Nebraska Innovative Charter Examination Manual

Nebraska Department of Banking and Finance

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Credits and Acknowledgments

This examination manual is the work product of the Nebraska Department of Banking and Finance and represents guidance to examiners and to industry participants as to the supervision and oversight of digital asset depositories chartered under the Nebraska Financial Innovation Act. As this area of the financial industry is dynamic in nature and subject to rapidly evolving and advancing technological changes, this manual is expected to change and adapt over time, to ensure that the Department's supervision and oversight remains up-to-date and relevant. This is to ensure the safety and soundness of the financial industry in the State of Nebraska.

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Disclaimer

This manual is intended for regulatory use and does not constitute legal or investment advice. While efforts have been made to ensure accuracy, examiners and industry participants should refer to applicable laws, regulations, and interagency guidance.

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Introduction

The digital asset industry is growing rapidly. This growth provides for a multitude of economic opportunities and advancements. The Nebraska Financial Innovation Act (NFIA) aspires to foster a friendly economic atmosphere within the State of Nebraska. Along with a prospering economy, the NFIA seeks to bring high-tech jobs and digital asset operations to the State, pair young talent with private investors, provide a valuable service to innovators and customers, and foster safe and sound practices within the digital asset financial sector.

The reliability of funds is, and will remain, an ongoing discussion within the financial services sector. Many may consider digital assets not to be a part of the banking sector. However, when looking at the fundamentals of banking, the primary services include a payment system, a method to lend, and a system to collect money or assets.

Leveraging these activities, digital asset depositories are considered digital asset banks in the State of Nebraska. Blockchain technology has transformed financial services by enabling guaranteed instantaneous payments. This is of value because it ensures that funds are reliable, and that businesses and consumers alike are sending and receiving payment for their goods and/or services. Furthermore, blockchain technology allows for self-custody and does not rely on intermediaries that tend to delay the collection of funds.

The following Nebraska Innovative Charters (NIC) Exam Manual has been adapted from the Federal Deposit of Insurance Corporation (FDIC) Exam Manual. All NICs shall be required to adhere to Neb. Rev. Stat. §8-3005, §8-3006, and §8-3010. Additionally, the term "NIC" shall mean all digital asset depositories which includes both digital asset depository departments and digital asset depository institutions.

For the purposes of the NIC Exam Manual, in accordance with Neb. Rev. Stat. §8-3003:

- Blockchain means a distributed digital record of controllable electronic record transactions;
- Controllable electronic borrowing means an electronic record that can be subjected to control. The term has the same meaning as digital asset and does not include electronic chattel paper, electronic documents, investment property, and transferable records under the Uniform Electronic Transactions Act;
- Controllable electronic record exchange means a business that allows customers to purchase, sell, convert, send, receive, or trade digital assets for other digital assets;
- Controllable electronic record lending means the act of providing digital assets to a borrower in exchange for digital assets, interest, fees, or rewards;
- Controllable electronic records staking means the act of pledging a digital asset or token with an expectation of gaining digital assets, interest, fees, or other rewards on such act;
- Customer means a digital asset depositor or digital asset account holder;
- Decentralized finance means digital asset exchanges, businesses, or organizations operating independently on blockchains;
- Digital asset depository means a financial institution that securely holds liquid assets when such assets are in the form of controllable electronic records, either as a corporation organized, chartered, and operated pursuant to the Nebraska Financial Innovation Act as a digital asset depository institution or a financial institution operating a digital asset depository business as a digital asset depository department under a charter granted by the director;
- Digital asset depository department means a financial institution operating a digital asset depository business as a digital asset depository department under a charter granted by the director;
- Digital asset depository institution means a corporation operating a digital asset depository business organized and chartered pursuant to the Nebraska Financial Innovation Act;
- Stablecoin means a controllable electronic record designed to have a stable value that is backed by a reserve asset.

Further, NDBF considers the term "loan" to include all access to funds based upon the time value of money to include those settled by means of electronic lending products, including, but not limited to, DeFi lending products and services, controllable electronic record exchange, controllable electronic record staking, controllable electronic record lending, and controllable electronic borrowing as pursuant to Neb. Rev. Stat. §8-3003.

Finally, as the NFIA implements restrictions on a digital asset depository institution's ability to take deposits of fiat currency, references to "deposit(s)" herein include traditional and non-traditional deposits.

Examination Overview

The Nebraska Department of Banking and Finance (NDBF) uses a risk-based approach to conduct its safety and soundness examinations. NICs will be examined using this risk-based approach. Each NIC will be evaluated on ten individual components which will result in two composite scores. The first six components make up the "CAMELS" risk-based examination. The last four components make up the "GNAT" risk-based examination. Each are detailed further in the following sections and throughout the examination manual. The goal of the NDBF's examination manual is to aid examiners and help NICs navigate the examination process as well as to proactively identify, measure, and monitor applicable risk effectively.

Pre-Examination

Before the examination begins, NDBF will reach out to the NIC's primary contact about setting an examination date. At this time, an asset review date and a financial review date will be established. The start date of the examination will take place on the date set by NDBF in cooperation with the NIC's primary contact. Other start dates may be present for GNAT, AML/CFT, IT, and Trust examinations, as applicable.

NDBF will request the primary points of contact for each operational department of the NIC to help the examination run in the most efficient way possible. NDBF will inquire about potential conflicts in scheduling, any primary board or management changes, new products and/or services, dress code expectations, hours of operation, and operational location(s).

About one month before the start date of the examination, NDBF will reach out to the NIC's primary contact to request loans and send a request list for all the documentation that will be needed for the examination. NDBF examiners will begin to scope loans and start their off-site review one to two weeks before the official start date of the safety and soundness examination. At the start date of the safety and soundness examination, NDBF examiners will be on-site at the NIC.

CAMELS

The CAMELS risk-based examination has six components including: Capital, Asset Quality, Management, Earnings, Liquidity and Funds Management, and Sensitivity to Market Risk. Each component looks at the viability of the NIC based on regulatory guidelines, oversight by management, financial operations, and the level of risk.

Examiners will investigate the overall operations of the NIC, based on these factors, and assign "ratings" ranging from 1 (strong) to 5 (critically deficient). NICs will recognize weaker ratings for deficiencies found in each component. This is to reflect the greater risk within the NIC that could result in practices that are not safe and sound.

After evaluating each individual component, the examiners will assign each component a rating. Each individual component rating will influence the "composite" rating that is given for the CAMELS risk-based examination. After assigning the individual component ratings, the final composite rating will be assigned.

GNAT

The GNAT risk-based examination has four components including: Governance, Network, Asset, and Tokenization. Each component in this risk-based examination will look specifically at the operations surrounding the NIC's digital asset business. This examination will be based upon regulatory guidelines, actions taken by management, the financial operations, and the level of risk.

Examiners will investigate the overall operations of the digital asset business based on each of the above factors and assign "ratings" ranging from 1 (strong) to 5 (critically deficient). NICs will recognize weaker ratings for deficiencies found in each component. This is to reflect the greater risk within the digital asset business that could result in practices that are not safe and sound.

After evaluating each individual component, the examiners will assign each component a rating. Each individual component rating will have an influence on the "composite" rating that is given for the GNAT risk-based examination. After assigning the individual component ratings, the final composite rating will be assigned.

Post-Examination

After the examination, a Report of Examination (ROE) will be written by the examiners. This ROE will be presented to the NIC's board of directors and senior management team. The ROE will contain sections that are strictly confidential and are only to be reviewed by the Board and senior management team.

The ROE may detail recommendations for and commitments from the Board and/or senior management to make adjustments to some operational practices within the NIC. Such recommendations and commitments will be detailed within each individual component section of the ROE. The ROE will also include a section requiring the acknowledgement of the examination and respective ratings.

Any recommendations and commitments will be expected to be completed within the timelines outlined and should be completed by the time of the next examination. Failure to implement the recommendations and/or ignorance of such recommendations could result in a ratings downgrade due to an increased risk to the safety and soundness of the NIC.

CAPITAL

Introduction

Capital serves four essential functions:

- **Absorbs Losses:** Capital allows NICs to continue operating during periods when operating losses or other adverse financial results are experienced.
- **Promotes Public Confidence:** Capital provides a measure of assurance to the public that a NIC will continue to provide financial services even when losses have been incurred, thereby helping to maintain confidence in the financial system and minimize liquidity concerns.
- **Restricts Excessive Asset Growth:** Capital, along with Statement of Policy (SOP) #3, Minimum Capital Requirements, can act as a constraint on expansion by requiring that asset growth be funded by a commensurate amount of capital.
- **Protects Depositors and Contagion:** Placing owners at significant risk of loss, should the NIC fail, helps to minimize the potential for moral hazard, and promotes safe and sound banking practices.

NDBF places high importance on capital adequacy. Capital supports prudent asset growth and promotes public confidence; while helping the financial industry absorb unexpected losses and remain viable in times of stress. Since capital adequacy assessments are central to the supervisory process, examiners evaluate all aspects of a NIC's risk profile and activities to determine whether its capital levels are appropriate and in compliance with minimum regulatory requirements.

Capital Planning

Management performs capital planning to ensure that capital protection is commensurate with the NIC's financial condition, business and growth plans, holding company support (if applicable), and projected capital distributions. The sophistication of capital planning can vary depending on a NIC's size and complexity, as well as its products and business lines. Capital planning is essential for setting an appropriate capital cushion, establishing asset growth and funding targets, pursuing new products or markets, and determining whether dividends returning capital to shareholders are appropriate and reasonable.

NIC management typically supports capital plans with realistic assumptions about prospective asset quality, earnings performance, and other business considerations. Management has a number of matters to consider when devising a capital plan, including budgets and strategic plans, expectations for loan quality through a full economic cycle, merger and acquisition objectives, and competition within the NIC's markets. Management of these innovative charters, in particular, should use stress testing to help inform their capital plans by assessing the impact of plausible events or circumstances that could increase exposure to losses.

During supervisory reviews, examiners should discuss the capital planning process with management to understand how they established current and prospective capital levels. Examiners will consider the board of directors' involvement in developing these plans, and whether capital levels can support asset exposures, various business cycles, and potential stress conditions.

Regulatory Capital Requirements

Regulatory capital requirements have evolved as innovations in financial instruments and investment activities introduced greater complexity to the banking and financial industry. Regulatory capital rules set forth minimum capital ratio requirements and generally follow a framework of standards adopted by the Basel Committee on Banking Supervision (BCBS), an international standard-setting body that deals with various aspects of bank supervision. NDBF has adopted minimum capital requirements that leverage federal guidance, such as Prompt Corrective Action (PCA). Additionally, statutory actions by Congress can set the direction and content of regulatory capital regulations and policy. Standards set forth by the Financial Accounting Standards Board may also influence domestic regulatory capital regulations.

The purpose of minimum capital requirements is to promote the highest quality forms of perpetual, loss absorbing capital (like common equity, related surplus, and retained earnings), while limiting the reliance on and permissibility of lower quality forms of capital (such as hybrid or debt-like issuances and trust preferred securities).

Therefore, NDBF has leveraged interagency guidance regarding minimum capital requirements, which applies to all NICs. Moreover, NDBF has leveraged the 2013 capital rules contained in Part 324 of the FDIC Rules and Regulations. Part 324 defines capital elements, establishes risk-weighting approach for determining capital requirements under the standardized and advanced approaches, and sets PCA standards that prescribe supervisory action for NICs that are not adequately capitalized.

Components of Capital

Part 324 establishes two broad components of capital which are known as Tier 1 capital and Tier 2 capital. Tier 1 capital is the predominant form of capital in the U.S. and represents the sum of Common Equity Tier 1 Capital and Additional Tier 1 Capital. Tier 2 Capital includes several less subordinated capital instruments (i.e., less subordinated than Tier 1 Capital instruments) and balance sheet items that are not allowable in Tier 1 Capital. Components Tier 1 and Tier 2 Capital are used to calculate minimum regulatory capital ratios described in Part 324 and are described in more detail below.

Common Equity Tier 1 Capital

Common Equity Tier 1 Capital is the most loss-absorbing form of capital. It includes qualifying common stock and related surplus net of treasury stock; retained earnings; certain Accumulated Other Comprehensive Income (AOCI) elements if NIC management does not make an AOCI opt-out election, plus or minus regulatory deductions or adjustments as appropriate; and qualifying Common Equity Tier 1 minority interests. NDBF expects majority of Common Equity Tier 1 Capital to be in the form of common voting shares and retained earnings.

For financial institutions subject to Part 324, applicable non-advanced approach institutions are able to make a permanent, one-time opt-out election, enabling them to calculate regulatory capital without AOCI. Such an election neutralizes the impact of unrealized gains or losses on balance sheet instruments, including available-for-sale bond portfolios, in the context of regulatory capital levels. To opt-out, institutions must have made a one-time permanent election on the March 31, 2015, Call Report. For institutions that did not or cannot opt-out, the AOCI adjustment to Common Equity Tier 1 Capital could have an impact on regulatory capital ratios if significant bond portfolio appreciation or depreciation is encountered.

Part 324 requires that several items be fully deducted from Common Equity Tier 1 Capital, such as goodwill, deferred tax assets (DTAs) that arise from net operating loss and tax credit carry-forwards, other intangible assets (except for mortgage servicing assets (MSAs)), certain DTAs arising from temporary differences (temporary difference DTAs), gains on sale of securitization exposures, and certain investments in another financial NIC's capital instruments.

Non-advanced approaches that NIC management should consider include threshold deductions for three specific types of assets: investments in the capital of NICs, MSAs, and temporary difference DTAs. Generally, management must deduct the amount of exposure to these types of assets, by category that exceeds 25 percent of a base Common Equity Tier 1 Capital calculation. The amounts of MSAs and temporary difference DTA threshold items not deducted are assigned a 250 percent risk-weight, while investments in the capital of unconsolidated financial NICs that are not deducted get assigned a risk-weight determined by the type of asset exposure (e.g., common stock, preferred stock, sub-debt).

Additional Tier 1 Capital

Additional Tier 1 Capital includes qualifying noncumulative perpetual preferred stock, bank-issued Small Business Lending Fund (SBLF) and Troubled Asset Relief Program (TARP) instruments that previously qualified for tier 1 capital, and qualifying tier 1 minority interests, less certain investments in other unconsolidated financial institutions' instruments that would otherwise qualify as additional tier 1 capital.

Tier 2 Capital

Under the generally applicable rule, Tier 2 Capital includes the Allowance for Credit Losses (ACL) up to 1.25 percent of risk-weighted assets, qualifying preferred stock, subordinated debt, and qualifying Tier 2 minority interests, less any deductions in the Tier 2 instruments of an unconsolidated financial institution. The term Allowance for Credit Losses (ACL) as used in ASC Topic 326 applies to most financial assets, including available-for-sale (AFS) debt securities.

Deductions and Limits

Investments in the capital instruments of another financial institution, such as common stock, preferred stock, subordinated debt, and trust preferred securities might need to be deducted from each tier of capital.

For advanced approaches a NIC's investments in the capital of unconsolidated financial institutions must be analyzed to determine whether they are significant or non-significant, which depends on the percentage of common stock a NIC owns in another financial institution. For example, if a NIC were to own 10 percent or less of another institution's common shares, the investment would be considered non-significant. However, if a NIC were to own greater than 10 percent of another institution's common shares, the investment would be considered significant.

In most cases, threshold-based deductions for all NICs will be made from the tier of capital for which an investment would otherwise be eligible. To illustrate, if a NIC's investment is an instrument that qualifies as Tier 2 Capital, it is deducted from Tier 2 Capital. If it qualifies as an Additional Tier 1 Capital instrument, it is deducted from Additional Tier 1 Capital. If it qualifies as a Common Equity Tier 1 Capital instrument, it is deducted from Common Equity Tier 1 Capital. If the NIC does not have

sufficient Tier 2 Capital to absorb a deduction, then the excess amount is deducted from Additional Tier 1 Capital or from Common Equity Tier 1 Capital if there is insufficient Additional Tier 1 Capital.

To be included in capital, the instrument that gives rise to minority interest must qualify for a particular tier of capital. Non-advanced approaches are allowed to include Common Equity Tier 1, Tier 1, and total capital minority interest up to 10 percent of the NIC's total capital (before the inclusion of any limitations for Common Equity Tier 1 minority interest, Tier 1 minority interest, and total capital minority interest are based on the capital requirements and capital ratios of each of the NIC's consolidated subsidiaries that have issued capital instruments held by third parties.

Capital Ratios

Minimum capital requirements for NICs are based on a combination of risk- based and leverage ratio calculations. NDBF is leveraging Part 324's risk-based requirements set minimum ratios for the Common Equity Tier 1, Tier 1 Risk-Based, and Total Risk-Based Capital Ratios as described in the following sections. A single leverage ratio of Tier 1 Capital to Average Total Assets is also required.

A major difference between risk-based and leverage capital ratios is the denominator. The three risk-based ratios use risk-weightings to measure on- and off-balance sheet exposures and are aggregated as "total risk-weighted assets." These risk-weightings can vary across asset classes and exposures depending on their inherent risk. For instance, U.S. Treasury securities have a 0 percent risk weight, while a revenue bond issued by state and local governments in the United States would receive a 50 percent risk weight. Consequently, the unique nature of a NIC's permissible activities, products, and services could expose it to on or off-balance sheet items comprised of cryptocurrency and or stablecoins. Depending on type of category, these types of assets could be risk weighted up to 1,250 percent.

