Securities	If the complex securities total exceeds net capital, a report must provide a reasonable and supportable estimate of the potential impact, in percentage and dollar terms, of an immediate and sustained parallel shift in interest rates of plus and minus 300 basis points on: the fair value of each security, the fair value of the portfolio as a whole; and net capital.	Quarterly to ALCO/board

For purposes of determining what is a complex investment, Part 703 uses the stated final maturity of an investment. The Critical Investment Input in AIRES and the 5300 Call Report use weighted average life and the next repricing date to classify maturities of investments.

Net capital is capital less the Allowance for Loan Losses account.

Table 4

POSSIBLE EXAMINER CITES FROM IRPS 98-02

Supervisory Policy Statement on Investment Securities and End-User Derivatives Activities

I. Purpose

None.

II. Scope

- As a matter of sound practice, institutions should have programs to manage the market, credit, liquidity, legal, operational and other risks of investment securities.
- These elements include board and senior management oversight and a comprehensive risk management process that effectively identifies, measures, monitors, and controls risk.
- Institutions should fully understand and effectively manage the risks inherent in their investment activities. Failure to understand and adequately manage the risks in these areas constitutes an unsafe and unsound practice.

III. Board and Senior Management Oversight

- To properly discharge its oversight responsibilities, the board should review portfolio activity and risk levels, and require management to demonstrate compliance with approved risk limits.
- Senior management is responsible for the daily management of an institution's investments.
- Senior management should have an understanding of the nature and level of various risks involved in the institution's investments and how such risks fit within the institution's overall business strategies. Management should ensure that the risk management process is commensurate with the size, scope, and complexity of the institution's holdings.
- Institutions with significant investment activities should ensure that back-office, settlement, and transaction reconciliation responsibilities are conducted and managed by personnel who are independent of those initiating risk taking positions.

IV. Risk Management Process

- An effective risk management process for investment activities includes: (1) Policies, procedures, and limits; (2) the identification, measurement, and reporting of risk exposures; and (3) a system of internal controls.

Policies, Procedures, and Limits

- Policies should be consistent with the organization's broader business strategies, capital adequacy, technical expertise, and risk tolerance.
- An institution's management should understand the risks and cashflow characteristics of its investments. This is particularly important for products that have unusual, leveraged, or highly variable cashflows. An institution should not acquire a material position in an instrument until senior management and all relevant personnel understand and can manage the risks associated with the product.

Risk Identification, Measurement and Reporting

- Institutions should ensure that they identify and measure the risks associated with individual transactions prior to acquisition and periodically after purchase.
- Reports to the board of directors and senior management should summarize the risks related to the institution's investment activities and should address compliance with the investment policy.
- Reporting should be frequent enough to provide timely and adequate information to judge the changing nature of the institution's risk profile and to evaluate compliance with stated policy objectives and constraints.

Internal Controls

- An effective system of internal controls includes enforcing official lines of authority, maintaining appropriate separation of duties, and conducting independent reviews of investment activities.

V. The Risks of Investment Activities

Market Risk

- Institutions may find it useful to establish price sensitivity limits on their investment portfolio or on individual securities.
- Price sensitivity analysis is an effective way to perform the pre-purchase analysis of individual instruments.
- It is a sound practice for an institution's management to fully understand the market risks associated with investment securities, prior to acquisition and on an ongoing basis.
- For relatively more complex instruments, less familiar instruments, and potentially volatile instruments, institutions should fully address pre-purchase analyses in their policies.
- Price sensitivity analysis is an effective way to perform the pre-purchase analysis of individual instruments. For example, a pre-purchase analysis should show the impact of an immediate parallel shift in the yield curve of plus and minus 100, 200, and 300 basis points.

Credit Risk

- An institution should not acquire investments or enter into derivative contracts without assessing the credit worthiness of the issuer or counterparty.
- Institutions should establish limits on individual counterparty exposures.
- Policies should also provide credit risk and concentration limits.

Liquidity Risk

- Institutions should ensure that they consider the effects that market risk can have on the liquidity of different types of instruments under various scenarios.

Operational (Transaction) Risk

- Operational (transaction) risk is the risk that deficiencies in information systems or internal controls will result in unexpected loss. Sources of operating risk include inadequate procedures, human error, system failure, or fraud.
- Institutions should clearly define documentation requirements for securities transactions, saving and safeguarding important documents, as well as maintaining possession and control of instruments purchased.

Legal Risk

- Institutions should adequately evaluate the enforceability of its agreements before individual transactions are consummated.
- Institutions should also ensure that the counterparty has authority to enter into the transaction and that the terms of the agreement are legally enforceable.

AIRES QUESTIONNAIRE

IRPS 98-2

Charter No.: ______________
Exam Date: ______________

AIRES QUESTIONNAIRE

IRPS 98-2

This questionnaire will be incorporated into a future release of the AIRES system. It is intended that you (the examiner) will always answer the first two "initial" questions (A. and B.), enclosed in the box below. If the answer to either of the first two (initial) questions is "NO", or if you need more help in deciding whether there are concerns in the risk management area, you may proceed with the follow-up questions. The shaded and numbered questions (e.g., "1.", "2." etc.) are the "primary" follow-up questions. The "secondary", italicized, questions (identified by small letters, e.g., "a.", "b.", etc.) are there to provide additional guidance in determining whether the answer to the numbered question is "YES" or "NO". You need not answer the italicized questions if you already know the answer to the numbered question.

When incorporated into the AIRES system, the follow-up questions will be available through a drop-down menu from the two "initial" questions. The "secondary", italicized questions will be available through a drop-down menu from the primary questions.

Initial Questions:

	YES	NO	N/A
A. Is the risk management process adequate for the size, scope, and complexity of the credit union's investment activity?			
B. Are there **no** safety and soundness concerns?			

If you are uncertain of the answer to either of the questions above, you can obtain help and additional information by using the numbered questions below. These numbered questions can also be used to identify specific items of concern if the answer to either of the above questions is NO. If you would like more guidance, there are more specific questions in italics under the numbered questions. Any NO answer could identify an area of weakness.

Referenced TABLES are at the end of this document.

Board and Senior Management Oversight

	YES	NO	N/A
1. Does the board of directors play an active role in establishing investment policies?			

	YES	NO	N/A

a) *Is there evidence in the board minutes of:* • *Annual policy review?* • *Discussion of policy changes?* • *On-going discussion of investment activity?* • *Discussion of examiner, CPA, or internal audit recommendations or comments?* • *Discussion of investment-related committee minutes?* • *Discussion of reports?* b) *Is the board represented on the investment-related committee?*			

2. Does the board of directors play an active role in evaluating investment related activities?

	YES	NO	N/A
a) *Do the minutes reflect discussion of new investment types prior to acquisition?* b) *Do reports summarize the risk and performance of investments in a format that ca be readily used by the board?* c) *Is the investment-related committee provided with sufficient information to obtain an accurate picture of the conditions and operations of the credit unions?* d) *Do reports address compliance with regulations, with policies?*			

3. Can senior management explain the policy limits, the characteristics, and the risks associated with the credit union's investment portfolio?

NOTE: A policy limit defines the credit union's risk tolerance. Investment characteristics are listed in §703.30(b). Possible investment risks include market risk, credit risk, and liquidity risk. Management should still be able to explain the investments even if discretionary control has been delegated (see §703.40(c) for discussion of discretionary control).

	YES	NO	N/A
a) *Does management assess rate shock results in relation to its established parameters?* b) *Does management understand that market risk applies to the entire portfolio including those securities classified as hold-to-maturity?*			

	YES	NO	N/A
c) *Is there a risk measurement system (e.g., Bloomberg, CMS, Sendero, GAP, income simulation, NEV)?* d) *Is the risk measurement system appropriate for the credit union's authorized investments (for example, does it properly capture and measure all the characteristics inherent in the credit union's portfolio)?* e) *Are the risk parameters appropriate for the level of capital?* f) *Has management adjusted the risk parameters to compensate for any weaknesses in its risk measurement system?*			

NOTE: If the risk measurement system used is not very sophisticated or not very accurate, (e.g., if it doesn't properly consider caps, floors, or prepayment options), the risk parameters should be more stringent.

[Refer to Table 1 - Sample Questions for Assessing Knowledge of Investments]

	YES	NO	N/A
4. Are there standards established for pre-purchase analysis?			

NOTE: A standard could take the form of a list of the steps necessary to verify price, perform the pre-purchase analysis, and determine policy compliance. Policies may include limits on the individual characteristics including indexes, maturity, calls, price sensitivity, etc. Pre-purchase analysis may include stress testing.

	YES	NO	N/A
a) *Does the policy differentiate between investment risk well known to management versus investments requiring documentation of the pre-purchase analysis?*			

NOTE: IRPS 98-2 states: "It is expected that the substance and form of such analyses will vary with the type of investment. Relatively simple or standardized instruments, the risks of which are well known to the institution, would likely require no, or significantly less analysis than would more volatile, complex instruments." "Well known" means management can explain an investment with elementary characteristics. "Well known" risks will rarely include any instruments other than bullet and zero coupon securities.

	YES	NO	N/A
b) *Is it clear what prepurchase analysis is required for each authorized type or characteristic of investment?*			

	YES	NO	N/A
c) *Is there appropriate documentation retained in the investment file?*			

[Refer to Table 2 - Recommended Documentation and Monitoring]

	YES	NO	N/A
5. Are there standards established for on-going analysis?			

NOTE: An example of on-going monitoring is stress testing (+/- 300 bps).

	YES	NO	N/A
a) *Is it clear what on-going analysis is required for each authorized type or characteristic of investment?* b) *Is there appropriate documentation retained in the investment file?*			

	YES	NO	N/A
6. Has management provided for adequate internal controls over the entire investment function?			

	YES	NO	N/A
a) *Is there adequate separation of duties between authorizing investment transactions and accounting for investments and investment transactions?* b) *If the size of the staff is a limiting factor, does the supervisory committee or outside auditor perform an adequate verification of investments?* c) *Is the scope of the internal and/or external audit adequate for investment activities?* *d) Does the internal or external auditor test the market values reported to the board?* *e) Do the reports to the board include measurements of compliance with:* · *credit union's policies, and* • *regulations*			

[Refer to Table 2 - Recommended Documentation and Monitoring]

	YES	NO	N/A
7. Has management retained personnel with knowledge sufficient for the types of investments permitted by the policy.			

	YES	NO	N/A

	YES	NO	N/A
a) *Is there evidence those involved with investment activities receive training or continuing education so they understand new investment products, regulations, accounting guidance, etc.?* b) *Are there adequately trained back-up staff for key personnel in the investment function?* c) *Do personnel have the ability to detect material errors relating to investments, ALM, and risk reporting?* d) *Are the transactions accounted for properly (e.g., amortization, accrued income, FAS 115 classification)?* e) *Is there a review process in place to ensure the accuracy of the input and reports (e.g., avoid "garbage in, garbage out")?*			

[Refer to Table 1 - Sample Questions for Assessing Knowledge]

	YES	NO	N/A
8. Do reports to the board and senior management summarize the risks associated with the credit union's investment activities?			

NOTE: Reports could include ALM output, investment listings, investment related committee reports, and Part 703 compliance reports. Reports should not be so detailed as to inhibit understanding and decision making. For regulatory requirements, refer to Table 3 - Summary of Reporting Requirements Under Part 703.