Separately, leverage ratios are based on average total assets. The numerator for the Leverage Capital Ratio is Tier 1 Capital. The numerators for the risk-based capital ratios are Common Equity Tier 1 Capital, Additional Tier 1 Capital, and Total Capital. Total Capital includes the ACL up to regulatory limits, as applicable.

Risk-Weighted Assets

In leveraging Part 324, it prescribes two approaches to risk weighting assets. The standardized approach, which all applicable NICs must use, and the advanced approaches, which are used by larger, more complex NICs subject to Part 324.

Standardized Approach

A NIC's balance sheet assets and credit equivalent amounts of off-balance sheet items are generally assigned to one of four risk categories (0, 20, 50, and 100 percent) according to the obligor, or if relevant, the guarantor or the nature of the collateral. Part 324, Subpart D (Risk-weighted Assets-Standardized Approach) sets forth the criteria for categorizing non-advanced approach institutions', as applicable, assets and off-balance sheet exposures for risk-weighting purposes.

Since the risk-weighting system was first introduced in the United States in the early 1990s, the general process of risk weighting assets has not changed. However, several changes implemented by the standardized approach involve risk-weights other than the 0, 20, 50, and 100 percent categories.

Past-Due Asset Risk-Weights

The standardized approach requires NICs to transition assets that are 90 days or more past due or on nonaccrual from their original risk-weight to 150 percent.

Structured Securities and Securitizations

Part 324 establishes sophisticated risk-weight approaches for securitization exposures and structured security exposures that are retained on- or off-balance sheet. Typical examples of securitization exposures include private label collateralized mortgage obligations (CMOs), trust preferred collateralized debt obligations, and asset-backed securities, provided there is tranching of credit risk. Generally, pass- through and government agency CMOs are excluded from the securitization exposure risk-weight approaches. For instance, the NIC can, at any time, risk weight a securitization exposure at 1,250 percent.

Securitization Due Diligence

Section 324.41(c) implements due diligence requirements for securitization exposures. The analysis must be commensurate with the complexity of the securitization exposure and the materiality of the exposure in relation to capital.

Under these requirements, management must demonstrate a comprehensive understanding of the features of a securitization exposure that would materially affect its performance. The due diligence analysis must be conducted prior to acquisition and at least quarterly as long as the instrument is in the NIC's portfolio.

When conducting analysis of a securitization exposure, management typically considers structural features, such as:

- Credit enhancements,
- Performance of servicing organizations,
- Deal-specific definitions of default, and
- Any other features that could materially impact the performance of the exposure.

Management also typically assesses relevant performance information of the underlying credit exposures, such as:

- Past due payments
- Prepayment rates
- Property types
- Average loan-to-value ratios
- Geographic and industry diversification
- Relevant market data information, such as bid ask spreads
- Recent sale prices
- Trading volumes
- Historic price volatility
- Implied market volatility; and
- The size, depth, and concentration level of the market for the securitization.

For re-securitization exposures, management will typically assess the performance on underlying securitization exposures.

If management is not able to demonstrate sufficient understanding of a securitization exposure, per Section 324.41(c)(1) the institution must assign the exposure a 1,250 percent risk-weight.

Equity Risk-Weights

Part 324 assigns various risk-weights for equity investments. For NICs that are permitted to hold publicly traded equities, the risk-weight for these assets ranges from 100 to 300 percent. A risk-weight of 400 percent is assigned to non-publicly traded equity exposures. A risk-weight of 600 percent is assigned to investments in a hedge fund or investment fund that has greater than immaterial leverage. In addition, NICs may assign a 100 percent risk-weight to the aggregate adjusted carrying value of certain equity exposures that do not exceed 10 percent of the NIC's total capital. To qualify for the 100 percent risk-weight, a NIC must include the following equity exposures in the following order up to 10 percent of total capital: first include equity exposures to unconsolidated small business investment companies or held through consolidated small business investment companies described in Section 302 of the Small Business Investment Act, then include publicly traded equity exposures (including those held indirectly through investment funds), and then include non-publicly traded equity exposures (including those held indirectly through investment funds).

Cryptocurrency and Stablecoins

Under the Basel III framework, the risk weight assigned to cryptoassets, including cryptocurrencies and stablecoins, depends upon their classification into two main groups: Group 1 Cryptoassets and Group 2 Cryptoassets.

Group 1 Cryptoassets: These include tokenized traditional assets and certain stablecoins that meet specific classification conditions. For stablecoins to qualify as Group 1, they must pass a redemption risk test, ensuring that reserve assets are sufficient to always enable redemption at the peg value, including during periods of extreme stress. Additionally, the issuer must be supervised and regulated by an authority that applies prudential capital and liquidity requirements. When these conditions are met, the risk weight for such stablecoins is generally based on the risk weight of the underlying traditional asset.

Group 2 Cryptoassets: This category comprises cryptoassets that do not meet the Group 1 classification standards, including unbacked cryptocurrencies and stablecoins that fail to satisfy the necessary conditions. Group 2 is further stratified into subsections including the following:

- Group 2a: Cryptoassets that meet certain hedging recognition criteria. These are subject to capital requirements calculated using the market risk framework similar to foreign exchange and commodities risks.
- Group 2b: Cryptoassets that do not meet the hedging criteria. These are assigned a risk weight of 1,250 percent effectively requiring NICs to hold capital equivalent to the exposure amount as this risk weight is the reciprocal of the 8 percent minimum total capital ratio under Basel III.

Furthermore, NICs are generally expected to limit their aggregate exposure to Group 2 cryptoassets to less than or equal to 1 percent of Tier 1 Capital. Exceeding this limit could result in more prudent capital requirements. Moreover, it's important to note that the following capital standards are subject to change depending upon the various jurisdictions. Lastly, the risk weight of cryptoassets varies based on their classification, with

certain stablecoins potentially receiving a risk weight similar to the underlying securities, while unbacked cryptocurrencies and non-qualifying stablecoins may be assigned a risk weight of 1,250 percent.

Off-Balance Sheet Exposures

The risk-weighted amounts for all off-balance sheet items are determined by a two-step process. First, the "credit equivalent amount" is determined by multiplying the face value or notional amount of the off-balance sheet item by a credit conversion factor. A table contained in Part 324 shows the conversion factors. This process effectively turns an off-balance sheet exposure into an on-balance sheet amount for risk-based calculation purposes only. Next, the appropriate risk-weight (based on the risk category of the exposure) is applied to the credit equivalent amount, like any other balance sheet asset. Refer to Part 324 for more details.

Minimum Capital Requirements

As defined in SOP #3: Minimum Capital Requirements, NIC's must maintain the following minimum capital ratios under the generally applicable capital rule. These requirements are identical to those for national and state member institutions.

- Tier 1 Capital to Average Total Assets ratio (Leverage Ratio) of 5 percent, and
- Total Capital to Total Risk-Weighted Assets ratio of 10 percent

In the event a NIC falls below the minimum capital requirements promulgated in SOP #3: Minimum Capital Requirements, it will be subject to Prompt Corrective Action (PCA). In addition to the minimum capital requirement thresholds listed above, the NDBF will also consider the following factors that could trigger PCA:

- The risk associated with, but not limited to, the products, services, payment systems, and technology included within the charter's line of business, strategic plan, capital plan, and budget.
- Peer digital asset institution(s) and data of the institution(s), which may include state and federal financial institutions.
- Past, present, and future economic and market conditions and indicators.
- Potential direct or indirect costs of receivership, or voluntary dissolution as described in Neb. Rev. Stat. §8-3028; and
- Minimum capital requirements.

Additionally, the NDBF generally determines charters that are less than adequately capitalized to be those that exhibit the following:

- Total Risk-Based Capital ratio of less than 8 percent
- Tier 1 Risk-Based Capital ratio of less than 6 percent
- Common Equity Tier 1 Capital ratio of below 4.5 percent
- Leverage ratio of less than 4 percent; and
- Does not meet the definition of a well-capitalized as outlined in SOP #3: *Minimum Capital Requirements.*

Capital Conservation Buffer

The capital conservation buffer is designed to strengthen a NIC's financial resilience during economic cycles. NICs under the generally applicable capital rule are required to maintain a capital conservation buffer of greater than 2.5 percent in order to avoid restrictions on capital distributions and other payments. The NDBF has leveraged Part 324, which requires applicable financial institutions to meet their capital conservation buffer requirement with Common Equity Tier 1 Capital.

If a NIC's capital conservation buffer falls below the amount listed in the table below, its maximum payout amount for capital distributions and discretionary payments declines to a set percentage of eligible retained income based on the size of the NIC's buffer.

Capital Conservation Buffer (% of RWA)	**Maximum Payout Ratio (% of Eligible Retained Income)**
Greater than 2.5%	No payout limitation
Less than or equal to 2.5% and greater than 1.875%	60%
Less than or equal to 1.875% and greater than 1.25%	40%
Less than or equal to 1.25% and greater than 0.625%	20%
Less than or equal to 0.625%	0%

The types of payments subject to the restrictions include dividends, share buybacks, discretionary payments on tier 1 instruments, and discretionary bonus payments. It is important to note that the NDBF and potentially federal regulators have the authority to impose further restrictions to help ensure that capital is commensurate with the NIC's risk profile.

NICs cannot make capital distributions or certain discretionary bonus payments during the current calendar quarter if its eligible retained income is negative, and its capital conservation buffer was less than 2.5 percent as of the end of the previous quarter. Eligible retained income is the greater of (1) a NIC's net income, calculated in accordance with the instructions to the Call Report, for the four calendar quarters preceding the current calendar quarter, net of any distributions and associated tax effects not already reflected in net income; and (2) the average of the NIC's net income, calculated in accordance with the instructions to Call Report, for the four calendar quarters preceding the current calendar quarter.

To calculate the capital conservation buffer for a given quarter, each minimum risk-based capital requirement in Part 324 is subtracted from the NIC's corresponding capital ratios. The following ratios would be subtracted from the NIC's corresponding ratio to derive the buffer amount:

- Common equity tier 1 risk-based capital ratio minus
- 4.5 percent
- Tier 1 risk-based capital ratio minus 6 percent; and
- Total risk-based capital ratio minus 8 percent.

The lowest of the three measures would represent the NIC's capital conservation buffer and is used to determine its maximum payout for the current quarter. To the extent a NIC's capital conservation buffer is 2.5 percent or less of risk-weighted assets, the NIC's maximum payout amount for capital distributions and discretionary payments would decline. Examiners should be aware that a NIC's minimum capital ratios plus a capital conservation buffer of 2.5 percent results in a capital requirement that is 50 basis points greater than the PCA well-capitalized ratio levels. For example, to avoid restrictions under the capital conservation buffer, a NIC must have a total risk-based capital ratio of 10.5 percent, whereas to be well-capitalized under PCA a NIC must have a total risk-based capital ratio of 10 percent.

The NDBF may permit a NIC that is otherwise limited from making distributions and discretionary bonus payments to make a distribution or discretionary bonus payment upon a NIC's request, if the NDBF determines that the distribution or discretionary bonus payment would not be contrary to the purposes of this section, or to the safety and soundness of the NIC.

Prompt Corrective Action

Subject to the Generally Applicable Capital Rule

The NIC is subject to the following table, which summarizes the PCA categories.

PCA Category	Total RBC Ratio	Tier 1 RBC Ratio	Common Equity Tier 1 RBC Ratio	Tier 1 Leverage Ratio
Well Capitalized	≥ 10%	≥ 8%	≥ 6.5%	≥ 5%
Adequately Capitalized	≥ 8%	≥ 6%	≥ 4.5%	≥ 4%
Undercapitalized	< 8%	< 6%	<4.5%	< 4%
Significantly Undercapitalized	< 6%	< 4%	< 3%	< 3%
Critically Undercapitalized	Tangible Equity/Total Assets ≤ 2%			

Any NIC that does not meet the minimum PCA requirements may be deemed to be in violation of NDBF's SOP #3: Minimum Capital Requirements and SOP #4: Prompt Corrective Action, and engaged in an unsafe or unsound practice, unless NIC management has entered into and is in compliance with a written plan approved by the NDBF. In addition, NDBF may reclassify a well-capitalized NIC as adequately capitalized or require an adequately capitalized or undercapitalized NIC to comply with certain mandatory or discretionary supervisory actions as if the NIC were in the next lower PCA category.

Other Regulatory Requirements

Examiners should be aware of other regulatory requirements that may address capital, which include but are not limited to:

Topic	Rule
Risk-Based Insurance Premiums	Part 327 of the FDIC Rules and Regulations
Brokered Deposits and Interest Rate Restrictions	Sections 337.6 and 337.7 of the FDIC Rules and Regulations
Limits on Extensions of Credit to Insiders	Section 337.3 of the FDIC Rules and Regulations and FRB Regulation O
Activities and Investments Insured State Nonmember	Part 362 of the FDIC Rules and Regulations
Limitations on Interbank Liabilities	Part 206 of FRB Regulations
Limitations on Federal Reserve Discount Window Advances	Section 10B of the Federal Reserve Act
Grounds for Appointing of Conservator or Receiver	Section 11(c)(5) of the Federal Deposit Insurance Act (FDI Act)

Examination-Identified Deductions from Common Equity Capital

Identified Losses and Insufficient Allowances

In leveraging Part 324, it provides that, on a case-by-case basis, deductions from capital may be required. The definition of Common Equity Tier 1 Capital specifically provides for the deduction of identified losses, such as items classified "Loss", any provision expenses that are necessary to replenish the ACL, as applicable, to an appropriate level, estimated losses in contingent liabilities, differences in accounts which represent shortages, and liabilities not shown on books. Losses attributed to a criminal violation may also need to be deducted from capital. Additionally, for the calculation of capital ratios, assets may need to be adjusted for certain identified losses.

When it is deemed appropriate during an examination to adjust capital for items classified as "Loss" or for an insufficient ACL, as applicable, the following method should be used.

- Deduct the amount of Loss for items other than held- for-investment loans and leases in the calculation of Common Equity Tier 1 Capital. If other real estate (ORE) valuation allowances exist, refer to the discussion of Other Real Estate Valuation Allowances below.
- Deduct the amount of Loss for held-for-investment loans and leases from the ACL, as applicable, in the calculation of Tier 2 Capital.

If the ACL is considered insufficient, an estimate of the provision expense needed for an appropriate ACL, should be made. The estimate is made after identified losses have been deducted from the ACL, as applicable. Loans and leases classified as "Doubtful" should not be directly deducted from capital. Rather, any deficiency in the ACL related to assets classified "Doubtful" should be included in the evaluation and accounted for as part of the insufficient ACL adjustment. An adjustment from Common Equity Tier 1 Capital to Tier 2 Capital for the provision expenses necessary to adjust the ACL to an appropriate level should be made when the amount is significant.

This method avoids adjustments that may otherwise result in a double deduction (e.g., for loans classified as "Loss"), particularly when Common Equity Tier 1 Capital already has been effectively reduced through provision expenses recorded in the ACL, as applicable. Additionally, this method addresses situations where NIC management overstated the amount of Common Equity Tier 1 Capital by failing to take necessary provision expenses to establish and maintain an appropriate ACL.

Other Real Estate Valuation Allowances

ORE valuation allowances are not recognized as a component of regulatory capital. However, these valuation allowances should be considered when accounting for ORE that is classified Loss. To the extent ORE valuation allowances appropriately cover the risks inherent in any individual ORE properties classified as "Loss", there would not be a deduction from Common Equity Tier 1 Capital. The ORE Loss in excess of ORE valuation allowances should be deducted from Common Equity Tier 1 Capital under Assets Other Than Held-for-Investment Loans and Leases Classified Loss.

Liabilities Not Shown on Books

Non-book liabilities have a direct bearing on capital adjustments. These definite and direct, but un-booked liabilities (contingent liabilities are treated differently) should be carefully verified and supported by factual comments. Examiners should recommend that NIC records be adjusted so that all liabilities are properly reflected. Deficiencies in a NIC's accrual accounting system, which are of such magnitude that the NIC's capital accounts are significantly overstated, constitutes an example of non-book liabilities for which an adjustment should be made in the examination capital analysis. Similarly, an adjustment to capital should be made for material, deferred tax liabilities or for a significant amount of unpaid items that are not reflected on the NIC's books.

Capital Adequacy

The NDBF's authority to enforce capital standards at NICs includes the use of written agreements, capital directives, and discretionary actions. Specific recommendations regarding capital adequacy should not be made solely on the examiner's initiative. Coordination between the examiner and the regional office is essential in this area. If the level or trend of the NIC's capital position is adverse, the matter should be discussed with management with a comment included in the examination report. It is particularly important that management's plans to correct the capital deficiency be accurately assessed and noted in the report, along with the examiner's assessment of the feasibility and sufficiency of those plans.