	YES	NO	N/A
a) *Are the reports adequate for the investment activity, including size, scope, and complexity?* b) *Do the reports adequately present data in a form that facilitates the decision making process?* c) *Do the reports adequately reflect market risk, credit risk, and liquidity risk?* d) *Are the reports presented in a timely manner?* e) *Are the reports used by the board or senior management as a tool in the decision-making process, rather than being prepared only for the examiner?* f) *Do reports include exceptions to established policies, procedures and limits?* g) *Are the reports easy to read and comprehend?*			

<u>The Risks of Investment Activities</u>

Market Risk

	YES	NO	N/A
1. Have market risk limits been established? Are they appropriate based on the credit union's capital strength and its ability to evaluate its risks?			

NOTE: What happens to the security's price if interest rates change by +/- 100, 200, or 300 basis points? Market risk is synonymous with interest rate risk.

	YES	NO	N/A
a) *Is the method chosen to measure market risk adequate (e.g., is the credit union using Bloomberg analytics or a similar system) for complex investments?* b) *Are the limits established for market risk sufficient?* c) *Are the limits tied to earnings, portfolio value, and net capital?* d) *Is the reporting of market risk adequate?* e) *Do the reports reflect if the credit union is close to its policy limits?* f) *If the credit union is approaching the policy limits; is there a plan that defines the actions management will take?*			

	YES	NO	N/A
2. Does the credit union adequately evaluate and document the market risk of the individual investments and/or the portfolio prior to and after purchase?			

[Refer to Table 1 (Sample Questions for Assessing Knowledge of Investments) and Table 2 (Recommended Documentation and Monitoring)]

	YES	NO	N/A
3. Are current market values for investment holdings adequately monitored and reported to the board?			

	YES	NO	N/A
a) *Are the reported market values reliable?* b) *Does the internal auditor or supervisory committee verify a sample of the market values reported to the board?* c) *Does the sample include HTM securities?*			

	YES	NO	N/A

4. Are the policies and procedures adequate to identify, measure, monitor, and report market risk?			

[Refer to Table 3 - Summary of Reporting Requirements Under Part 703]

Credit Risk

	YES	NO	N/A
1. Has the credit union established minimum credit standards for its credit exposures (e.g., uninsured funds in Section 107(8) institutions)?			

	YES	NO	N/A
a) *Have concentration limits been set and subsequently reviewed?* b) *Are there limits per institution (e.g., uninsured deposits in corporate credit unions and section 107(8) institutions, bank notes, municipal securities, and federal funds)?* c) *Do authorized limits appear reasonable in relation to the credit union's capital position?* d) *Does the credit analysis include items such as:* • *Updated issue and/or issuer credit ratings?* • *Review of institution's income, capital position, and financial trends (e.g., delinquency and loan losses, liquidity, and NEV for corporate credit unions)?* • *Current press releases, news articles and information regarding the investment or counterparty?*			

	YES	NO	N/A
2. If the credit union's investment activities involve such transactions as repurchase agreements or securities lending, does the credit union establish minimum credit criteria to evaluate its counterparty credit risk?			

	YES	NO	N/A
a) *Have maximum credit limits been established for each counterparty, relative to the credit union's net capital?*			

	YES	NO	N/A
3. Are the procedures adequate to identify, measure, monitor, and report credit risk?			

Liquidity Risk

	YES	NO	N/A
1. Has the credit union identified and prioritized its liquidity sources (e.g., selling available-for-sale (AFS) securities, accessing lines of credit, increasing share deposits, decreasing lending)?			

	YES	NO	N/A
2. Is there a periodic review of cash sources and uses?			

	YES	NO	N/A
3. If the credit union relies on a laddered portfolio for liquidity, does the projected need for funds coincide with investment maturities?			

	YES	NO	N/A
4. Has the credit union considered its ability to liquidate its investments, at a fair price and in a timely manner, to meet its liquidity needs under adverse market conditions? For example, did the credit union consider: • Size of issue; • Size of the holding (odd lot, small denomination); • Characteristics; • Number of active buyers and sellers for that issue; • Whether it was private issue; and, • The type of issuer (TVAs and SBAs are less liquid than FNMAs and FHLMCs)?			

	YES	NO	N/A
5. Has management adequately assessed the potential adverse effect that prepayment risk and price risk could have on the liquidity of different types of investments?			

NOTE: Price volatile investments, such as zero coupon bonds, will result in higher losses with rising rates. Highly changeable cash flows, e.g., some structured notes and mortgage backed securities (MBS), may result in fewer buyers or lower prices for the security. Therefore, the security will be less liquid. IRPS 98-2 states: "Complex and illiquid instruments can often involve greater risk than actively traded, more liquid securities."

	YES	NO	N/A
6. Are the procedures adequate to identify, measure, monitor, and report liquidity risk?			

Operational Risk

	YES	NO	N/A
1. Are there appropriate separations of duties between those executing transactions (front office) and those confirming and accounting for transactions (back office)? Are the following duties assigned to different individuals or are other compensating internal controls in place: • Execution of transactions; • Confirmation of transactions; • Accounting for transactions; • Re-valuing; and, • Risk reporting?			

	YES	NO	N/A
2. Are the credit union's information systems adequate for monitoring and reporting the risks in the investment portfolio?			

NOTE: Information systems could include: Bloomberg, CMS, Sendero, ALM software, NEV models, income simulation models, GAP analysis models, vendor-supplied investment accounting/pricing systems, etc. IRPS 98-2 states: "Inaccurately assessing or controlling operating risks is one of the more likely sources of problems facing institutions involved in investment activities."

	YES	NO	N/A
a) *Are the reports clear?* b) *Is the input accurate* c) *Is the output informative?* d) *Are the reports being used?* e) *Do the systems' reports highlight proximity to the credit union's established limits?*			

	YES	NO	N/A
3. Have adequate resources been allocated to the investment function to ensure that systems, capacity, and capability are commensurate with the complexity of the credit union's investment activities?			

	YES	NO	N/A
4. Are the procedures adequate to identify, measure, monitor, and report operational risk?			