Fundamentally Sound and Well-Managed NICs

Minimum capital ratios are generally viewed as the minimum acceptable standards for NICs where the overall financial condition is fundamentally sound, which are well-managed, and which have no material or significant financial weaknesses. While the NDBF will make this determination based on each NIC's own condition and specific circumstances, the definition generally applies to those NICs evidencing a level of risk which is no greater than that normally associated with a CAMELS and GNAT Composite rating of 1 or 2. NICs meeting this definition, which are in compliance with the minimum capital requirements, will not generally be required by the NDBF to raise new capital from external sources.

Less Than Adequately Capitalized NICs

NICs that fail to meet the applicable minimum capital requirements are often subject to CAMELS and GNAT component and composite downgrades, corrective programs with a provision to increase capital, and other supervisory measures. Less than well capitalized NICs are usually subject to heightened examination coverage. The key supervisory objective is to help management return the NIC to a well-capitalized, safe and sound financial position.

Problem NICs

When a NIC is exhibiting a level of risk at least as great as that normally associated with a composite rating of 3, 4, or 5, it will be required to maintain capital higher than the minimum regulatory requirement and at a level deemed appropriate in relation to the degree of risk within the NIC. These higher capital levels should normally be addressed through informal actions, such as Memoranda of Understanding (MOU), or, in cases of more pronounced risk, through the use of formal enforcement actions.

Capital Requirements of Primary Regulator

All NICs are expected to meet any capital requirements established by their primary federal or state regulator that exceed the minimum capital requirements set forth by regulation.

Capital Plans Required by Corrective Programs

NICs with insufficient capital in relation to their risk profile will often be required to submit a capital plan to the NDBF in conjunction with a formal enforcement action or other directive. The development of a capital plan is to help the board of directors formulate a plan for restoring capital adequacy. Capital plans may be requested informally through the supervisory process, a MOU, or other mandatory or discretionary supervisory action. Examiners should consider the necessity of recommending a capital plan if the adequacy of the capital position is in question. If a capital plan is in place, examiners should assess compliance with the plan and whether the outstanding capital plan remains appropriate.

Increasing Capital in NICs

To raise capital ratios, management of a NIC should increase capital levels or reduce asset growth to the point that the capital formation rate exceeds asset growth. The following sections describe alternatives to increasing the capital level in NICs.

Increased Earnings Retention

Management may attempt to increase earnings retention through a combination of higher earnings or lower cash dividend rates. Earnings may be improved, for example, by tighter controls over certain expense outlays; repricing of digital asset business products, services, fees, or service charges; upgrading lending standards and administration to reduce losses, or through various other adjustments. An increase in retained earnings will improve capital ratios assuming the increase exceeds asset growth.

Sale of Additional Capital Stock

Sometimes increased earnings retention is insufficient to address capital requirements, and the sale of new equity must be pursued. One adverse effect of this option is shareholder dilution. If the sale of additional stock is a consideration, examiners should indicate in the examination report the sources from which such funds might be obtained. This notation will be helpful as background data for preliminary discussions with the state banking supervisor and serves to inform the regional director as to the practical possibilities of new stock sales. The following information could be incorporated into the report, at the examiner's discretion:

- A list of present shareholders, indicating amounts of stock held and their financial worth. Small holdings may be aggregated if a complete listing is impractical.
- Information concerning individual directors relative to their capacity and willingness to purchase stock.
- A list of prominent customers and depositors who are not shareholders, but who might be interested in acquiring stock.
- A list of other individuals or possible sources of support in the community who, because of known wealth or other reasons, might desire to subscribe to new stock.

Any other data bearing upon the issue of raising new capital, along with the examiner's opinions regarding the most likely prospects for the sale of new equity, should be included in the confidential section of the examination report.

Contingent Liabilities

Contingent liabilities reflect potential claims on NIC assets. Any actual or direct liability that is contingent upon a future event or circumstance may be considered a contingent liability. Contingent liabilities are divided into two general categories. Category I contingent liabilities result in a concomitant increase in NIC assets if the contingencies convert to actual liabilities.

Category II contingent liabilities include those in which a claim on assets arises without an equivalent increase in assets. For example, pending litigation in which the NIC is the defendant or claims arising from fiduciary operations could reduce a NIC's cash or other assets.

Examination interest in contingent liabilities is predicated upon an evaluation of the impact contingencies may have on a NIC's condition. Contingent liabilities that are significant in amount or have a high probability of becoming direct liabilities must be considered when the NIC's component ratings are assigned. For example, the amount of contingent liabilities and the extent to which they may be funded must be considered in the analysis of liquidity.

Common Forms of Contingent Liabilities

Common types and characteristics of contingent liabilities encountered in examinations are discussed below. In all cases, the examiner's fundamental objectives are to ascertain the likelihood that such contingencies may result in losses to the NIC and assess the pending impact on its financial condition.

Litigation

If the NIC is involved in a lawsuit where the outcome may affect the NIC's financial condition, the examiner should include the facts in the examination report. Comments should address the essential points upon which the lawsuit is based, the total dollar amount of the plaintiff's claim, the basis of the NIC's defense, the status of any negotiations toward a compromise settlement, and the opinion of NIC management or counsel relative to the probability of a successful defense. In addition, corroboration of information and opinions provided by NIC management regarding significant lawsuits should be obtained from the NIC's legal counsel. At the examiner's discretion, references to lawsuits that are small or otherwise of limited consequence may be omitted from the examination report.

Determination of potential or estimated losses in connection with lawsuits is often difficult. There may be occasions where damages sought are of such magnitude

that, if the NIC is unsuccessful in its defense, it could be rendered insolvent. In such instances, examiners should consult NDBF legal counsel. All potential and estimated losses must be substantiated by comments detailing the specific reasons leading to the conclusion.

Fiduciary Activities

Contingent liabilities may develop within a NIC's fiduciary activities, products, services, or affiliate due to actions or inactions of the NIC acting in its fiduciary capacity. These contingencies may arise from failure to abide by governing instruments, court orders, generally accepted fiduciary standards, or controlling statutes and regulations. Deficiencies in administration can lead to lawsuits, surcharges, or other penalties that must be absorbed by the NIC's capital accounts. Therefore, the dollar volume and severity of such contingencies must be analyzed during the safety and soundness examination.

Evaluating Capital Adequacy

NICs are expected to meet all minimum capital requirements that are established by law and NDBF. Once minimum capital requirements are met, the evaluation of capital adequacy relies on factors that require a combination of analysis and judgment Each NIC's capital will be evaluated on its risk profile and overall financial condition. Generally, management of each NIC should maintain capital commensurate with the nature and extent of the NIC's risks, and the ability of management to identify, measure, monitor, and control those risks.

It is important to understand that what is considered an adequate level of capital for safety and soundness purposes may differ significantly from minimum leverage and risk-based standards, the definitions used for Prompt Corrective Action (PCA), and certain other capital-based rules. The minimums set forth in the leverage and risk-based capital standards may be sufficient for sound, well-run NICs. However, NIC's having significant problems and those with higher risk characteristics often require capital levels that are higher than the minimum capital requirements to sufficiently absorb unexpected losses. In all cases, examiners should assess whether NIC management maintains capital commensurate with the risk profile.

After determining a NIC meets minimum capital requirements, examiners should use judgment and financial analysis to assess capital adequacy. This analysis is based in large part on the following factors:

- Financial condition of the NIC,
- Quality of capital,
- Emerging needs for additional capital,
- Problem assets or liabilities,
- Balance sheet composition,
- Off-balance sheet risk exposures,
- Earnings and dividends,
- Digital asset products and services offered,
- Asset growth, and
- Access to capital sources.

Financial Condition of the NIC

The NIC's overall financial condition and risk management practices are important considerations when assessing capital adequacy. For example, asset quality problems can cause losses that deplete the stablecoin reserve or capital, and poor earnings can hinder capital formation. Additionally, NICs with weak policies, procedures, or management oversight may be unable to address financial risks. Furthermore, risk may not always be reflected in the current financial condition. Therefore, examiners should not rely solely on a NIC's current financial condition when determining capital adequacy and must assess management's ability to identify, measure, monitor, and control all material risks that may affect capital.

Examiners must review the NIC's internal capital adequacy assessments and stress testing. Stress tests should be conducted for certain large or complex NICs, and their results can help examiners understand management's perspective on credit, liquidity, earnings, and market risk.

Quality of Capital

The composition and quality of capital are important considerations when assessing capital adequacy. Higher quality capital available to absorb losses on a going-concern basis can enhance a NIC's resiliency. For instance, common equity is of higher quality than debt instruments because common equity is available to absorb losses as they occur, through retained earnings for example. Debt instruments are limited in their ability to absorb loss because they are not perpetual and so the NIC returns the capital to the investors at maturity.

Additionally, the NIC must impose losses on debt holders by defaulting on coupon payments.

Emerging Needs for Additional Capital

Management's ability to address emerging needs for additional capital depends on many factors. A few of these factors include earnings performance and growth plans, the financial capacity of the directorate, and the holding company's ability to inject capital. A combination of ratio analysis and examiner judgment is needed to evaluate these issues. As part of assessing capital adequacy, the impact of growth and strategic objectives should be considered.

Problem Assets

The nature, trend, and volume of problem assets and the appropriateness of the ACL, as applicable, are vital factors in determining capital adequacy.

Items to consider include:

- The type and level of problem assets,
- The efficacy of lending origination processes and portfolio administration,
- The level of the ACL, as applicable, and
- The NIC's methodology for establishing an appropriate ACL, as applicable.

Examiners should consider current examination findings relative to asset quality when assessing capital adequacy. Uniform Bank Performance Reports (UBPR) can also be useful to review when considering the level and trend of various credit quality indicators. When assessing the appropriateness of the ACL, as applicable, examiners should review the NIC's methodology in accordance with outstanding regulatory expectations and accounting pronouncements.

Balance Sheet Composition

The quality, type, and diversification of on- and off-balance sheet items must be considered when reviewing capital adequacy. Applicable capital guidelines and minimum regulatory ratios can help examiners determine the level of capital protection, but examiner judgment is required to assess overall capital adequacy. Additionally, regulatory capital ratios alone do not account for concentration risk, market risk, or risks associated with NIC activities. Examiner judgment is therefore an integral part of assessing a NIC's level of risk and management's ability to oversee those exposures.

Off-Balance Sheet Risk Exposures

Examiners should consider the risks associated with off-balance sheet activities when evaluating capital. For example, a NIC's capital needs can be significantly affected by the volume and nature of activities conducted in a fiduciary capacity. Fiduciary activities or other non-banking activities can expose a NIC to losses that could affect capital. Similarly, lawsuits against the NIC or other contingent liabilities, such as off-balance sheet credit commitments may indicate a need for greater capital protection and must be carefully reviewed.

Earnings and Dividends

A NIC's current and historical earnings record is one of the key elements to consider when assessing capital adequacy. Good earnings performance enables a NIC to fund asset growth and remain competitive in the marketplace while at the same time retaining sufficient equity to maintain a strong capital position.

The NIC's capital distribution practices are also important. Excessive dividends or share repurchases can negate strong earnings performance and result in a weakened capital position. Generally, earnings are first applied to eliminating losses and establishing necessary allowances and prudent capital levels. Thereafter, capital can be distributed in reasonable amounts. Examiners should also consider the extent that the parent relies on cash dividends to service debt and return capital to shareholders, and how this could affect the NIC's capital position in both good economic times and periods of stress.

Asset Growth

Management's ability to adequately plan for and manage growth is important with respect to assessing capital adequacy. A review of recent growth and future plans is a good starting point for this review. The examiner may want to compare asset growth to capital formation rates during recent periods and evaluate current budget and strategic planning in terms of growth plans and their potential impact on capital adequacy. If a NIC is experiencing rapid asset or account growth, examiners should closely review capital adequacy in relation to potential loss exposure, concentrations, and the impact of continued growth.

Access to Capital Sources

A NIC's access to capital sources, including existing shareholders and holding company support, is an important factor in analyzing capital. If management has ample access to capital on reasonable terms, the NIC may be able to operate with less capital than a NIC without such access. Indeed, the financial capacity of existing shareholders and strength of a holding company factor into capital access. If a NIC holding company previously borrowed funds to purchase newly issued stock of a subsidiary institution (a process referred to as double leverage), the holding company may be less able to provide additional capital because of its own debt service requirements. In such instances, the examiner's review should extend beyond standard ratio analysis to assess the NIC's access to capital sources including current market conditions for raising capital.

Rating the Capital Factor

The adequacy of a NIC's capital is one of the elements that examiners must determine to arrive at a composite rating in accordance with the Uniform Financial Institutions Rating System. This determination is a judgmental process that requires examiners to consider all of the subjective and objective variables, concepts, and guidelines that have been discussed throughout this section. Ratings are based on a scale of 1 through 5, with a rating of 1 indicating the strongest performance and risk management practices relative to the NIC's size, complexity, and risk profile, and the level of least supervisory concern. A 5 rating indicates the most critically deficient level of performance; inadequate risk management practices relative to the NIC's size, complexity, and risk profile; and the greatest supervisory concern.

Rating System

A NIC is expected to maintain capital commensurate with the nature and extent of risks to the NIC and the ability of management to identify, measure, monitor, and control these risks. The effect of credit, market, and other risks on the NIC's financial condition should be considered when evaluating the adequacy of capital. The types and quantity of risk inherent in a NIC's activities will determine the extent to which it may be necessary to maintain capital at levels above required regulatory minimums to properly reflect the potentially adverse consequences that these risks may have on the NIC's capital. The capital adequacy of a NIC is rated based upon, but not limited to, an assessment of the following evaluation factors:

- The level and quality of capital and the overall financial condition of the NIC.
- The ability of management to address emerging needs for additional capital.
- The nature, trend, and volume of problem assets, and the adequacy of allowances for loan and lease losses and other valuation reserves.
- Balance sheet composition, including the nature and amount of intangible assets, market risk, concentration risk, and risks associated with nontraditional activities.
- Risk exposure represented by off-balance sheet activities.
- The quality and strength of earnings, and the reasonableness of dividends.
- Prospects and plans for growth, as well as past experience in managing growth.
- Access to capital markets and other sources of capital, including support provided by a parent holding company.

Ratings

A rating of 1 indicates a strong capital level relative to the NIC's risk profile

A rating of a 2 indicates a satisfactory capital level relative to the NIC's risk profile

A rating of 3 indicates a less than satisfactory level of capital that does not fully support the NIC's risk profile. The rating indicates a need for improvement, even if the NIC's capital level exceeds minimum regulatory and statutory requirements.

A rating of 4 indicates a deficient level of capital. In light of NIC's risk profile, viability of the NIC may be threatened. Assistance from shareholders or other external sources of financial support may be required.

A rating of 5 indicates a critically deficient level of capital such that the NIC's viability is threatened. Immediate assistance from shareholders or other external sources of financial support is required.

ASSET QUALITY

Introduction

Asset quality is one of the most critical areas in determining the overall condition of a NIC. Overall, the primary factor affecting asset quality is the quality of the lending portfolio and the credit administration program. Controllable electronic lending products and services will typically comprise a majority of a NIC's assets and carry the greatest amount of risk to their capital. Securities may also comprise a large portion of the assets and contain significant risks. Other items which can impact asset quality are other real estate, other assets, off-balance sheet items and, to a lesser extent, cash and due from accounts, and premises and fixed assets.

Management often expends significant time, energy, and resources administering NIC assets. Problems within the lending portfolio can detract from the NIC's ability to successfully and profitably manage other areas of the NIC. Examiners should be diligent and focused when reviewing a NIC's assets, as they can significantly impact most other facets of the NIC's operations.

Prior to assigning an asset quality rating, several factors should be considered. The factors should be reviewed within the context of any local and regional conditions that might impact NIC performance. Also, any systemic weaknesses, as opposed to isolated problems, should be given appropriate considerations. The examiner should never look at things in a vacuum, instead, noting how the current level or status of each factor, described below, relates to previous and expected performance.

Evaluating Asset Quality

The asset quality rating reflects the quantity of existing and potential credit risk associated with the controllable electronic lending products and services, the assets backing outstanding stablecoin, other real estate owned, and other assets, as well as off-balance sheet transactions. The ability of management to identify and manage credit risk is also reflected here. The evaluation of asset quality should consider the adequacy of the ACL and weigh the exposure to counterparty, issuer, or borrower default under actual or implied contractual agreements. All other risks that may affect the value or marketability of a NIC's assets, including, but not limited to, operating, market, reputation, strategic, or compliance risks, should also be considered.

The asset quality of a NIC is rated based upon, but not limited to, an assessment of the following evaluation factors:

- The adequacy of underwriting standards, soundness of credit administration practices, and appropriateness of risk identification practices.
- The level, distribution, severity, and trend of problem, classified, nonaccrual, restructured, delinquent, and nonperforming assets for both on- and off-balance sheet transactions.
- The adequacy of the allowance for lending and lease losses and other asset valuation reserves.
- The credit risk arising from or reduced by off-balance sheet transactions, such as unfunded commitments, credit derivatives, commercial and standby letters of credit, and lines of credit.
- The diversification and quality of the controllable electronic lending and assets backing outstanding stablecoin investment portfolios.
- The extent of securities underwriting activities and exposure to counterparties in trading activities.
- The existence of asset concentrations.
- The adequacy of lending and investment policies, procedures, and practices.
- The ability of management to properly administer its assets, including the timely identification and collection of problem assets.
- The adequacy of internal controls and management information systems.
- The volume and nature of credit documentation exceptions.

Rating the Asset Quality Factor

A rating of 1 indicates strong asset quality and credit administration practices. Identified weaknesses are minor in nature and risk exposure is modest in relation to capital protection and management's abilities. Asset quality in such NICs is of minimal supervisory concern.

A rating of 2 indicates satisfactory asset quality and credit administration practices. The level and severity of classifications and other weaknesses warrant a limited level of supervisory attention. Risk exposure is commensurate with capital protection and management's abilities.

A rating of 3 is assigned when asset quality or credit administration practices are less than satisfactory. Trends may be stable or indicate deterioration in asset quality or an increase in risk exposure. The level and severity of classified assets, other weaknesses, and risks require an elevated level of supervisory concern. There is generally a need to improve credit administration and risk management practices.

A rating of 4 is assigned to NICs with deficient asset quality or credit administration practices. The levels of risk and problem assets are significant, inadequately controlled, and subject to the NIC to potential losses that, if left unchecked, may threaten its viability.

A rating of 5 represents critically deficient asset quality or credit administration practices that present an imminent threat to the NIC's viability.

MANAGEMENT

Introduction

The quality of management and the manner in which directors and senior management govern a NIC's affairs are critical factors in its successful operation. The term management includes the board of directors, which is elected by the shareholders, and executive or senior officers, who are appointed to their positions by the board. In the complex, competitive, and rapidly changing environment of financial institutions, it is extremely important for all members of NIC management to be aware of their responsibilities and to discharge those responsibilities in a manner which will ensure the stability, safety, and soundness of the NIC, so that it may continue to provide to the community the financial services for which it was created.

The importance of a NIC director's position is emphasized by the fact that NIC directors can, in certain instances, be held personally liable for violations of standards of conduct governing a director's responsibility for the operation and management of the NIC as enacted by the governing jurisdiction, for example, gross negligence or disregard for safety and soundness considerations threatening the financial safety of a NIC.

The board of directors is the source of all authority and responsibility. In the broadest sense, the board is responsible for the formulation of sound policies and objectives of the NIC, effective supervision of its affairs, and promotion of its welfare. The primary responsibility of executive management is implementation of the board's policies and objectives in the NIC's day-to-day operations. While the selection of competent executive management is critical to the successful operation of any NIC, the continuing health, viability, and vigor of the NIC are dependent upon an interested, informed, and vigilant board of directors.

Management/Board of Directors

Selection and Qualifications of Directors

Selection to serve as a NIC director is an honor. It often means an individual has a reputation as being successful in business or professional endeavors, is public spirited, and is deserving of public trust and confidence. It is this last attribute and the implied public accountability that distinguishes the office of NIC director from directorships in most other corporate enterprises. NIC directors are not only responsible to the shareholders who elected them but must also be concerned with the safety of account holder funds, the assets backing the outstanding stablecoin, and the influence the NIC exercises on the community it serves.

Laws governing the election of board members emphasizing the importance of a director's position vary by state. Statutory or regulatory qualifications usually include taking an oath of office, unencumbered ownership of a specific amount of the NIC's capital stock, and residential and citizenship requirements. There are federal laws pertaining to directors that have certain restrictions, prohibitions, and penalties relating to: interlocking directorates; purchases of assets from or sales of assets to directors; commissions and gifts associated with digital asset business activities; and criminal activities such as embezzlement, abstraction, willful misapplication, and making false entries.

These qualifications and restrictions have no counterpart in general corporate law, and both illustrate and emphasize the quasi-public nature of digital asset business activities, the unique role of the NIC director, and the grave responsibilities of that office. The position of NIC director is one, therefore, not to be offered or entered into lightly.

Aside from the legal qualifications, each director should bring to the position particular skills and experience which will contribute to the composite judgment of the group.

The Statement Concerning the Responsibilities of Bank Directors and Officers[1] explains the key duties and character traits of a successful director. The essential attribute that allows a director to fulfill the duties of loyalty and care associated with the office is personal integrity. Personal integrity usually gives assurance that a director capable of assuming the important fiduciary responsibilities of the office will fairly and equitably represent the diverse interests of shareholders, depositors, and the general public. A prudent director will exhibit independent thoughts and have the courage to express them, sufficient time available to fulfill their responsibilities, and be free of financial difficulties that could negatively reflect on the NIC.

Other desirable personal characteristics include:

- Knowledge of the duties and responsibilities of the office;
- Genuine interest in performing those duties

[1] Directors Duties_Responsibilities 2017 with disclosure language_0.pdf

and responsibilities to the best of their ability;

- Capability to recognize and avoid potential conflicts of interest, or the appearance of same, which might impair their objectivity;
- Sound business judgment and experience to facilitate understanding of digital asset business activities and problems associated with digital asset business activities ;
- Familiarity with the community and trade area the NIC serves and general economic conditions; and
- Independence in their approach to problem solving and decision making.

Powers, Duties and Responsibilities of Directors

The powers, duties and responsibilities of the board of directors are set forth in the NIC's charter and bylaws. Generally speaking, the powers and responsibilities of NIC directors include but are not limited to those discussed below.

Governing the Manner in Which All Business of the NIC is Conducted

Directors are responsible for providing a clear strategic framework for the NIC's risk appetite, objectives, and general policies within which executive officers operate and administer the NIC's affairs. These objectives and policies at a minimum, include written guidelines for matters such as investments, controllable electronic lending products and services, asset/liability and funds management, profit planning and budgeting, capital planning, internal routine and controls, audit programs, conflicts of interest, code of ethics, and personnel. Policies for specialty areas, such as AML/CFT, Information Technology (IT), Fiduciary activities, and consumer compliance will also facilitate appropriate oversight.

A NIC should establish appropriate objectives and board approved policies that provide safe and sound guidance, processes, and procedures. Such policies include, but are not limited to security, staking, investments, succession planning, incidence response, stress testing, and active management of the assets backing outstanding stablecoin, among others.

Periodically updating, writing, and reviewing objectives and policies is demonstrative of effective board oversight. Examiners may encounter situations (often in smaller NICs with control vested in one or a few individuals) where written policies have not been developed for these operational functions, and management is reluctant to do so on the grounds that such written guidelines are unnecessary. To a considerable degree, the necessity for written policies may be inferred from the results achieved by management. That is, if the examiner's assessment of the NIC reflects that it is sound and healthy in virtually every important respect, it may be difficult to convince management of the need for formalized written policies. However, when deficiencies are noted in one or more aspects of a NIC's operations, it is nearly always the case that absence of written and clearly defined objectives, goals, performance standards, and limits of authority is an important contributing factor. Moreover, it is recognized that the depth and detail of written policies may properly vary among NICs, depending on the nature, scope and complexity of their operations. Therefore, it remains the NDBF's strongly held belief that all NICs should have written policies that are readily understood by all affected parties, kept up-to-date, and relevant to the NICs needs and circumstances. While it is acceptable for a NIC to obtain written policies from an outside source, it is the responsibility of management to ensure that the policies are suited to their NIC and that the policies accurately describe the NIC's practices. The board of directors should give final approval of NIC policies.

Examiners should review the NIC's conformance to the safety and soundness standards at each examination. The nature, scope, and risk of the NIC's activities should be considered when evaluating the adequacy of controls in each of the respective areas. Material deficiencies should be documented in appropriate sections of the Report of Examination (ROE).

Strategic Planning

A vital part of the responsibilities of directors is to set the future direction of the NIC. The board and senior management face challenges and opportunities daily related to evolving economic and market conditions, competition, and innovation; along with emerging or unforeseen risks, such as cyber threats or natural disasters. Sound strategic planning is crucial to successful performance in the face of uncertainty and change. The strategic plan is a strategic vision created by the board of directors on how the NIC should operate. The planning time horizon will not be identical for every NIC, but a three- to five-year planning horizon is generally satisfactory for most NICs. To be effective, strategic planning decisions must be dynamic and updated as circumstances change.

The strategic planning process is unique to each NIC, driven by its culture, mission, business model, risk appetite, resources available (including management talent), risk profile, size, geographic location, communities served, and other considerations. As a result, the formality of the strategic planning process will vary between NICs.

The most effective strategic planning process is one that is dynamic, carefully attended to, and well supported. Strategic plan projections are intended to be reviewed and revised periodically as circumstances change and new strategies are devised to meet stated objectives. As the economic environment fluctuates, inadequate or ill-conceived planning processes could become a primary cause of failure for a NIC. This is indicative of the large influence that management has on the success of the NIC as a whole.

Examiners should consider the following when assessing the adequacy of the strategic planning process:

- How formal is the NIC's planning process compared to the NIC's business model, risk profile, size and complexity?
- Were the right people involved? The board? Middle management?
- Is the plan based on realistic assumptions regarding the NIC's present and future financial condition, market area(s), and competitive factors?
- Does the NIC monitor actual performance against its plan?
- Does the NIC consider alternative plans in response to changing conditions?

In addition to an evaluation of the process, examiners should evaluate the reasonableness of the plan's assumptions. This assessment should take into account the personnel resources, financial resources, operating circumstances, and conditions unique to the NIC being examined, including examination findings that would impact the NIC's financial condition and ability to meet plan projections. Planning the future direction of the NIC is, the responsibility of the board of directors and not examiners. However, when the goals and objectives chosen by directors are likely to result in significant financial harm to the NIC, examiners must identify the deficiencies in the plan and attempt to impact necessary changes through supervisory recommendations. Examiners should consider the adequacy of the planning process and the plan itself when assigning the Management rating.

Selecting and Retaining Competent Management

It is a primary duty of a board of directors to select and appoint executive officers who have the skills, integrity, knowledge, and experience to administer the NIC's affairs effectively, safely, and soundly. It is also the responsibility of the board to part with the services of officers who prove they are unable to meet reasonable standards of executive ability and efficiency. Therefore, an effective screening program to appropriately vet candidates will help ensure that the senior management team possesses a high level of integrity. In the event a NIC should fail to remain in compliance with the minimum capital requirements or is operating in an unsafe or unsound manner, management must obtain NDBF approval before hiring or appointing directors or senior executive officers.

Regular evaluation of the management and staffing structure helps the board ensure that necessary positions and reporting lines are established and appropriate for the NIC's size, activities, complexity, and risk profile. Having these systems in place ensures there is accountability for key decisions and strategies. If the board is dissatisfied with the performance of senior management, and if hiring senior management is necessary, the board should act quickly to find a qualified replacement.

Personnel Administration

Recruiting, training, and personnel activities are vital to the development and continuity of a quality staff. Some features of good personnel administration are a designated organization structure, detailed position descriptions, carefully planned recruiting, appropriate training and developmental activities, a performance appraisal system, quality salary administration, and an effective communications network.

Observance of Applicable Laws

It is important for directors to ensure that executive management is cognizant of applicable laws and regulations and able to develop a system to effect and monitor compliance, which will likely include provisions for training and retraining personnel in these matters. When violations do occur, management should make corrections as quickly as possible. Board members cannot be expected to be personally knowledgeable of all laws and regulations, but they should ensure that compliance with all laws and regulations receives high priority, and violations are not knowingly committed by themselves or anyone the NIC employs.

Avoiding Self-Serving Practices

Although somewhat independent from the responsibility to provide effective direction and supervision, the need for directors to avoid self-serving practices and conflicts of interest is of no less importance. NIC directors must place the performance of their duties above personal concerns. Wherever there is a personal interest of a director that is averse to that of the NIC, the situation clearly calls for the utmost fairness and good faith in guarding the interests of the NIC. Accordingly, directors must never abuse their influence with NIC management for personal advantage, nor wrongfully employ confidential information concerning the NIC's clients. The same principles with respect to self-serving practices and conflicts of interest apply to the executive management of the NIC. Refer to the Indebtedness of Directors, Officers and Their Interests and the Conflicts of Interest sections of this Chapter for additional discussion.

Paying Dividends

The board of directors has the responsibility of maintaining an adequately capitalized NIC, and once this responsibility has been satisfied, the payment of dividends may receive consideration. Dividends represent the distribution of NIC earnings to owners. Establishing the medium, rate, and date of payment must be based on the board's overall assessment of the NIC's financial condition.

Appropriate Internal Control System and Adequate Auditing Program

A sound framework of internal controls and a reliable and objective audit function are essential tools for NIC directors. The existence of such enables directors to remain well informed of the adequacy, effectiveness, and efficiency of accounting, operating, and administrative controls and provides an assessment of the quality of ongoing operations. The establishment and oversight of such controls are the responsibility of the board of directors.

Management Information System (MIS)

The critical need for and dependence on information involves a concern and responsibility for the integrity of not only the specific information furnished, but the system that supplies it as well. Regardless of the technology employed, management is responsible for developing and implementing an information system that facilitates managerial activities. Examiners should review reports generated by the MIS to assess the quality and accuracy of the information being provided.

An effective MIS is comprised of information from several sources, and the information must serve a number of users, each having various needs. The MIS must selectively update information and coordinate it into meaningful and clear formats. One possible approach would be to combine information from the NIC's accounting system with other internal sources, such as personnel records, and include information from external sources regarding economic conditions, characteristics of the marketplace and competition, technology, and regulatory requirements. Quality, quantity, and timeliness are factors that determine the effectiveness of management information systems.

Supervision by Directors

The board of directors is charged with conducting the affairs of the NIC. However, this task may be delegated to senior officers, provided there is proper oversight. Supervision by directors does not necessarily indicate a board should be performing management tasks but rather ensuring that its policies are being implemented and adhered to and its objectives achieved. It is the failure to discharge these supervisory duties that can lead to the decline and failure of NICs and personal liability of directors for losses incurred.

Directors' supervisory responsibilities can best be discharged by establishing procedures calculated to bring to their attention relevant and accurate information about the NIC in a consistent format, at regular intervals, and taking appropriate action in response to the information received. From this critical point, the remainder of a director's job unfolds. Directors who keep abreast of basic facts and statistics such as resource growth, capital growth, liquidity position, general portfolio composition, lending limits, lending losses and recoveries, and delinquencies, among others, have taken a first, indispensable step in discharging their responsibilities. It is essential, therefore, that directors insist on receiving pertinent information about the NIC in concise, meaningful, and written form, and it is one of executive management's most important responsibilities to make certain directors are kept fully informed on all important matters and that the minutes clearly reflect this.

Directors' meetings that are conducted in a businesslike and orderly manner are a significant aid to the fulfillment of the board's supervisory responsibilities. This requires, among other things, regular attendance (whether in person or by remote access). Regular attendance at board and committee meetings demonstrates a director's commitment to staying informed about the NIC's risks,

business and operational performance, and competitive position in the marketplace. Generally, minutes of the board and committee meetings record the attendance of each director, other attendees, and directors' votes or abstentions. Prudent directors that dissent from the majority, will, for their own protection, insist upon their negative vote being recorded along with reasons for their action.

Careful and consistent preparation of an agenda for each board meeting not only assists in the conduct of such meetings but also provides board members reasonable assurance that all important matters are brought to their attention. Agenda items will vary between NICs depending on asset size, type of business conducted, trust activities, and so forth. In general, an appropriate agenda includes reports on income and expenses, monitoring of digital asset business activities, investment activity, personnel, and individual committee actions.

To carry out its functions, the board of directors may appoint and authorize committees to perform specific tasks and supervise certain phases of operations. In most instances, the name of the committee, such as lending, staking, investment, and audit, , identifies its duties. Of course, utilization of the committee process does not relieve the board of its fundamental responsibilities for actions taken by those groups Review of the committee meeting minutes are a standard part of the board's meeting agenda.

Communication of facts to a board of directors is essential to safe, sound, and effective supervision. As the scope broadens and complexity increases within the financial services industry, the ability of the board of directors to effectively supervise is becoming more difficult. Because of this, the use of outside personnel to provide management supervision is relatively common. While this practice does not release the board from its responsibilities, it does provide an opportunity for management improvement through the use of these external sources. The NIC holding company can play a large role in the supervision of its individual NICs. NIC holding companies that control a number of NICs may be able to provide individual NIC boards with digital asset business activities and investment counseling, audit and internal control programs or services, profit planning and forecasting, personnel efficiency reports, electronic data processing services, marketing strategy and asset appraisal reports. NICs that do not operate within a holding company organization are also able to obtain management assistance from various firms offering the above services. In the interest of quality supervision by a NIC's board of directors, the use of outside advisors, while not releasing the board from its responsibilities, can be a valuable management tool.

Legal Liabilities of Directors

In general, directors and other corporate officers of a NIC may be held personally liable for a breach of trust, gross negligence and recklessness which is the proximate cause of loss to the NIC, ultra vires acts or acts in excess of their powers, fraud, and misappropriation or conversion of the NIC's assets Difficulties usually arise, however, in cases involving negligence (or breach of duty) which fall short of breach of trust or fraud.

Directors' liability for negligent acts is premised on common law for failure to exercise the degree of care prudent individuals would exercise under similar circumstances, and/or noncompliance with applicable statutory law, either or both of which cause loss or injury to the NIC. Statutory liability is reasonably well defined and precise. Common law liability is somewhat imprecise because failure to exercise due care on the part of a director depends on the facts and circumstances of the particular case.