5. Does the credit union have a policy that prohibits employees from accepting anything of value in connection with investment transactions?	YES	NO	N/A

Legal Risk

1. Does the credit union ensure that its contracts are properly interpreted, and understood, legally enforceable, and properly documented?	YES	NO	N/A

	YES	NO	N/A
a) *Does the credit union have written contracts with all its vendors and/or service providers such as:* · *Safekeeping agents,* · *Brokers,* · *Agents,* · *Repurchase counterparties,* · *Securities lending counterparties, and* • *Line of credit issuers?* b) *Does the credit union have written legal opinions on contracts that could pose a material risk?* c) *Do the contracts pose any significant risks to the credit union*			

2. Are the procedures adequate to identify, measure, monitor, and report legal risk?	YES	NO	N/A

Table 1

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TYPE of INVESTMENT	SAMPLE QUESTIONS
Short-term Treasuries (3-years & under)	• No comprehensive analysis necessary, unless credit union previously unfamiliar with these securities.
Short-term, fixed-rate agency bullets[(1)] (3-years & under)	• No comprehensive analysis necessary, unless credit union previously unfamiliar with these securities.
Intermediate and long-term bullet and zero Treasuries and, agencies	• What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?)
Agency Callables	• What is a call? • What is the impact of the call on cash flow and price? • What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?) • Does management focus on yield-to-call and ignore the impact of flat or rising rates? • How does management determine that it is adequately compensated for the risks of embedded options ? Does management understand an option adjusted spread (OAS)[(2)] analysis? • Does management understand and assess the estimated spread over a comparable Treasury? • Is the estimated spread worth the potential price deterioration? Note: Most credit unions buy securities with call provisions for the additional yield, but do not purchase securities with maturities beyond 5-years. These investments still have additional risk from their call provision. Management should understand the risk in relation to the return on the investment return prior to purchase.
Mortgage-backed	• How is the cashflow estimate obtained and analyzed?

Securities (MBS)

- Does the credit union understand the concept of average life?
- How does management determine that it is adequately compensated for the risks of embedded options ? Does management understand an option adjusted spread (OAS)[2] analysis? Does management understand the prepayment and extension risks of these investments?
- What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?)
- Is geographic concentration[3] of the mortgage collateral reviewed?

NOTE: Some credit unions state that their members do not want real estate loans and these securities fill the void and help liquidity by returning principal and interest each month. This can be a valid statement, however, it is not a reason to ignore risk analysis. Policy limits should assist the risk management process.

Variable-Rate Securities or MBS.

- To what indexes are the securities linked?
- Why were securities with these indexes purchased?
- Is the coupon formula (index + margin) complex?
- Were the impacts of interim and lifetime caps evaluated on potential return?
- Is the correlation between the source and use of funds analyzed? (E.g., was a relationship between the index and the cost of funds evaluated?)
- What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?)
- Are there any policy limitations on floating rate assets with respect to caps or indexes (e.g., must the current yield be 100 or 200 basis points above the cap)?

Fed Funds and Uninsured Corporate Credit Union Deposits

- Do limits (for credit exposure) relate to the credit union's capital?
- Who sets these limits?
- Does the credit union perform internal credit analysis?
- Are external rating services used and updated annually? If ratings are used, how are they obtained?

Certificates of Deposit (CDs)	• How are CDs purchased (e.g., directly through registered SEC broker, through a regulated depository institution, through a finder?) • How are yields analyzed (e.g., is a CD's bond equivalent yield calculated and compared to Treasury alternatives?) • Plus the same questions as for Fed Funds and Uninsured Corporate Credit Union Deposits if CDs are over the insured limit.
Structured Notes	• How is the cashflow estimate obtained and analyzed? • How does management determine that it is adequately compensated for the risks of embedded options ? Does management understand an option adjusted spread (OAS)[(2)] analysis? • What is the impact on the security's price of changes in market interest rates of plus and minus 100, 200, and 300 basis points? (Can management explain the impact?)

(1) **Bullet treasury or agency** - A security that is not subject to a call or prepayment. The entire principal balance is payable at stated maturity.

(2) **Option Adjusted Spread (OAS) -** represents an expected incremental return over Treasury rates, considering any embedded options. It is expressed in terms of basis points. A three year agency security with an OAS of 35 means that based upon some assumptions about future cash flows, that security is expected to provide a return that is 35 basis points over the equivalent (3-year)Treasury. A Treasury security will have an OAS of zero, since, it has no embedded options and no credit risk.

(3) **Geographic Concentration** - a substantial concentration of mortgage loans are in one geographic area. This increases the risk that a single event will result in substantial defaults. While this would probably not result in credit losses because of insurance and collateral protection, it could cause rapid prepayments.

Table 2

RECOMMENDED DOCUMENTATION AND MONITORING

Investment	Characteristics	Documentation	Interim Monitoring
1-year Treasury	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation	None
3 + Year Treasury	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Duration (1) • Shocked price sensitivity	None
1-3 Year Agency	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation	None
3 + Year Agency	Bullet	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation	None
Agency Callable	Call	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Shocked price sensitivity • Effective duration (2), if applicable • Option adjusted spread (3)	Quarterly
Amortizing Mortgage-Backed Security (MBS)	Prepayment Extension	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Shocked price sensitivity	Quarterly

		• Option adjusted spread • Collateral (coupon and geographic breakdown) • Cash flow table (base and shocked)	
Adjustable-Rate MBS	Index Prepayment Extension	• Evidence of two prices or a price from an industry recognized information provider (IRIP) • Description • Confirmation • Shocked price sensitivity • Option adjusted spread • Collateral (coupon and geographic breakdown) • Cash flow table (base and shocked) • Cap (relationship of current coupon to the cap) • Interim (periodic) caps • Relation of index to cost of funds • Effective duration [2]	Quarterly
CMOs	Index Prepayment Extension	• All documentation of MBS and High Risk Security Test or Total Return Analysis (TRA) [4]	Quarterly

Investment	**Characteristics**	**Documentation**	**Interim Monitoring**
Federal Funds	Credit-worthiness	• Confirmation • Credit Rating (current) • Source of Rating • Internal supporting analysis	Annually
Certificates of Deposit	Insured Credit-worthiness	• Description • Confirmation • Rating or insured status and/or credit analysis • Wire instructions • CD or safekeeping statement or confirmation • Comparison of stated yield vs. Bond Equivalent Yield [5]	None

Note: Since monthly prices are required for all securities, this is not repeated as interim analysis.

(1) Duration: a measure of the sensitivity of an instrument's price to changes in yields. Duration and McCauley's duration are expressed in terms of years. Modified and effective duration are expressed as the percentage change in the price of a security for a 100 basis point change in market interest rates. A security with an effective duration of 2.56% will decline in price by 2.56% for a 100 basis point rise in market interest rates and rise in price by 2.56% for a 100 basis point decline in market interest rates.

(2) Effective Duration: See Duration above.

(3) Option Adjusted Spread (OAS): represents an expected incremental return over Treasury rates, considering any embedded options. It is expressed in terms of basis points. A three year agency security with an OAS of 35 means that based upon some assumptions about future cash flows, that security is expected to provide a return that is 35 basis points over the equivalent (3-year)Treasury. A Treasury security will have an OAS of zero, since, it has no embedded options and no credit risk.

(4) TRA - Total Return Analysis: the sum of interest and principal payments, the income earned on the reinvestment of these cash flows, and the change in fair value over a specific holding period (horizon) for a specific security in relation to the amount invested. The TRA screen, in option adjusted mode, is an information screen available on the Bloomberg system for evaluating interest rate risk on securities. If the horizon date is the same as the settlement date the TRA screen shows the impact of an instantaneous shock

(5) Bond-Equivalent Yield (BEY): a comparable measure of the return over the life of a bond, Treasury bill, or other discount instrument, assuming interest is paid semiannually and an actual day year is used. As an example, a two-year Treasury pays interest semiannually and is quoted on a bond equivalent yield basis.

Table 3

SUMMARY OF REPORTING REQUIREMENTS UNDER PART 703

Investments	Report	Frequency
Shares and Deposits in CUs, Banks (CDs)	List all investments	Quarterly to ALCO/ board
Securities	Fair value and dollar change since prior month-end with summary information for the entire portfolio.	Monthly to ALCO/board
Securities	Sum of the fair values of all fixed and variable rate complex securities.	Quarterly to ALCO/board
Securities	If the complex securities total exceeds net capital, a report must provide a reasonable and supportable estimate of the potential impact, in percentage and dollar terms, of an immediate and sustained parallel shift in interest rates of plus and minus 300 basis points on: the fair value of each security, the fair value of the portfolio as a whole; and net capital.	Quarterly to ALCO/board

For purposes of determining what is a complex investment, Part 703 uses the stated final maturity of an investment. The Critical Investment Input in AIRES and the 5300 Call Report use weighted average life and the next repricing date to classify maturities of investments.

Net capital is capital less the Allowance for Loan Losses account.

Table 4

POSSIBLE EXAMINER CITES FROM IRPS 98-02

Supervisory Policy Statement on Investment Securities and End-User Derivatives Activities

I. Purpose

None.

II. Scope

- As a matter of sound practice, institutions should have programs to manage the market, credit, liquidity, legal, operational and other risks of investment securities.
- These elements include board and senior management oversight and a comprehensive risk management process that effectively identifies, measures, monitors, and controls risk.
- Institutions should fully understand and effectively manage the risks inherent in their investment activities. Failure to understand and adequately manage the risks in these areas constitutes an unsafe and unsound practice.

III. Board and Senior Management Oversight

- To properly discharge its oversight responsibilities, the board should review portfolio activity and risk levels, and require management to demonstrate compliance with approved risk limits.
- Senior management is responsible for the daily management of an institution's investments.
- Senior management should have an understanding of the nature and level of various risks involved in the institution's investments and how such risks fit within the institution's overall business strategies. Management should ensure that the risk management process is commensurate with the size, scope, and complexity of the institution's holdings.
- Institutions with significant investment activities should ensure that back-office, settlement, and transaction reconciliation responsibilities are conducted and managed by personnel who are independent of those initiating risk taking positions.

IV. Risk Management Process

- An effective risk management process for investment activities includes: (1) Policies, procedures, and limits; (2) the identification, measurement, and reporting of risk exposures; and (3) a system of internal controls.

Policies, Procedures, and Limits

- Policies should be consistent with the organization's broader business strategies, capital adequacy, technical expertise, and risk tolerance.
- An institution's management should understand the risks and cashflow characteristics of its investments. This is particularly important for products that have unusual, leveraged, or highly variable cashflows. An institution should not acquire a material position in an instrument until senior management and all relevant personnel understand and can manage the risks associated with the product.

Risk Identification, Measurement and Reporting

- Institutions should ensure that they identify and measure the risks associated with individual transactions prior to acquisition and periodically after purchase.
- Reports to the board of directors and senior management should summarize the risks related to the institution's investment activities and should address compliance with the investment policy.
- Reporting should be frequent enough to provide timely and adequate information to judge the changing nature of the institution's risk profile and to evaluate compliance with stated policy objectives and constraints.

Internal Controls

- An effective system of internal controls includes enforcing official lines of authority, maintaining appropriate separation of duties, and conducting independent reviews of investment activities.

V. The Risks of Investment Activities

Market Risk

- Institutions may find it useful to establish price sensitivity limits on their investment portfolio or on individual securities.
- Price sensitivity analysis is an effective way to perform the pre-purchase analysis of individual instruments.
- It is a sound practice for an institution's management to fully understand the market risks associated with investment securities, prior to acquisition and on an ongoing basis.
- For relatively more complex instruments, less familiar instruments, and potentially volatile instruments, institutions should fully address pre-purchase analyses in their policies.
- Price sensitivity analysis is an effective way to perform the pre-purchase analysis of individual instruments. For example, a pre-purchase analysis should show the impact of an immediate parallel shift in the yield curve of plus and minus 100, 200, and 300 basis points.