A director's duty to exercise due care and diligence extends to the management, administration, and supervision of the affairs of the NIC and to the use and preservation of its assets. Perhaps the most probable dereliction of duty by NIC directors is the failure to maintain reasonable supervision over the activities and affairs of the NIC, its officers, and employees. The actions and inactions listed below have been found to constitute negligence on the part of directors.

- An attitude of general indifference to the affairs of the NIC, such as failing to hold meetings as required by the bylaws, obtain a statement of the financial condition of the NIC, or examine and audit the books and records of the NIC to determine its condition.
- Failure to heed warnings of mismanagement or defalcations by officers and employees and take appropriate action.
- Failure to adopt practices and follow procedures generally expected of NIC directors.
- Turning over virtually unsupervised control of the NIC to officers and employees relying upon their supposed fidelity and skill.
- Failure to acquaint themselves with examination reports showing the financial condition of a company to which excessive loans had been made.
- Assenting to loans in excess of applicable statutory limitations.

- Representing certain assets as good in a Report of Condition when such assets were called to the directors' attention as Loss by the primary regulator and directions were given for their immediate collection or removal from the NIC.

In the final analysis, liability of NIC directors for acts of negligence rests upon their betrayal of those who placed trust and confidence in them to perform the duties of their office honestly, diligently, and carefully. While applicable principles involving directors' negligence (or breach of duty) are easy enough to state, their application to factual situations presents difficulties.

Federal Banking Laws and Regulations

All NICs shall adhere to Neb. Rev. Stat. §8-3005, §8-3006, and §8-3010 as outlined in the NFIA.

Other Issues

Indebtedness of Directors, Officers and Their Interests

The position of director or officer gives no license to special credit advantages or increased borrowing privileges. Lending to directors, officers and their interests must be made on substantially the same terms as those prevailing at the time for comparable transactions with regular NIC customers. Therefore, digital asset lending to management should be evaluated on their its merits. Their business operations will, in many instances, necessitate NIC lending, and these ordinarily will be among a NIC's better assets. Since directors usually maintain a deposit relationship with their NIC, this carries with it an obligation to meet their reasonable and prudent credit requirements.

When the safety and soundness of lending to officers and directors becomes questionable, an embarrassing situation usually results. That is, lending to officers and directors frequently may not be subject to the same frank discussion accorded other lending activities. NIC directors may assent to such lending standards, despite knowledge that they are unwarranted, rather than oppose a personal or business friend or associate. However, while steps have been taken to reduce the potential for problems in this area, a review of the board's policies and actual practices regarding insider lending remains an important part of the examination process.

Conflicts of Interest

Examiners should be especially alert to any insider involvement in other digital asset projects or business activities that pose or could pose a conflict of interest with a director's fiduciary duties of care and loyalty to the NIC.

On occasion, lending to business associates involved in apparently unrelated projects where an insider nevertheless benefits. The involvement of NIC insiders in these projects is sometimes not apparent because ownership is held in the form of "business trusts" or other entities without disclosure of the identity or personal guarantees of the principals. In order to help uncover these types of situations, examiners should routinely inquire of senior management, through incorporation in the "first day" letter or request, whether any of the following situations exist:

- Digital asset business activities or other transactions existing at the NIC in which an officer, director or principal stockholder (or immediate family member of each) of the NIC holds a beneficial interest.
- Digital asset business activities or other transactions in which an officer, director or principal stockholder (or immediate family member of each) of another depository institution holds a beneficial interest.
- Digital asset business activities or other transactions at any other NIC in which a NIC officer, director, or principal stockholder (or immediate family member of each) holds a beneficial interest, either direct or indirect.
- Digital asset business activities or other transactions in which an officer, director or principal stockholder (or immediate family member of each) has no direct interest but which involve parties with whom an insider has other partnership or business associations.
- Digital asset business activities extended personally by officers, directors or principal stockholders (or immediate family member of each) to parties who are also borrowers from the NIC or loans extended personally by any borrowing customers to an officer, director or principal stockholder of the NIC.

If any of this information is not readily available and of reasonably recent compilation, management should be requested to survey their officers, directors and principal stockholders, as necessary, to obtain it.

Examiners are reminded to inquire about NIC policies and procedures designed to bring conflicts of interest to the attention of the board of directors when they are asked to approve digital asset business activities or other transactions in which an officer, director, or principal stockholder may be involved. Where such policies and procedures are lacking or insufficient to reveal insider involvement before action is taken by the board, examiners should strongly encourage the board to remedy the deficiency. The board should also be encouraged to act specifically on any digital asset business activity or other transaction in which insiders or their associates may be involved, either directly or indirectly, or because of business associations outside the loan or transaction in question. Moreover, examiners should determine whether the results of board deliberations on any matter involving a potential conflict of interest are noted clearly in the minutes.

Examiners are reminded to carefully scrutinize any digital asset business activities or other transaction in which an officer, director or principal stockholder is involved. Such digital asset business activities or other transactions should be sound in every respect and be in full compliance with applicable laws and regulations and the NIC's own policies. Any deficiencies in credit quality or other aspects of the transaction should receive critical comment not only from an asset quality perspective but from a management perspective as well.

If a director has a personal financial interest in a digital asset business activities or other transaction subject to adverse classification, the board should be urged to require that director to strengthen the credit sufficiently to remove the adverse classification within a reasonable time frame or resign from the board. In the event a principal stockholder or an officer who is not a director is involved in an unsafe or unsound transaction, the board should be urged to assume special oversight over the activity, either directly or through a committee of outside directors, with a view towards limiting any further exposure and moving aggressively to secure or collect any exposed balances as the circumstances may permit. These types of situations not only tend to compromise the credit standards of the NIC and increase the risk of eventual losses, but that they can also lead to violations of civil and criminal laws.

Activities Conducted on NIC Premises Unrelated to Digital Asset Business Activities

NICs may conduct activities unrelated to digital asset business activities on NIC premises in conjunction with controllable electronic lending product and service transactions of the NIC, subject to prior approval. When business activities unrelated to digital asset business activities take the form of establishment of a new department or subsidiary of the NIC, the benefit and profit is directly realized by the NIC and its shareholders. However, when these activities are conducted on NIC premises for the benefit of others, a NIC may be deprived of corporate opportunity and profit.

In all cases, it is important for the NIC's directors and shareholders to be fully informed regarding the digital asset business activities conducted on NIC premises. The operation is typically approved by the NIC's shareholders, and expenses incurred by the NIC in connection with these operations formally approved by the board of directors annually. A well-run NIC ensures that it is adequately compensated for any expenses it incurs in furnishing personnel, equipment, space, etc. to this activity.

It is recommended that NIC management disclose completely to its bonding company any such digital asset business activities conducted on its premises. Management would also be well advised to obtain acknowledgement from the bonding company that such activities do not impair coverage under the fidelity bond. Finally, the conduct of digital asset business activities must be in conformance with applicable State statutes and regulations. For additional discussion, refer to the Interagency Statement on Retail Sales of Nondeposit Investment Products.[2]

Situations where the NIC is being deprived of corporate opportunity through the diversion of opportunity or profit, or inadequately compensated for the utilization of its resources should be discussed with NIC management. Comments should be noted in the Risk Management Assessment and the Examination Conclusions and Comments pages, if appropriate. Additionally, the absence of disclosure and approval by the NIC's directors, shareholders, and bonding company should be discussed with management and covered in the aforementioned schedule(s). Finally, in those instances where the examiner believes, based on known facts, that a violation of applicable statutes or regulations has

[2] See Interagency Statement on Retail Sales of Nondeposit Investment Products (1994) and JointInterpretations of The Interagency Statement on Retail Sales of Nondeposit Investment Products (1995)

occurred, or where there is material or substantial evidence that a criminal violation has been committed, the matter should be handled in accordance with guidelines prescribed in other sections of this Manual.

Directors of NICs with Dominant Management Officials

Examiners should carefully consider the risks associated with NICs controlled by an official that has material influence over virtually all decisions involving the NIC's policies and operations. A dominant official can be an individual, family, shareholder, or group of persons with close business dealings or otherwise acting together regardless of whether the individual or any other members of the family or group have an executive officer title or receive compensation from the NIC.

The definition of dominant official, as provided in this section, is not intended to capture individuals who merely occupy multiple positions, particularly in small NICs, if they do not also exert material influence over virtually all decisions involving the NIC's policies and operations. Nevertheless, in such situations additional transaction testing to confirm the adequacy of segregation of duties and internal controls may be necessary.

Examiners should not automatically view the presence of a dominant official negatively or as a supervisory concern. For example, in a small NIC with limited staff, a dominant official may emerge because no one else at the NIC has the skills or experience to operate the NIC. The presence of a dominant official does however present two potential challenges for boards of directors: incapacitation or loss of the dominant official and difficulties in resolving mismanagement, should it occur.

Incapacitation or loss of the dominant official may deprive the NIC of competent management presenting key person risk. Key person risk results when a NIC is dependent upon a single, yet highly qualified official that is core to the operation of the NIC. For example, the loss or incapacitation of the key person may deprive the NIC of critical NIC knowledge and competent management.

The loss of a key person may also result in short- or long-term business disruptions, productivity losses, or negatively affect profitability. Further, the process to replace a key person can be expensive and lengthy. In these cases, examiners should evaluate the effectiveness of compensating controls that protect the NIC from the loss of the key person. Compensating controls include items such as key person life insurance, careful business continuity planning, succession planning, and cross-training programs.

Problem situations resulting from mismanagement by a dominant official are more difficult to solve through normal supervisory efforts, therefore, it is extremely important that examiners assess the NIC's control environment and, when applicable, recommend necessary changes to the control structure. The presence of a dominant official coupled with other risk factors such as ineffective internal controls, inadequate board oversight, or high-risk business strategies irrespective of established board policies, are a supervisory concern and require enhanced supervision.

Situations involving dominant officials may involve boards that simply put their trust in the dominant officer without providing adequate oversight or effective challenge to management. This lack of effective challenge by boards may arise for various reasons. In particular, when first elected, some directors may have a limited understanding of the operations involved in digital asset business activities or of their oversight responsibilities and therefore feel dependent on operating management with more experience.

Directors nominated by dominant officials may believe they owe allegiance to those dominant officials. In some cases, the dominant official may control the flow of information to the board of directors and could limit the board's knowledge of daily management activities, thereby contributing to the lack of adequate oversight or effective challenge to NIC management by the board. Conversely, the dominant official could be an officer or non-officer, board chair, and/or principal shareholder who dominates the NIC's affairs through the threat of dismissal of non-compliant officers and/or control of the board of directors.

If examiners identify dominant officials at a NIC, they should assess the official's level of influence. Does the official direct the affairs of the NIC without challenge from the board of directors? Is the official an officer or non-officer board chair/principal shareholder who dominates the board and management? Does the official determine the policies and/or the strategic direction of the NIC? Does the official control the flow of information to the board of directors? These are examples of material influence. Such influence, along with other risk factors and risk management controls designed to mitigate these

risks, should be considered during on-site examinations, off-site monitoring, and in the evaluation of management in connection with the regulatory and supervisory processes. In these situations, examiners should review the risk profile and control environment of the NIC and assess whether:

- An appropriate segregation of duties and responsibilities is achieved or alternative actions are taken to mitigate the level of control exercised by the dominant individual;
- Director involvement in the oversight of policies and objectives of the NIC is at an appropriate level;
- Board composition provides the NIC with a range of knowledge and expertise, including, but not limited to, digital asset business activities, accounting, and the major lending areas of the NIC's target markets;
- There are a sufficient number of outside and independent directors;
- Committees of major risk areas exert a proper level of function, responsibility, and influence, and the value of the committees is exhibited in the decision-making process;
- A proper level of independence has been achieved for board committees of major risk areas, including, but not limited to, audit committees;
- An adequate audit committee has been established with only, or at least a majority of, outside directors, if not already required.
- A need exists for the performance of annual financial audits by an independent certified public accounting firm if not already required.
- A qualified, experienced, and independent internal auditor is in place;
- A proper segregation of the internal audit function is achieved from operational activities;
- An appropriate rationale is established regarding any changes to a NIC's external auditors, including, but not limited to, a review of the audit committee minutes or a review of auditor notifications;[3]
- An adequate written code of conduct, ethics, and conflict of interest policies have been established;
- A need exists for the NIC's board to perform and report on an annual conflict of interest and ethics review;
- A need exists for a NIC to engage outside consultants to conduct an external review of controllable electronic lending products and services; and
- A proper segregation of the internal review of the controllable electronic lending product and services process is established.

Dominant Official(s)

If a dominant official is identified during an examination, examiners should describe related risks in the ROE. ROE comments should identify the dominant official, describe the official's material influence and effect on the NIC, describe the level of board independence and oversight, and describe the effectiveness of any mitigating controls. If no concerns are identified, the comments should be included in the Confidential-Supervisory Section. If concerns attributed to a dominant official are identified, supervisory recommendations should be scheduled on the Examination Conclusions and Comments or Risk Management Assessment pages, as appropriate, according to ROE instructions.

Concerns attributed to a dominant official, including non-compatible duties, pursuit of high-risk business strategies, ineffective board oversight, or lack of other adequate mitigating controls should be raised on the Matters Requiring Board Attention (MRBA) report page. Supervisory recommendations, including those raised on the MRBA page, should specify clear corrective actions that mitigate risk. Additionally, when a dominant official is identified, the Dominant Officer/Policymaker line item of the Summary Analysis of the Examination Report (SAER) should be answered "Yes."

Examiners should consider how identified dominant official related weaknesses might affect the NIC when assigning component and composite ratings. Concerns or deficiencies should not be excluded from the ROE or disregarded when assigning ratings simply because the NIC's current financial condition is satisfactory or does not reflect deterioration. Forward-looking supervisory practices require that examiners consider how current practices may affect the future condition of the bank. Additionally, the extent that the board of directors and management is affected by, or susceptible to, dominant influence or concentration of authority must be considered when assigning the Management rating. And

[3] If the NIC recently changed external auditors, examiners should assess the board and audit committee's rationale

finally, assignment of a composite rating may incorporate any and review committee minutes and "change-in-auditor" factor that bears significantly on the overall condition and soundness of the NIC.

Enhanced supervision to address supervisory concerns related to dominant management or ownership include recommending director education to assist board members in performing their fiduciary responsibilities and engaging outside directors during the examination and other supervisory processes. Directors' fiduciary duties, include changing management composition, or seeking change in board composition, if a dominant official's influence hinders a director's oversight, independence, or influence.

When warranted, supervisory concerns should be addressed with informal or formal corrective programs. When concerns are particularly elevated or prior supervisory actions do not affect timely corrective actions, consideration should be given, after consultation with the Regional Office, to recommending changes to board composition or management to reduce a dominant official's impact on material decisions. Enforcement action provisions should be tailored to, and specifically address, the risks identified by specifying what actions the NIC should take to mitigate the risk. For instance, a provision requiring the board to obtain a management study should also require the study to provide recommendations for specific actions that the NIC should take to implement appropriate controls to mitigate the risk associated with the dominant official. Case managers should also record and retain information regarding the basis for key supervisory decisions and actions in a memo to the file, including instances where supervisory actions are considered or recommended but not ultimately taken.

Application review and processing should include an assessment of whether a dominant influence is present, mitigating factors are adequate, and related prior supervisory actions have been effective. If mitigating factors are not adequate or related supervisory actions did not have the intended effect, case managers should reflect that in the Summary of Investigation and consider whether changes to the application or appropriate conditions should be sought prior to approving an application.

Advisory Directors

Some NICs establish a position of honorary director (or similar title) for various reasons for persons who do not want to relinquish their position but are no longer able to effectively fulfill the demanding duties of director, such as due to illness. Generally, the honorary director attends board meetings as desired and offers advice on a limited participation basis, but has no formal voice or vote in proceedings, nor the responsibilities or liabilities of the office, except where there may be a continuing connection with a previous breach of duty as an official director.

Excessive Compensation

The NDBF is leveraging Section III of Part 364, Appendix A, which prohibits the payment of excessive compensation, as well as compensation that could lead to material financial loss to a NIC, as an unsafe and unsound practice. Furthermore, Section II of Part 364, Appendix A, urges NICs to maintain safeguards that prevent excessive compensation or compensation that could subject the NIC to material financial loss. Excessive compensation is defined as when amounts paid are unreasonable or disproportionate to the services performed by an executive officer, employee, director, or principal shareholder. The following items should be considered when determining whether compensation is excessive:

- The combined value of all cash and noncash benefits provided to an individual;
- The compensation history of the individual and other individuals with comparable expertise;
- The financial condition of the NIC;
- Compensation practices at comparable NICs or financial institutions, based on such factors as asset size, location, and the complexity of the balance sheet;
- For post-employment benefits, the projected total cost and benefit to the NIC;
- Any connection between the individual and any instance of fraud or insider abuse occurring at the NIC; and
- Any other factors determined to be relevant.

Examiners should review the information used by the board to establish the compensation structure of the NIC. The information should adequately explain the rationale for the system in place and should enable the board to consider the above items that determine whether compensation is excessive.

Gaining Access to NIC Records and Employees

The NDBF has the authority to conduct investigations or examinations at any point in time as well as gain access to NIC and employee records and documentation per Neb. Rev. Stat. §8-103, §8-107, and §8-108.