Credit Risk

- An institution should not acquire investments or enter into derivative contracts without assessing the credit worthiness of the issuer or counterparty.
- Institutions should establish limits on individual counterparty exposures.
- Policies should also provide credit risk and concentration limits.

Liquidity Risk

- Institutions should ensure that they consider the effects that market risk can have on the liquidity of different types of instruments under various scenarios.

Operational (Transaction) Risk

- Operational (transaction) risk is the risk that deficiencies in information systems or internal controls will result in unexpected loss. Sources of operating risk include inadequate procedures, human error, system failure, or fraud.
- Institutions should clearly define documentation requirements for securities transactions, saving and safeguarding important documents, as well as maintaining possession and control of instruments purchased.

Legal Risk

- Institutions should adequately evaluate the enforceability of its agreements before individual transactions are consummated.
- Institutions should also ensure that the counterparty has authority to enter into the transaction and that the terms of the agreement are legally enforceable.

Interpretive Ruling and Policy Statement No. 98-2

Supervisory Policy Statement on Investment Securities and End-User Derivatives Activities

I. Purpose

This policy statement (Statement) provides guidance to financial institutions (institutions) on sound practices for managing the risks of investment securities and end-user derivatives activities.[1] The FFIEC agencies - the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, the Office of Thrift Supervision, and the National Credit Union Administration - believe that effective management of the risks associated with securities and derivative instruments represents an essential component of safe and sound practices. This guidance describes the practices that a prudent manager normally would follow and is not intended to be a checklist. Management should establish practices and maintain documentation appropriate to the institution's individual circumstances, consistent with this Statement.

II. Scope

This guidance applies to all securities in *held-to-maturity* and *available-for-sale* accounts as defined in the ***Statement of Financial Accounting Standards No.115*** **(FAS 115)**, certificates of deposit held for investment purposes, and end-user derivative contracts not held in trading accounts. This guidance covers all securities used for investment purposes, including: money market instruments, fixed-rate and floating-rate notes and bonds, structured notes, mortgage pass-through and other asset-backed securities, and mortgage-derivative products. Similarly, this guidance covers all end-user derivative instruments used for nontrading purposes, such as swaps, futures, and options.[2] This Statement applies to all federally-insured commercial banks, savings banks, savings associations, and federally chartered credit unions.

As a matter of sound practice, institutions should have programs to manage the market, credit, liquidity, legal, operational and other risks of investment securities and end-user derivatives activities (investment activities). While risk management programs will differ among institutions, there are certain elements that are fundamental to all sound risk management programs. These elements include board and senior

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[1] The 1998 Statement does not supersede any other requirements of the respective agencies' statutory rules, regulations, policies, or supervisory guidance.

[2] Natural person federal credit unions are not permitted to purchase non-residential mortgage asset-backed securities and may participate in derivative programs only if authorized by the NCUA.

management oversight and a comprehensive risk management process that effectively identifies, measures, monitors, and controls risk. This Statement describes sound principles and practices for managing and controlling the risks associated with investment activities.

Institutions should fully understand and effectively manage the risks inherent in their investment activities. **Failure to understand and adequately manage the risks in these areas constitutes an unsafe and unsound practice.**

III. Board and Senior Management Oversight

Board of director and senior management oversight is an integral part of an effective risk management program. The board of directors is responsible for approving major policies for conducting investment activities, including the establishment of risk limits. The board should ensure that management has the requisite skills to manage the risks associated with such activities. To properly discharge its oversight responsibilities, the board should review portfolio activity and risk levels, and require management to demonstrate compliance with approved risk limits. Boards should have an adequate understanding of investment activities. Boards that do not, should obtain professional advice to enhance its understanding of investment activity oversight, so as to enable it to meet its responsibilities under this Statement.

Senior management is responsible for the daily management of an institution's investments. Management should establish and enforce policies and procedures for conducting investment activities. Senior management should have an understanding of the nature and level of various risks involved in the institution's investments and how such risks fit within the institution's overall business strategies. Management should ensure that the risk management process is commensurate with the size, scope, and complexity of the institution's holdings. Management should also ensure that the responsibilities for managing investment activities are properly segregated to maintain operational integrity. Institutions with significant investment activities should ensure that back-office, settlement, and transaction reconciliation responsibilities are conducted and managed by personnel who are independent of those initiating risk taking positions.

IV. Risk Management Process

An effective risk management process for investment activities includes: (1) policies, procedures, and limits; (2) the identification, measurement, and reporting of risk exposures; and (3) a system of internal controls.

Policies, Procedures, and Limits

Investment policies, procedures, and limits provide the structure to effectively manage investment activities. Policies should be consistent with the organization's broader business strategies, capital adequacy, technical expertise, and risk tolerance. Policies should identify relevant investment objectives, constraints, and guidelines for the acquisition and ongoing management of securities and derivative instruments. Potential investment objectives include: generating earnings, providing liquidity, hedging risk exposures, taking risk positions, modifying and managing risk profiles, managing tax liabilities, and meeting pledging requirements, if applicable. Policies should also identify the risk characteristics of permissible investments and should delineate clear lines of responsibility and authority for investment activities.

An institution's management should understand the risks and cashflow characteristics of its investments. This is particularly important for products that have unusual, leveraged, or highly variable cashflows. An institution should not acquire a material position in an instrument until senior management and all relevant personnel understand and can manage the risks associated with the product.

An institution's investment activities should be fully integrated into any institution-wide risk limits. In so doing, some institutions rely only on the institution-wide limits, while others may apply limits at the investment portfolio, sub-portfolio, or individual instrument level.

The board and senior management should review, at least annually, the appropriateness of its investment strategies, policies, procedures, and limits.

Risk Identification, Measurement and Reporting

Institutions should ensure that they identify and measure the risks associated with individual transactions prior to acquisition and periodically after purchase. This can be done at the institutional, portfolio, or individual instrument level. Prudent management of investment activities entails examination of the risk profile of a particular investment in light of its impact on the risk profile of the institution. To the extent practicable, institutions should measure exposures to each type of risk and these measurements should be aggregated and integrated with similar exposures arising from other business activities to obtain the institution's overall risk profile.

In measuring risks, institutions should conduct their own in-house pre-acquisition analyses, or to the extent possible, make use of specific third party analyses that are independent of the seller or counterparty. Irrespective of any responsibility, legal or otherwise, assumed by a dealer, counterparty, or financial advisor regarding a transaction, the acquiring institution is ultimately responsible for the appropriate personnel understanding and managing the risks of the transaction.

Reports to the board of directors and senior management should summarize the risks related to the institution's investment activities and should address compliance with the investment policy's objectives, constraints, and legal requirements, including any exceptions to established policies, procedures, and limits. Reports to management should generally reflect more detail than reports to the board of the institution. Reporting should be frequent enough to provide timely and adequate information to judge the changing nature of the institution's risk profile and to evaluate compliance with stated policy objectives and constraints.

Internal Controls

An institution's internal control structure is critical to the safe and sound functioning of the organization generally and the management of investment activities in particular. A system of internal controls promotes efficient operations, reliable financial and regulatory reporting, and compliance with relevant laws, regulations, and institutional policies. An effective system of internal controls includes enforcing official lines of authority, maintaining appropriate separation of duties, and conducting independent reviews of investment activities.

For institutions with significant investment activities, internal and external audits are integral to the implementation of a risk management process to control risks in investment activities. An institution should conduct periodic independent reviews of its risk management program to ensure its integrity, accuracy, and reasonableness. Items that should be reviewed include:

(1) compliance with and the appropriateness of investment policies, procedures, and limits;

(2) the appropriateness of the institution's risk measurement system given the nature, scope, and complexity of its activities;

(3) the timeliness, integrity, and usefulness of reports to the board of directors and senior management.

The review should note exceptions to policies, procedures, and limits and suggest corrective actions. The findings of such reviews should be reported to the board and corrective actions taken on a timely basis.

The accounting systems and procedures used for public and regulatory reporting purposes are critically important to the evaluation of an organization's risk profile and the assessment of its financial condition and capital adequacy. Accordingly, an institution's policies should provide clear guidelines regarding the reporting treatment for all securities and derivatives holdings. This treatment should be

consistent with the organization's business objectives, generally accepted accounting principles (GAAP), and regulatory reporting standards.

V. The Risks of Investment Activities

The following discussion identifies particular sound practices for managing the specific risks involved in investment activities. In addition to these sound practices, institutions should follow any specific guidance or requirements from their primary supervisor related to these activities.

Market Risk

Market risk is the risk to an institution's financial condition resulting from adverse changes in the value of its holdings arising from movements in interest rates, foreign exchange rates, equity prices, or commodity prices. An institution's exposure to market risk can be measured by assessing the effect of changing rates and prices on either the earnings or economic value of an individual instrument, a portfolio, or the entire institution. For most institutions, the most significant market risk of investment activities is interest rate risk.

Investment activities may represent a significant component of an institution's overall interest rate risk profile. It is a sound practice for institutions to manage interest rate risk on an institution-wide basis. This sound practice includes monitoring the price sensitivity of the institution's investment portfolio (changes in the investment portfolio's value over different interest rate/yield curve scenarios). Consistent with agency guidance, institutions should specify institution-wide interest rate risk limits that appropriately account for these activities and the strength of the institution's capital position. These limits are generally established for economic value or earnings exposures. Institutions may find it useful to establish price sensitivity limits on their investment portfolio or on individual securities. These sub-institution limits, if established, should also be consistent with agency guidance.

It is a sound practice for an institution's management to fully understand the market risks associated with investment securities and derivative instruments prior to acquisition and on an ongoing basis. Accordingly, institutions should have appropriate policies to ensure such understanding. In particular, institutions should have policies that specify the types of market risk analyses that should be conducted for various types or classes of instruments, including that conducted prior to their acquisition (pre-purchase analysis) and on an ongoing basis. Policies should also specify any required documentation needed to verify the analysis.

It is expected that the substance and form of such analyses will vary with the type of instrument. Not all investment instruments may need to be subjected to a pre-purchase analysis. Relatively simple or standardized instruments, the risks of which

are well known to the institution, would likely require no or significantly less analysis than would more volatile, complex instruments.[3]

For relatively more complex instruments, less familiar instruments, and potentially volatile instruments, institutions should fully address pre-purchase analyses in their policies. Price sensitivity analysis is an effective way to perform the pre-purchase analysis of individual instruments. For example, a pre-purchase analysis should show the impact of an immediate parallel shift in the yield curve of plus and minus 100, 200, and 300 basis points. Where appropriate, such analysis should encompass a wider range of scenarios, including non-parallel changes in the yield curve. A comprehensive analysis may also take into account other relevant factors, such as changes in interest rate volatility and changes in credit spreads.

When the incremental effect of an investment position is likely to have a significant effect on the risk profile of the institution, it is a sound practice to analyze the effect of such a position on the overall financial condition of the institution.

Accurately measuring an institution's market risk requires timely information about the current carrying and market values of its investments. Accordingly, institutions should have market risk measurement systems commensurate with the size and nature of these investments. Institutions with significant holdings of highly complex instruments should ensure that they have the means to value their positions. Institutions employing internal models should have adequate procedures to validate the models and to periodically review all elements of the modeling process, including its assumptions and risk measurement techniques. Management relying on third parties for market risk measurement systems and analyses should ensure that they fully understand the assumptions and techniques used.