Bank Owned Life Insurance (BOLI)

A number of NICs may use BOLI as a means of protecting against the loss of key employees or hedging employee compensation and benefit plans. However, the purchase of life insurance is subject to supervisory considerations and life insurance holdings must be consistent with safe and sound banking practices. NICs may be able to purchase this product for key employees, if applicable. Examiners should assess whether the NIC completed a thorough analysis before purchasing BOLI. Associated risks, minimum standards for pre- purchase analysis and basic guidelines are detailed in the Other Assets and Liabilities section of this Manual.

Model Risk Management

Some NICs routinely use models for a broad range of activities, including underwriting credits; valuing exposures, instruments, and positions; measuring risk; managing and safeguarding client assets; determining capital and reserve adequacy; and many others. The use of models can improve business decisions, but can also introduce risk, such as potential adverse consequences (including financial loss) of decisions based on models that are incorrect or misused. To ensure safe and sound operations, it is important that, like any other risk, a NIC's board and management identify, measure, monitor, and control model risk.

The Supervisory Guidance on Model Risk Management (MRM Guidance) describes the key aspects of effective model risk management. While this manual section provides an overview of model risk management principles, examiners should refer to the MRM Guidance for a more thorough discussion of model risk management.

To the extent that models are used in these major operating areas of the NIC, whether the model was developed and operated internally or through a third party, examiners are to assess model risk management practices for consistency with safety and soundness standards.

Overview

The term model refers to a quantitative method, system, or approach that applies statistical, economic, financial, or mathematical theories, techniques, and assumptions to process input data into quantitative estimates. A model also includes quantitative approaches whose inputs are partially or wholly qualitative or based on expert judgement, provided that the output is quantitative in nature.

It is important for model risk management practices to be commensurate with the NIC's risk exposures, as well as the complexity and extent of its model use.

An effective model risk management framework includes:

- Disciplined and knowledgeable model development processes that are well documented and conceptually sound, with controls to ensure proper implementation and processes to ensure correct and appropriate use;
- Effective validation processes; and
- Strong governance, policies, and controls.

Tools used for simple mathematical calculations are generally not considered models but should nonetheless be subject to a reasonable control process.

Model Development, Implementation, and Use

Disciplined and knowledgeable development and implementation processes that are consistent with the model's intended use and with NIC policy is critical to appropriately managing model risk. There are many important aspects to model development and implementation, including:

- A clear statement of purpose to ensure development is aligned with intended use;
- Design, theory, and logic that are well documented and supported;
- Rigorous assessment and documentation of data quality and relevance;
- Documented testing during model development to determine whether the model is performing as intended; and
- Controls and testing for model implementation and systems integration.

Model use provides additional opportunity to test whether a model is functioning effectively and to assess its performance over time as conditions and model applications change. Also, an understanding of model uncertainty and inaccuracy and a demonstration that the NIC is accounting for them appropriately are important outcomes of effective model development, implementation, and use.

Model Validation

Model validation is the set of processes and activities intended to verify that models are performing as expected, in line with their design objectives and business uses. Effective validation helps ensure that models are sound. It also identifies potential limitations and assumptions and assesses their possible impact. Independence, competence, knowledge, skills, expertise, incentives, influence, and authorities of staff conducting validation are important elements of model validation.

Key elements of comprehensive validation include:

- Evaluation of conceptual soundness, ongoing monitoring, and outcomes analysis.
- Evaluation of conceptual soundness includes assessing the quality of the model design and construction, a review of documentation supporting the methods used and variables selected for the model, sensitivity analysis (where appropriate), and evaluating qualitative information and judgment.
- Ongoing monitoring includes designing a program of ongoing testing and evaluation of model performance to confirm that the model is appropriately implemented and is being used and is performing as intended, which may include process verification and benchmarking.
- Outcomes analysis, including back testing, includes a comparison of model outputs to corresponding actual outcomes, with the precise nature of comparisons depending on the objectives of a model.

Governance, Policies, and Controls

Developing and maintaining strong governance, policies, and controls over the model risk management framework is fundamentally important to its effectiveness. Even if model development, implementation, use, and validation are satisfactory, a weak governance function will reduce the effectiveness of overall model risk management. A strong governance framework provides explicit support and structure to risk management functions through policies defining relevant risk management activities, procedures that implement those policies, allocation of resources, and mechanisms for evaluating whether policies and procedures are being carried out as specified. Notably, the extent and sophistication of a NIC's governance function is expected to align with the extent and sophistication of model usage.

Examination Review

Examination planning contact with NIC management, as well as interim contacts, provides examination staff with opportunities to discuss the extent of model use and determine whether there are any material changes since the prior examination. If management indicates new model use or material changes since the prior examination, examiners should consider asking additional questions to assist in exam scoping and to appropriately tailor the request list. For example, ask management:

- Where model risk management is addressed in policies and whether there are any procedures, standards or monitoring practices the NIC may have that address model risk management practices.
- Whether the NIC maintains a model inventory. While NICs are not required to maintain a model inventory, identifying models used across the NIC can be an important practice to assist in model risk management. For NICs with minimal model use, model risk, and model complexity, the inventory may be an informal list. To the extent a NIC maintains an inventory, it will be useful in the exam planning process in developing the scope of the model risk review.
- Whether the NIC has model documentation or validation reports for models used.
- Whether model risk management is covered in the audit scope.
- Whether the NIC maintains any exception or findings tracking reports.

Based on discussion with management, examiners should consider including relevant documents in the request list. Based on management discussions and the response to the request list, examiners should determine whether a review of the model risk management framework or review of specific models is necessary or warranted. Examiners should tailor the examination review scope based on the NIC's risk exposure, activities, complexity and extent of model use. The review should focus on assessing the adequacy of the model risk management framework. To the extent models are used for key operating areas, examiners should consider reviewing the model documentation and validation. This review process can provide examiners with insight not only into the model and its quality but also the adequacy of risk management practices. If examiners determine the risk posed by the NIC's model use is not at a level to necessitate a model sample review, examiners should consider reviewing internal risk management standards imbedded in operating policies and discussing vendor model due diligence

processes with NIC management. Such information can provide examiners with meaningful insight into whether model risk is managed appropriately.

Evaluating Management

A NIC's performance with respect to asset quality and diversification, capital adequacy, earnings performance and trends, liquidity and funds management, and sensitivity to fluctuations in market interest rates is, to a very significant extent, a result of decisions made by the NIC's directors and officers. Consequently, findings and conclusions in regard to the other five elements of the CAMELS rating system are often major determinants of the management rating. However, while a NIC's overall present condition can be an indicator of management's past effectiveness, it should not be the sole factor relied upon in rating management. This is particularly true when there is new management or when the NIC's condition has been or could be significantly affected by external factors versus internal decisions.

When significant problems exist in a NIC's overall condition, consideration must be given to management's degree of responsibility. However, appropriate recognition should also be given to the extent to which weaknesses are caused by external problems (such as a severely depressed local economy). A distinction should be made between problems caused by NIC management and those largely due to outside influences. Management of a NIC whose problems are related to the economy would warrant a higher rating than management believed substantially responsible for a NIC's problems, provided that prudent planning and policies are in place and management is pursuing realistic resolution of the problems. Management's ability becomes more critical in problem situations, and it is important to note management's policies and acts of omission or commission in addressing problems.

The extent to which mismanagement has contributed to areas of weakness is particularly relevant to the management evaluation. Similarly, positive economic conditions may serve to enhance a NIC's condition despite weak or undocumented policies and practices. At a minimum, the assessment of management should include the following considerations:

- Whether or not insider abuse is in evidence;
- Existing management's past record of performance in guiding the NIC;
- Whether lending losses and other weaknesses are recognized in a timely manner;
- Past compliance with supervisory agreements, commitments, orders, etc.; and
- Capability of management to develop and implement acceptable plans for problem resolution.

Assessment of new management, especially in a problem situation, is difficult. Performance by individuals at their former employment, if known to the examiner, may be helpful, but the examiner should assess each situation based on its particular circumstances. The management rating should generally be consistent with any recommended supervisory actions. A narrative statement supporting the management rating and reconciling any apparent discrepancies between the assigned rating and any recommended supervisory actions (or lack of recommended actions) should be included on the confidential pages of the examination report.

Examination procedures regarding the evaluation of management are included in the Examination Documentation Modules.

SOP #7: Formal and Informal Administrative Actions provides that a NIC may also be subject to one or more GNAT ratings based upon the business model and product and service offerings of its charter. GNAT ratings focus on a charter's Governance, Network, Asset, and Tokenization and relate specifically to electronic controllable records issued by the charter. Each GNAT focus will have a component score that will influence the composite GNAT rating. GNAT ratings are separate from CAMELS ratings, but these ratings could potentially impact various component ratings within the CAMELS rating and may indirectly contribute to the overall composite CAMELS rating. GNAT ratings will be included in the Report of Examination.

Rating the Management Factor

Uniform Financial Institutions Rating System

The Federal Financial Institutions Examination Council (FFIEC) member agencies adopted a uniform interagency system for rating the condition and soundness of the nation's financial institutions. The Uniform Financial Institutions Rating System involves an assessment of six critical aspects of an institution's condition and operations. Management and administration is one of those critical dimensions.

The capability of the board of directors and management, in their respective roles, to identify, measure, monitor, and control the risks of a NIC's activities and to ensure a NIC's safe, sound, and efficient operation in compliance with applicable laws and regulations is reflected in this rating. Generally, directors need not be actively involved in day-to-day operations; however, they must provide clear guidance regarding acceptable risk exposure levels and ensure that appropriate policies, procedures, and practices have been established. Senior management is responsible for developing and implementing policies, procedures, and practices that translate the board's goals, objectives, and risk limits into prudent operating standards.

Depending on the nature and scope of a NIC's activities, management practices may need to address some or all of the following risks: credit, market, operating or transaction, reputation, strategic, compliance, legal, liquidity, and other risks. Sound management practices are demonstrated by active oversight by the board of directors and management; competent personnel; adequate policies, processes, and controls, taking into consideration the size and sophistication of the NIC; maintenance of an appropriate audit program and internal control environment; and effective risk monitoring and management information systems. The overall management rating should reflect management's competency as it applies to all aspects of a NIC's operations and offerings.

The capability and performance of management and the board of directors is rated based upon, but not limited to, an assessment of the following evaluation factors:

- The level and quality of oversight and support of all NIC activities by the board of directors and management;
- The ability of the board of directors and management, in their respective roles, to plan for, and respond to, risks that may arise from changing business conditions or the initiation of new activities or products;
- The adequacies of, and conformance with, appropriate internal policies and controls addressing the operations and risks of significant activities;
- The accuracy, timeliness, and effectiveness of management information and risk monitoring systems appropriate for the NIC's size, complexity, and risk profile;
- The adequacy of audits and internal controls to: promote effective operations and reliable financial and regulatory reporting; safeguard assets; and ensure compliance with laws, regulations, and internal policies;
- Compliance with laws and regulations;
- Responsiveness to recommendations from auditors and supervisory authorities;
- Management depth and succession planning;
- The extent that the board of directors and management is affected by, or susceptible to, dominant influence or concentration of authority;
- Reasonableness of compensation policies and avoidance of self-dealing;
- Demonstrated willingness to serve the legitimate needs of the community; and
- The overall performance and risk profile of the NIC.

Ratings

A rating of 1 indicates strong performance by management and the board of directors and strong risk management practices relative to the NIC's size, complexity, and risk profile. All significant risks are consistently and effectively identified, measured, monitored, and controlled. Management and the board have demonstrated the ability to promptly and successfully address existing and potential problems and risks.

A rating of 2 indicates satisfactory management and board performance and risk management practices relative to the NIC's size, complexity, and risk profile. Minor weaknesses may exist but are not material to the safety and soundness of the NIC and are being addressed. In general, significant risks and problems are effectively identified, measured, monitored, and controlled.

A rating of 3 indicates management and board performance that need improvement or risk management practices that are less than satisfactory given the nature of the NIC's activities. The capabilities of management or the board of directors may be insufficient for the type, size, or condition of the NIC. Problems and significant risks may be inadequately identified, measured, monitored, or controlled.

A rating of 4 indicates deficient management and board performance or risk management practices that are inadequate considering the nature of a NIC's activities. The level of problems and risk exposure is excessive. Problems and significant risks are inadequately identified, measured, monitored, or controlled and require immediate action by the board and management to preserve the soundness of the NIC. Replacing or strengthening management or the board may be necessary.

A rating of 5 indicates critically deficient management and board performance or risk management practices. Management and the board of directors have not demonstrated the ability to correct problems and implement appropriate risk management practices. Problems and significant risks are inadequately identified, measured, monitored, or controlled and now threaten the continued viability of the NIC. Replacing or strengthening management or the board of directors is necessary.

EARNINGS

EARNINGS

Introduction

From a regulator's standpoint, the essential purpose of NIC earnings, both current and accumulated, is to absorb losses and augment capital. Earnings is the initial safeguard against the risks of engaging in digital asset business activities and represents the first line of defense against capital depletion resulting from shrinkage in asset value. Earnings performance should also allow the NIC to remain competitive by providing the resources required to implement management's strategic initiatives.

The analysis of earnings includes all NIC operations and activities. When evaluating earnings, examiners should develop an understanding of the NIC's core business activities. Core activities are those operations that are part of a NIC's normal or continuing business. Therefore, when earnings are being assessed, examiners should be aware of nonrecurring events or actions that have affected a NIC's earnings performance, positively or negatively, and should adjust earnings on a tax equivalent (TE) basis for comparison purposes. Although the analysis makes adjustments for non-recurring events, examiners should also include within their analysis the impact that these items had on overall earnings performance. Examples of events that may affect earnings include the adoption of new accounting standards, extraordinary items, or other actions taken by management that are not considered part of the NIC's normal operations such as sales of securities for tax purposes or for some other reason unrelated to active management of the securities portfolio or the assets backing outstanding stablecoin account

The exclusion of nonrecurring events from the analysis allows the examiner to analyze the profitability of core operations without the distortions caused by non-recurring items. By adjusting for these distortions, examiners are better able to compare earnings performance against the NIC's past performance and industry norms (e.g., peer group data) over time.

The terms *level* and *trend* are used throughout this section of the manual. Level analysis is the process of reviewing financial statement ratios and volumes as of a specific date. Level analysis allows for a comparison of performance, for example, to industry norms or peer group data. Trend analysis is the process of assessing the general direction or prevailing tendency (i.e., increasing, decreasing, or stable) of operating ratios or volumes over several periods (i.e., generally over a five-year period) using the level of each period.

The following tools are available to assist the examiner in the assessment of earnings: the Uniform Bank Performance Report (UBPR), the NIC's Consolidated Reports of Condition and Income (Call Report), the NIC's financial statements and subsidiary ledgers, analytical reports prepared for the NIC's senior management and board of directors, and the Examination Documentation (ED) Modules.

The UBPR can be used to perform level and trend analysis of key earnings components. NIC-prepared analytical reports can serve the same purpose while also revealing those elements of earnings of strategic interest to management. In conjunction with the UBPR and any internal analytical reports, the NIC's Call Report and corresponding NIC financial statements and supplementary schedules should be used for more in-depth review. The information gleaned from these schedules may provide the examiner considerable insight into NIC earnings. An analysis of earnings is not complete until the examiner has a full understanding of the NIC's business activities, its strategic initiatives, and has discussed the NIC's financial performance and strategies with management

Further, examiners should consider the NIC's marketplace when assessing earnings because NICs that operate in more competitive environments must continually adapt to current national, regional, and local economic and industry conditions to remain viable over time. Also, examiners should determine whether any secular, cyclical, or seasonal factors are present that may favorably or unfavorably affect the NIC's earnings. Current knowledge of such conditions and factors can be obtained by reviewing economic and industry information in newspapers and industrial journals.

Earnings Analysis Trail

Generally, the analysis of earnings begins with the examiner reviewing each component of the earnings analysis trail. The earnings analysis trail provides a means of isolating each major component of the income statement for individual analysis. The earnings analysis trail consists of the following income statement components: net interest income, noninterest income, noninterest expense, provision for losses related to leases and/or controllable electronic lending products and services, and income taxes.

Each component of the earnings analysis trail is initially reviewed in isolation. Typically, ratios are examined to determine a broad level view of the component's performance. The level of progression along the analysis trail will depend on a variety of factors including the level and trend of the ratio(s), changes since the previous examination, and the NIC's risk profile.

The balance sheet composition, or structure, is determined by management. Any material shifts in the balance sheet structure will cause changes to any ratios using a numerator or denominator from the balance sheet (e.g., average assets and average earning assets). Therefore,

examiners should be aware that significant changes in the balance sheet structure can materially affect earnings performance.

Ratio Analysis

Several, but not all, of the key ratios used in the earnings section are listed below and referenced in the UBPR. Refer to additional ratios and the UBPR User's Guide as needed.

Net Income to Average Assets Ratio

This ratio is also known as the Return on Average Assets (ROAA) ratio and consists of bottom-line after-tax net income, including securities gains/losses and extraordinary items, as a percentage of average assets. The ROAA is a common starting point for analyzing earnings because it gives an indication of the return on the NIC's overall activities. A typical ROAA level is different, depending on the size, location, activities, and risk profile of the NIC. For example, a NIC solely offering custodial services may achieve a higher ROAA ratio that exceeds those realized by a NIC offering various digital asset products and services. Although the ROAA provides an overall performance measure, the individual components comprising the ROAA need to be reviewed. These sub-components will be discussed later in this section.

Net Interest Income (TE) to Average Assets Ratio

The ratio of Net Interest Income (NII) to Average Assets is also known as the NII ratio and measures annualized total interest income, plus the tax benefit on tax-exempt income, less total interest expense, divided by average assets.

TE adjustments are made to enable meaningful comparisons for banks that have tax-exempt income. These adjustments are discussed in detail in the UBPR User's Guide. Consideration should be given to the impact of tax-free investments and the related adjustment(s) made to the ratio(s) when material.

This ratio typically represents the NIC's largest revenue component. While a higher NII ratio is generally favorable, it can also be reflective of a greater degree of risk within the asset base. A NIC's primary income revenue is generated from its securities portfolio as well as its income from lending and business services. Neb. Rev. Stat. §8-3005(2)(b) states that a "digital asset depository institution may facilitate the provision of digital asset business activities resulting from the interaction of customers with centralized finance or decentralized finance platforms." These platforms include, but are not limited to, controllable electronic record exchange, staking, controllable electronic record lending, and controllable electronic record borrowing.

The NII ratio can be broken down into two sub-component ratios: Interest Income (TE) to Average Assets and Interest Expense to Average Assets. These ratios and their related components can be analyzed to determine the root cause(s) of any changes in the ratio and their subsequent effect on the ROAA.

Net Interest Income (TE) to Average Earnings Assets Ratio

This ratio is also known as the Net Interest Margin (NIM). The ratio is comprised of annualized total interest income on a TE basis, less total interest expense, divided by average earnings assets. This ratio indicates how well management employed the earning asset base. The NIM is more useful than the NII for measuring the profitability of the NIC's primary activities because the denominator focuses strictly on assets that generate income rather than the entire asset base.

The sub-components of the NIM – the ratios of Interest Income to Average Earnings Assets and Interest Expense to Average Earning Assets – can be analyzed to determine the root causes of NIM changes. These ratios may change for a variety of reasons, for example, the interest rate environment may impact the yields and rates of the lending and staking products and services being offered.

Noninterest Income to Average Assets Ratio

This ratio is comprised of annualized income from NIC services and sources other than interest-bearing assets, divided by average assets. Level, trend, and overall contribution of noninterest income to earnings performance should be analyzed. If the contribution represents a major portion of the NIC's total revenue, specific sources of noninterest income need to be identified. An assessment as to whether or not these sources are core versus nonrecurring should be made.

Noninterest income is largely of a fee nature; fees on accounts, fiduciary income, and certain types of commitment fees, and fees related to controllable electronic lending products and services. The results of trading operations and a variety of miscellaneous transactions are also included.

Noninterest Expense to Average Assets Ratio

This ratio is also referred to as the Overhead (OH) ratio and is calculated by annualizing expenses related to salaries and employees' benefits, expenses of premises and fixed assets, and other noninterest expenses, divided by average assets. Levels and trends of each component should be assessed and the types of expenses representing the largest overhead components should be determined. Examples of the type of costs that may lead to an inordinately high level of overhead expenses include excessive salaries and bonuses, sizable management fees paid to the NIC holding company, and high net occupancy expenses caused by the purchase or construction of a new NIC building.

Other related ratios such as average personnel expense per employee, average assets per employee, and the efficiency ratio may provide useful information. The level of these ratios and the overall effect on earnings performance should be analyzed. If significant, specific sources of noninterest expense need to be identified. An assessment as to whether these sources are core versus nonrecurring should be considered during the earnings analysis.

The existence of unwarranted and unjust compensation of NIC insiders is of particular concern, especially when those expenses are likely to result in harm to the NIC and the assets backing the outstanding stablecoin. In this regard, NDBF has leveraged the FDIC's safety and soundness standards (Appendix A to Part 364) which states that both excessive compensation and compensation that could lead to material financial loss to a NIC are prohibited as unsafe and unsound practices. While just and equitable employee and directorate compensation is essential for the acquisition and retention of competent management, there are instances when NIC insiders profit from unwarranted compensation. Unwarranted and unjust compensation and related expenses to NIC insiders should be dealt with through whatever means are necessary to cease these abuses. This is particularly critical in lower-rated NICs. In such NICs, the directorate should be reminded of their fiduciary responsibility for the preservation and conservation of NIC funds. Additionally, management fees assessed by parent NIC holding companies should be considered for appropriateness and level since they may be significant.

Provision for Loan and Lease Losses (PLLL) to Average Assets Ratio

This ratio shows the annualized percentage of PLLL in relation to average assets. Material changes in the volume of PLLL (either positively or negatively) should be investigated. Higher provisions should result if the lending mix changes significantly from products and services with lower to higher historical loss experience or if economic conditions have declined and have produced a deterioration of lending quality. In situations where the economy is improving and lending quality is stabilizing or improving, lower PLLLs may be appropriate.

When assessing the PLLL, examiners need to determine whether the level of the ACL is appropriate to absorb estimated credit losses inherent in the lending and lease portfolio. An ACL that is not at an appropriate level may be due to any one or a combination of reasons. For example, an ACL that is below an appropriate level may be caused by a decline in lending quality identified during the examination, an inaccurate ACL methodology, or an attempt by management to manipulate earnings. If the ACL is deemed to be materially insufficient during the examination, management will be required to take an additional PLLL to bring the ACL to an appropriate level, thereby increasing the NIC's expenses and adversely affecting earnings. Earnings ratios affected by this charge to the PLLL should be adjusted and reflected in the earnings analysis.

Refer to the Loans section of this manual and the Call Report Instructions for additional information on the ACL.

Realized Gains/Losses on Securities to Average Assets Ratio(s)

The ratio of securities gains/losses to average assets shows the annualized percentage of net realized gains or losses on available-for-sale and held-to-maturity securities in relation to average assets. The level, trend, and overall contribution that securities transactions have on earnings performance should be analyzed.

NIC management may purchase and sell securities for many reasons, but most NICs limit investment activity to ensure adequate liquidity is available to meet unanticipated funding needs and to invest excess funds (i.e., when controllable electronic lending product and service demand is low). Examiners should determine whether management actively engages in the sale of securities. When management actively manages their

portfolio, this securities activity should be considered part of the NIC's core operations. Examiners should assess management's strategies and their implementation. For example, examiners should be alert for instances where investments with unrealized gains are sold while those with unrealized losses are held and should ascertain the reasons for these transactions. Examiners should consider these types of instances when assessing earnings prospects.

While actively selling securities may not be part of a NIC's core operations, there are many reasons why management may sell securities. Among the reasons for which management may sell securities that would not be part of a NIC's normal operations would be when management needs to restructure the portfolio to maintain or change portfolio duration, to maintain or change portfolio diversification, or to take advantage of some tax implications or some other combination of these reasons. When not part of a NIC's core operations, examiners should eliminate the gains or losses adjusted for taxes so as to not distort core operating results. The elimination of these gains or losses allows for level and trend analysis of core operations.

Realized Gains/Losses on Assets Backing Outstanding Stablecoin to Average Assets Ratio(s)

Neb. Rev. Stat. §8-3009(1) states in part that "at all times a digital asset depository shall maintain unencumbered liquid assets denominated in United States dollars valued at not less than one hundred percent of the value of any outstanding stablecoin issued by the digital asset depository." Neb. Rev. Stat. §8-3009(2) further defines liquid assets as the following:

- United States currency held on the premises of the digital asset depository that is not a digital asset depository institution
- United States currency held for the NIC by a federal reserve bank or a Federal Deposit Insurance Corporation-insured financial institution which has a main-chartered office in this state, any branch of the financial institution which maintained a main-chartered office in this state prior to becoming a branch of such financial institution; or
- Investments which are highly liquid and obligations of the United States Treasury or other federal agency obligations, consistent with rules and regulations or order adopted by the Director

The ratio of realized gains/losses on assets backing outstanding stablecoin to average assets shows the annualized percentage of net realized gains or losses on the assets backing outstanding stablecoin in relation to average assets. The level, trend, and overall contribution that securities transactions have on earnings performance should be analyzed.

NIC management may purchase and sell securities for many reasons, but most NICs limit investment activity to ensure adequate liquidity is available to meet unparticipating funding needs.

Examiners should determine whether management actively engages in the sale of reserve account securities. When management actively manages their reserve account portfolio, this account activity should align with the statutory liquidity requirements. Further, management of and activity within the reserve account should align with the strategic goals and policies set forth by the board. Examiners should assess management's strategies and their implementation. For example, examiners should be alert for instances where investments with unrealized gains are sold while those with unrealized losses are held and should ascertain the reasons for these transactions. Examiners should consider these types of instances when assessing earnings prospects.

Other Considerations

Income Taxes

It is important to judge whether applicable income taxes, that is, the provision for taxes, seems appropriate and whether a shift in the effective tax rate has occurred. In determining the appropriateness of income taxes, several tax ratios are provided within the UBPR. These ratios generally compare the amount of applicable taxes to net operating income. In order to ensure that only taxable income is compared to applicable income taxes, certain adjustments are necessary for income received on municipal securities and other investments which are tax-exempt in nature.

If the tax ratios provided on the UBPR differ significantly from the rate of taxes that should have been paid, based upon the NIC's tax bracket, further analysis is necessary to determine the reasons for such a discrepancy. For example, a NIC with a high tax ratio may have invested too heavily in tax-exempt assets, with the result that the potential tax savings was not fully realized. In addition, certain tax incentives, such as investment tax credits received in connection with the acquisition of NIC equipment, may have the effect of lowering the tax rate. The ability or inability to carryback or carryforward operating losses for tax purposes will also impact the NIC's effective tax rate. Tax ratios may appear abnormal

due to management's failure to adequately accrue for income tax expense on a current basis. Appropriate tax accruals should be made on a regular basis and at least with enough frequency to allow for the preparation of accurate Call Reports.

In almost all cases, applicable income taxes reported in the Call Report will differ from the amounts reported to taxing authorities. The applicable income tax expense or benefit that is reflected in the Call Report should include both taxes currently paid or payable (or receivable) and deferred income taxes. Deferred income tax expense or benefit is measured as the change in the net deferred tax assets or liabilities for the period reported. Deferred tax liabilities and assets represent the amount by which taxes payable (or receivable) are expected to increase or decrease in the future as a result of "temporary differences" and net operating loss or tax credit carry forwards that exist at the Call Report date.

A higher-than-normal ratio of applicable income taxes to NOI may result from upstreaming income tax payments to a NIC holding company. In general, the cash transfers paid by the NIC to the holding company should not exceed the amount of tax the NIC would have paid had a tax return been filed on a separate return basis. In addition, any payments made to the holding company shall not be required to be remitted until such time as those payments would have been due to the taxing authority. Thus, deferred income taxes on the NIC's books should not be up streamed to the holding company until such time as those taxes would be otherwise payable to the taxing authority. Holding companies and subsidiary institutions are encouraged to enter into a written, comprehensive tax allocation agreement tailored to their specific circumstances. The agreement should be approved by the respective boards of directors.

Earnings are also evaluated on their ability to support capital. This support includes maintaining capital, as well as increasing capital. High earnings retention increases capital more rapidly, but may or may not be necessary for the NIC. If growth is low, profits high, and capital strong, in relation to assets, a relatively high dividend payout ratio may be acceptable. On the other hand, if growth is rapid, profits are low, and capital is weak, a high dividend payout stands in the way of retaining needed capital. Under such circumstances, a lower payout ratio would clearly be appropriate.

The retention rate must be analyzed relative to the NIC's potential growth rate. A NIC in a developing trade area may forecast substantial growth, which cannot be supported by existing capital even if cash dividends are not paid. Since most NIC stocks are viewed by the investor as income generating rather than growth related, a low dividend history may hamper the NIC's ability to market a new stock offering.

The NIC's flexibility to reduce dividend payments should be considered when analyzing the impact of dividends upon earnings. For example, a NIC that has a highly leveraged holding company may lack flexibility to significantly lower dividend declarations, because those dividends are being used to meet debt service requirements.

In undercapitalized NICs, steps should be taken to strongly discourage the continuation of cash dividends and/or other distributions. If necessary, additional steps should be taken to administratively prohibit such dividends/distributions where the NIC is undercapitalized and has a high-risk profile, or is substantially undercapitalized, no matter what the degree of perceived risk. There may be isolated instances where the continuation of cash dividends/distributions is warranted even under fairly severe circumstances. In such cases, the continuation of these payments without supervisory action should be fully supported.

Extraordinary Items

Extraordinary items are material events and transactions that are unusual and infrequent. Both of these conditions must exist in order for an event or transaction to be reported as an extraordinary item.

To be unusual, an event or transaction must be highly abnormal or clearly unrelated to the ordinary and typical activities of the NIC. An event or transaction that is beyond NIC management's control is not automatically considered to be unusual.

To be infrequent, an event or transaction should not reasonably be expected to recur in the foreseeable future. Although the past occurrence of an event or transaction provides a basis for estimating the likelihood of its future occurrence, the absence of a past occurrence does not automatically imply that an event or transaction is infrequent.

Only a limited number of events or transactions qualify for treatment as extraordinary items. Among these are losses that result directly from a major disaster such as an earthquake (except in areas where earthquakes are expected to recur in the foreseeable future), an expropriation, or a prohibition under a newly enacted law or regulation.

Accounting Considerations

The analysis of earnings may be further complicated by the adoption of new accounting standards or changes in accounting methodologies. When analyzing earnings, examiners should be aware of changes in accounting standards that may have materially affected related ratios and, when material, make necessary adjustments to the

ratios, on a tax adjusted basis, to be able to perform trend analysis. Over time, however, adjustments will no longer need to be made as reported operating performance will reflect the implementation of the accounting changes over enough periods that trend analysis will not be affected.

Quality of NIC Earnings

Earnings quality is the ability of a NIC to continue to realize strong earnings performance. It is quite possible for a NIC to register impressive profitability ratios and high dollar volumes of income by assuming an unacceptable degree of risk. An inordinately high ROAA is often an indicator that the NIC is engaged in higher risk activities. For example, NIC management may have taken on investments that provide the highest return possible but are not of a quality to assure either continued debt servicing or principal repayment. Short-term earnings will be boosted by seeking higher rates for earning assets with higher credit risk. Eventually, however, earnings may suffer if losses in these higher-risk assets are recognized.

Dividends

In addition, some of the NIC's adversely classified and nonperforming assets, especially those upon which future interest payments are not anticipated, may need to be reflected on a nonaccrual basis for income statement purposes. If such assets are not placed on a nonaccrual status, earnings will be overstated. Similarly, material amounts of troubled debt restructured assets may have an adverse impact on earnings.

As previously discussed, a NIC's asset quality has a close relationship to the analysis of earnings quality. Poor asset quality may necessitate increasing the PLLL to bring the ACL to an appropriate level and must be reviewed for impact on earnings quality.

Additionally, short-term earnings performance can be enhanced by extraordinary items and tax strategies. For example, a NIC may dispose of high-yielding assets to record gains in current periods but may only be able to reinvest the funds at a lower rate of return. Levels and trends in earnings performance would be positive, although future income potential is sacrificed. Conversely, a NIC might dispose of assets at a loss to take advantage of tax loss carryback provisions and enhance future earnings potential. Current earnings levels and trends would be poor in such a case, but funds recaptured through this strategy may greatly improve future earnings capacity. The point is that no analysis of earnings is complete without a consideration of earnings quality and a complete investigation and understanding of the strategies employed by NIC management.

Planning And Budgeting

Strategic Plan

A strategic plan is a methodology that an organization uses to accomplish important goals and objectives. Regardless of the NIC's size, a strategic plan can help an organization outline future goals and objectives and the steps needed to achieve such. For NICs that plan significant growth, new products, new branches, or other initiatives, strategic planning becomes even more important. Many NICs have formal, written strategic plans, while others rely on a much less formal method. If a formal, written strategic plan does not exist, this matter should be discussed with the board/management to determine the NIC's overall goals, objectives, and long-term plans. Additional information on Corporate Planning is contained in the Management section of this manual. The Examination Documentation (ED) Modules also provide guidance in this area.

Profit Plan

A profit plan is an overall forecast of the income statement for the period based on management's decisions, intentions, and their estimation of economic conditions. It addresses such things as the anticipated level and volatility of interest rates, local economic conditions, funding strategies, asset mix, pricing, growth objectives, interest rate and maturity mismatches, etc. The accuracy of any such plan is susceptible to the attainability of the aforementioned assumptions.

Budget

Within the profit plan there is a budget. The budget is essentially an expense control technique where management decides how much is intended to be spent during the period on individual overhead expense items. The budget should be consistent with the overall business or profit plan. All NICs, regardless of size, should be encouraged to prepare a profit plan and budget that addresses the current year and the next operating year. The degree of sophistication or comprehensiveness of a budget and profit plan may vary considerably based on the size of the NIC and the complexity of the assets and income sources.