Institutions should provide reports to their boards on the market risk exposures of their investments on a regular basis. To do so, the institution may report the market risk exposure of the whole institution. Alternatively, reports should contain evaluations that assess trends in aggregate market risk exposure and the performance of portfolios in terms of established objectives and risk constraints. They also should identify compliance with board approved limits and identify any exceptions to established standards. Institutions should have mechanisms to detect and adequately address exceptions to limits and guidelines. Management reports on market risk should appropriately address potential exposures to yield curve changes and other factors pertinent to the institution's holdings.

Credit Risk

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[3] Federal credit unions must comply with the investment monitoring requirements of 12 C.F.R. § 703.90. See 62 FR 32989 (June 18, 1997).

Broadly defined, credit risk is the risk that an issuer or counterparty will fail to perform on an obligation to the institution. For many financial institutions, credit risk in the investment portfolio may be low relative to other areas, such as lending. However, this risk, as with any other risk, should be effectively identified, measured, monitored, and controlled.

An institution should not acquire investments or enter into derivative contracts without assessing the creditworthiness of the issuer or counterparty. The credit risk arising from these positions should be incorporated into the overall credit risk profile of the institution as comprehensively as practicable. Institutions are legally required to meet certain quality standards (i.e., investment grade) for security purchases. Many institutions maintain and update ratings reports from one of the major rating services. For non-rated securities, institutions should establish guidelines to ensure that the securities meet legal requirements and that the institution fully understands the risk involved. Institutions should establish limits on individual counterparty exposures. Policies should also provide credit risk and concentration limits. Such limits may define concentrations relating to a single or related issuer or counterparty, a geographical area, or obligations with similar characteristics.

In managing credit risk, institutions should consider settlement and pre-settlement credit risk. These risks are the possibility that a counterparty will fail to honor its obligation at or before the time of settlement. The selection of dealers, investment bankers, and brokers is particularly important in effectively managing these risks. The approval process should include a review of each firm's financial statements and an evaluation of its ability to honor its commitments. An inquiry into the general reputation of the dealer is also appropriate. This includes review of information from state or federal securities regulators and industry self-regulatory organizations such as the National Association of Securities Dealers concerning any formal enforcement actions against the dealer, its affiliates, or associated personnel.

The board of directors is responsible for supervision and oversight of investment portfolio and end-user derivatives activities, including the approval and periodic review of policies that govern relationships with securities dealers.

Sound credit risk management requires that credit limits be developed by personnel who are as independent as practicable of the acquisition function. In authorizing issuer and counterparty credit lines, these personnel should use standards that are consistent with those used for other activities conducted within the institution and with the organization's over-all policies and consolidated exposures.

Liquidity Risk

Liquidity risk is the risk that an institution cannot easily sell, unwind, or offset a particular position at a fair price because of inadequate market depth. In specifying

permissible instruments for accomplishing established objectives, institutions should ensure that they take into account the liquidity of the market for those instruments and the effect that such characteristics have on achieving their objectives. The liquidity of certain types of instruments may make them inappropriate for certain objectives. Institutions should ensure that they consider the effects that market risk can have on the liquidity of different types of instruments under various scenarios. Accordingly, institutions should articulate clearly the liquidity characteristics of instruments to be used in accomplishing institutional objectives.

Complex and illiquid instruments can often involve greater risk than actively traded, more liquid securities. Oftentimes, this higher potential risk arising from illiquidity is not captured by standardized financial modeling techniques. Such risk is particularly acute for instruments that are highly leveraged or that are designed to benefit from specific, narrowly defined market shifts. If market prices or rates do not move as expected, the demand for such instruments can evaporate, decreasing the market value of the instrument below the modeled value.

Operational (Transaction) Risk

Operational (transaction) risk is the risk that deficiencies in information systems or internal controls will result in unexpected loss. Sources of operating risk include inadequate procedures, human error, system failure, or fraud. Inaccurately assessing or controlling operating risks is one of the more likely sources of problems facing institutions involved in investment activities.

Effective internal controls are the first line of defense in controlling the operating risks involved in an institution's investment activities. Of particular importance are internal controls that ensure the separation of duties and supervision of persons executing transactions from those responsible for processing contracts, confirming transactions, controlling various clearing accounts, preparing or posting the accounting entries, approving the accounting methodology or entries, and performing reevaluations.

Consistent with the operational support of other activities within the financial institution, securities operations should be as independent as practicable from business units. Adequate resources should be devoted, such that systems and capacity are commensurate with the size and complexity of the institution's investment activities. Effective risk management should also include, at least, the following:

> **Valuation.** Procedures should ensure independent portfolio pricing. For thinly traded or illiquid securities, completely independent pricing may be difficult to obtain. In such cases, operational units may need to use prices provided by the portfolio manager. For unique instruments where the pricing is being provided

by a single source (e.g., the dealer providing the instrument), the institution should review and understand the assumptions used to price the instrument.

Personnel. The increasingly complex nature of securities available in the marketplace makes it important that operational personnel have strong technical skills. This will enable them to better understand the complex financial structures of some investment instruments.

Documentation. Institutions should clearly define documentation requirements for securities transactions, saving and safeguarding important documents, as well as maintaining possession and control of instruments purchased.

An institution's policies should also provide guidelines for conflicts of interest for employees who are directly involved in purchasing and selling securities for the institution from securities dealers. These guidelines should ensure that all directors, officers, and employees act in the best interest of the institution. The board may wish to adopt policies prohibiting these employees from engaging in personal securities transactions with these same securities firms without specific prior board approval. The board may also wish to adopt a policy applicable to directors, officers, and employees restricting or prohibiting the receipt of gifts, gratuities, or travel expenses from approved securities dealer firms and their representatives.

Legal Risk

Legal risk is the risk that contracts are not legally enforceable or documented correctly. Institutions should adequately evaluate the enforceability of its agreements before individual transactions are consummated. Institutions should also ensure that the counterparty has authority to enter into the transaction and that the terms of the agreement are legally enforceable. Institutions should further ascertain that netting agreements are adequately documented, executed properly, and are enforceable in all relevant jurisdictions. Institutions should have knowledge of relevant tax laws and interpretations governing the use of these instruments.