The NDBF has leveraged the FDIC's Part 364 entitled Standards for Safety and Soundness. Appendix A of Part 364 outlines standard procedures that NICs should employ periodically to evaluate and monitor earnings, thereby ensuring that earnings are sufficient to maintain adequate capital and reserves. At a minimum, management's analysis of earnings should:

- Compare recent earnings trends relative to equity, assets, or other commonly used benchmarks to the NIC's historical results and those of its peers;
- Evaluate the adequacy of earnings given the size, complexity, and risk profile of the NIC's assets and operations;
- Assess the source, volatility, and sustainability of earnings, including the effect of nonrecurring or extraordinary income or expenses;
- Take steps to ensure that earnings are sufficient to maintain adequate capital and reserves after considering asset quality and growth rate; and
- Provide periodic earnings reports with adequate information for management and the board of directors to assess earnings performance.

A NIC's profit plan and budget should be reviewed for reasonableness with particular attention paid to the underlying assumptions. The forecast and assumptions should be consistent with what is known about the NIC such as the volume of classified assets, nonaccrual and renegotiated debt levels, the adequacy of the ACL, and other examination findings that have earnings implications. Comparison between the NIC's forecast for the previous year to actual performance as displayed in the NIC's own reports and in the UBPR can provide a reasonableness check. Any material discrepancies should be discussed with management; and, if the explanation is unreasonable, the NIC's forecast may need to be adjusted to determine the effect of more reasonable assumptions.

If there is no plan or budget for the NIC, examiners may need to develop their own forecast to aid in their judgments. In any case, it will normally be necessary to discuss future prospects with management. Care should be taken in these discussions not to present the examiner's forecast as absolute, or to recommend specific strategies or transactions to management based on an examiner's forecast. Planning is the primary function of management. Examiner efforts are only an attempt to discover any undue risk and highlight any factors that may significantly impact future performance in either a positive or negative manner.

Deficiencies in the profit plan or budget, or the lack thereof, should be documented in the appropriate section of the examination report.

Evaluating Earnings Performance

This rating reflects not only the quantity and trend of earnings but also factors that may affect the sustainability or quality of earnings. The quantity as well as the quality of earnings can be affected by excessive or inadequately managed credit risk that may result in losses and require additions to the allowance for lending and lease losses, or by high levels of market risk that may unduly expose a NIC's earnings to volatility in interest rates. The quality of earnings may also be diminished by undue reliance on extraordinary gains, nonrecurring events, or favorable tax effects. Future earnings may be adversely affected by an inability to forecast or control funding and operating expenses, improperly executed or ill-advised business strategies, or poorly managed or uncontrolled exposure to other risks. The rating of a NIC's earnings is based upon, but not limited to, an assessment of the following evaluation factors:

- The level of earnings, including trends and stability.
- The ability to provide for adequate capital through retained earnings.
- The quality and sources of earnings.
- The level of expenses in relation to operations.
- The adequacy of the budgeting systems, forecasting processes, and management information systems in general.
- The adequacy of provisions to maintain the allowance for lending and lease losses and other valuation allowance accounts.
- The earnings exposure to market risk such as interest rate, foreign exchange, and price risks.

Ratings

A rating of 1 indicates earnings that are strong. Earnings are more than sufficient to support operations and maintain adequate capital and allowance levels after consideration is given to asset quality, growth, and other factors affecting the quality, quantity, and trend of earnings.

A rating of 2 indicates earnings that are satisfactory. Earnings are sufficient to support operations and maintain adequate capital and allowance levels after consideration is given to asset quality, growth, and other factors affecting the quality, quantity, and trend of earnings. Earnings that are relatively static, or even experiencing a slight decline, may receive a 2 rating provided the NIC's level of earnings is adequate in view of the assessment factors listed above.

A rating of 3 indicates earnings that need to be improved. Earnings may not fully support operations and provide for the accretion of capital and allowance levels in relation to the NIC's overall condition, growth, and other factors affecting the quality, quantity, and trend of earnings.

A rating of 4 indicates earnings that are deficient. Earnings are insufficient to support operations and maintain appropriate capital and allowance levels. NICs so rated may be characterized by erratic fluctuations in net income or net interest margin, the development of significant negative trends, nominal or unsustainable earnings, intermittent losses, or a substantive drop in earnings from the previous years.

A rating of 5 indicates earnings that are critically deficient. A NIC with earnings rated 5 is experiencing losses that represent a distinct threat to its viability through the erosion of capital.

LIQUIDITY AND FUNDS MANAGEMENT

Introduction

Liquidity is the ability to meet cash and collateral obligations at a reasonable cost. Maintaining an adequate level of liquidity helps ensure the NIC's ability to efficiently meet both expected and unexpected cash flow and collateral needs without adversely affecting the NIC's operations or financial condition. Liquidity is essential to meet customer redemptions, compensate for balance sheet fluctuations, and provide funds for growth. Funds management involves estimating liquidity requirements and meeting those needs in a cost-effective way. Effective funds management involves management estimating and planning for liquidity demands over various periods and considering how funding requirements may evolve under various scenarios, including adverse conditions. This planning includes identifying and maintaining sufficient levels of cash, liquid assets, and accessible borrowing lines to meet expected and contingent liquidity demands.

Liquidity risk reflects the possibility a NIC will be unable to obtain funds, such as customer deposits or borrowed funds, at a reasonable price or within a necessary period to meet its financial obligations. Failure to adequately manage liquidity risk can quickly result in negative consequences, including failure, for a NIC despite strong capital and profitability levels. Therefore, it is critically important that management implement and maintain sound policies and procedures to effectively measure, monitor, and control liquidity risks.

A certain degree of liquidity risk is inherent in digital asset business activities. A NIC's challenge is to accurately measure and prudently manage liquidity demands and funding positions. To efficiently support daily operations and provide for contingent liquidity demands, management:

- Establishes an appropriate liquidity risk management program,
- Ensures adequate resources are available to fund ongoing liquidity needs,
- Establishes a funding structure commensurate with the NIC's risk profile,
- Evaluates exposures to contingent liquidity events, and
- Ensures sufficient resources are available to meet contingent liquidity needs.

Risk Management Program

A NIC's liquidity risk management program establishes the liquidity management framework.

Comprehensive and effective programs encompass all elements of a NIC's liquidity, ranging from how management manages routine liquidity needs to managing liquidity during a severe stress event. Elements of a sound liquidity risk management program include:

- Effective management and board oversight;
- Appropriate liquidity management policies, procedures, strategies, and risk limits;
- Comprehensive liquidity risk measurement and monitoring systems;
- Adequate levels of marketable assets;
- A diverse mix of existing and potential funding sources;
- Comprehensive and actionable contingency funding plans;
- Appropriate plans for potential stress events; and
- Effective internal controls and independent reviews.

The formality and sophistication of effective liquidity management programs are commensurate with the NIC's complexity, risk profile, and scope of operations, and examiners should assess whether programs meet the NIC's needs. Examiners should consider whether liquidity risk management activities are integrated into the NIC's overall risk management program and address liquidity risks associated with new or existing business strategies.

Close oversight and sound risk management processes (particularly when planning for potential stress events) are especially important if management pursues asset growth strategies that rely on new or potentially less stable funding sources.

Board and Senior Management Oversight

Board oversight is critical to effective liquidity risk management. The board is responsible for establishing the NIC's liquidity risk tolerance and clearly communicating it to all levels of management. Additionally, the board is responsible for reviewing, approving, and periodically updating liquidity management strategies, policies, procedures, and risk limits. When assessing the effectiveness of board oversight, examiners should consider whether the board:

- Understands and periodically reviews the NIC's current liquidity position and contingency funding plans;
- Understands the NIC's liquidity risks and periodically reviews information necessary to maintain this understanding;
- Authorizes an asset/liability management level committee (ALCO), or similar committee, to perform specific tasks and to oversee liquidity and funds management, and reviews the minutes of the ALCO;
- Establishes executive-level lines of authority and responsibility for managing the NIC's liquidity risk;
- Provides appropriate resources to management for identifying, measuring, monitoring, and controlling liquidity risks; and
- Understands the liquidity risk profiles of significant subsidiaries and affiliates.

Management is responsible for appropriately implementing board-approved liquidity policies, procedures, and strategies. This responsibility includes overseeing the development and implementation of appropriate risk measurement and reporting systems, contingency funding plans, and internal controls. Management is also responsible for regularly reporting the NIC's liquidity risk profile to the board.

Examiners should evaluate whether the ALCO (or similar committee) actively monitors the NIC's liquidity profile. Effective ALCOs have representation across major functions (e.g., lending, investments, wholesale and retail funding) that may influence the liquidity risk profile. The committee is usually responsible for ensuring that liquidity reports include accurate, timely, and relevant information on risk exposures.

Examiners should evaluate corporate governance by reviewing liquidity management processes (including daily, monthly, and quarterly activities), committee minutes, liquidity and funds management policies and procedures, and by holding discussions with management. Additionally, examiners should consider the findings of independent reviews and prior reports of examination when assessing the effectiveness of corrective actions.

Liquidity Management Strategies

Liquidity management involves short- and long-term strategies that can change over time, especially during times of stress. Therefore, the NIC's policies often require management to meet regularly and consider liquidity costs, benefits, and risks as part of the NIC's overall strategic planning and budgeting processes. As part of this process, management:

- Performs periodic liquidity and profitability evaluations for existing activities and strategies;
- Identifies primary and contingent funding sources needed to meet daily operations, as well as seasonal and cyclical cash flow fluctuations;
- Ensures liquidity management strategies are consistent with the board's expressed risk tolerance; and Evaluates liquidity and profitability risks associated with new business activities and strategies.

Collateral Position Management

Financial assets are a key funding source, as they can generate substantial cash inflows through principal and interest payments. Financial assets can also provide funds when sold or when used as collateral for borrowings. Management routinely pledges assets when borrowing funds or obtaining credit lines from correspondent financial institutions, the Federal Home Loan Bank (FHLB), the Federal Reserve discount window, or other NICs.

Collateral management is the practice of identifying and managing the NIC's assets that may be pledged as collateral to another party. An effective collateral management program aids in monetizing (i.e. converting to cash via collateralized borrowing) potentially less liquid assets for use in conducting payments, funding loans, or satisfying deposit withdrawals.

Characteristics of an effective collateral management system may include the ability to:

- Identify and track the movement of pledged collateral, including the entity to which the collateral is pledged, the entity that has custody of the collateral, and unencumbered available collateral, at the individual instrument level.
- Have a centralized view into all pledged collateral, including the value of collateral pledged relative to the amount required and the availability of unencumbered collateral by type and amount.
- Manage collateral positions to avoid accidental double encumbrance. Typically, each funds provider would need to release or subordinate its lien before another counterparty will advance secured credit (examiners should recognize that providers of funds on a secured basis, such as correspondent financial institutions, do not share collateral or liens on a NIC's pledged assets).
- Identify all borrowing agreements (contractual or otherwise) that may require the NIC to provide

additional collateral, substitute existing collateral, or deliver collateral, such as requirements that may be triggered by changes in a NIC's financial condition.

- Monitor the change in market value, credit quality, and performance of collateral instruments so as to be able to anticipate and meet calls for additional collateral.

During a liquidity stress event, management's ability to respond quickly to emergency funding needs is critical and may depend on the quality and effectiveness of the pledged collateral reporting and tracking systems. In practice, demands for collateral must often be met within just a few hours. In order to meet the timeliness requirements, a NIC may pledge cash or readily available highly liquid investment securities, such as U.S. Treasuries. However, given more time, it may be able to substitute less liquid instruments and return the more liquid instruments to available inventory. The practice of replacing previously pledged collateral with less liquid collateral that will still be deemed acceptable by the secured party is known as collateral optimization. This activity increases a NIC's ability to rapidly obtain funding from its more liquid collateral but also requires more advanced management and reporting systems.

Examiners should determine whether the NIC has collateral management and reporting systems that are commensurate with the NIC's funding structure, potential borrowing needs, and overall risk profile, including determining whether reporting systems facilitate the monitoring and management of assets pledged and of assets that can be pledged as collateral for borrowed funds. This determination includes reviewing collateral tracking or pledged asset reports.

Examiners should also determine whether management:

- Considers potential changes to collateral requirements in cash flow projections, stress tests, and contingency funding plans; and
- Understands the operational and timing requirements associated with accessing collateral (such as at a custodian NIC or a securities settlement location where the collateral is held).

Policies, Procedures, and Reporting

Liquidity Policies and Procedures

Comprehensive written policies, procedures, and risk limits form the basis of liquidity risk management programs. All NICs benefit from board-approved liquidity management policies and procedures specifically tailored for their NIC.

Even when operating under a holding company with centralized planning and decision making, each NIC's board has a legal responsibility to maintain policies, procedures, and risk limits tailored to its individual NIC's risk profile. And each NIC's board is responsible for ensuring that the structure, responsibility, and controls for managing the NIC's liquidity risk are clearly documented. To fulfill its oversight responsibilities, a prudent board regularly monitors reports that highlight NIC-specific liquidity factors.

Boards that review and approve liquidity policies at least annually ensure such policies remain relevant and appropriate for the NIC's business model, complexity, and risk profile. Written policies are important for defining the scope of the liquidity risk management program and ensuring that:

- Sufficient resources are devoted to liquidity management,
- Liquidity risk management is incorporated into the NIC's overall risk management process, and
- Management and the board share an understanding of strategic decisions regarding liquidity.

Effective policies and procedures address liquidity matters (such as legal, regulatory, and operational issues) separately for legal entities, business lines, and, when appropriate, individual currencies. Sound liquidity and funds management policies typically:

- Provide for the effective operation of the ALCO. The ALCO policies address responsibilities for assessing current and projected liquidity positions, implementing board-approved strategies, reviewing policy exceptions, documenting committee actions, and reporting to the board;
- Address permissible funding sources and concentration limits. Items addressed generally include funding types with similar rate sensitivity or volatility; Provide a method of computing the NIC's cost of funds;

- Establish procedures for measuring and monitoring liquidity. Procedures generally include static measurements and cash flow projections that forecast base case and a range of stress scenarios;
- Address the type and mix of permitted investments. Items addressed typically include the maturity distribution of the portfolio, identification of investments backing outstanding stablecoin, which investments are available for liquidity purposes, and the level and quality of unpledged investments;
- Define asset type and mix backing outstanding stablecoin;
- Include a liquidity program and policy specifically for the assets backing outstanding stablecoin;
- Provide for an adequate system of internal controls. Controls typically require periodic, independent reviews of liquidity management processes and compliance with policies, procedures, and risk limits;
- Include a contingency funding plan (CFP) that identifies alternate funding sources if liquidity projections are incorrect, or a liquidity crisis arises and describes potential stress scenarios;
- Require periodic testing of borrowing lines and consider operational impediments to implementing the CFP;
- Establish procedures for reviewing and documenting assumptions used in liquidity projections;
- Define procedures for approving exceptions to policies, limits, and authorizations;
- Identify permissible wholesale funding sources;
- Define authority levels and procedures for accessing wholesale funding sources;
- Establish a process for measuring and monitoring unused borrowing capacity and for verifying, and positioning, unencumbered collateral;
- Convey the board's risk tolerance by establishing target liquidity ratios and parameters under various time horizons and scenarios; and
- Include other items unique to the NIC.

Risk Tolerances

Examiners should consider whether liquidity policies accurately reflect the board's risk tolerance and delineate qualitative and quantitative guidelines commensurate with the NIC's risk profile and balance sheet complexity. Typical risk guidelines include:

- Targeted cash flow gaps over discrete and cumulative periods and under expected and adverse business conditions;
- Expected levels of unencumbered liquid assets;
- Expected levels of pledged liquid assets for the assets backing outstanding stablecoin;
- Measures for liquid asset coverage ratios (e.g., liquid assets to total assets, cash and confirmed borrowing capacity to total liabilities;
- Limits on potentially unstable liabilities;
- Concentration limits on assets that may be difficult to convert into cash (such as complex financial instruments, depreciated securities, NIC-owned life insurance, and less-marketable assets;
- Limits on the level of borrowings or exposures to single fund providers or market segments;
- Funding diversification standards by tenor, source, and type;
- Limits on contingent liability exposures such as unfunded lending commitments or lines of credit;
- Collateral requirements for derivative transactions and secured lending;
- Limits on material exposures in complex activities (such as securitizations, derivatives, trading, and international activities).

Examiners should consider whether management and the board establish meaningful risk limits, periodically evaluate the appropriateness of established limits, and compare actual results to approved risk limits. Identified policy exceptions, as well as the appropriateness and promptness of corrective actions in response to these exceptions, are typically noted in board or committee minutes.

Liquidity Reporting

Timely and accurate information is a prerequisite to sound funds management practices. NICs benefit from liquidity risk reports that clearly highlight the NIC's liquidity position, risk exposures, and level of compliance with internal risk limits.

Examiners should assess liquidity reporting procedures. Typically, NIC personnel tasked with ongoing liquidity administration receive liquidity risk reports at least daily. Senior officers may receive liquidity reports weekly or monthly, and the board may receive liquidity risk reports monthly or quarterly. Depending on the complexity of business activities and the liquidity risk profile, NICs may need to increase, sometimes on short notice, the frequency of liquidity reporting.

The format and content of liquidity reports will vary depending on the characteristics of each NIC and its funds management practices. Examiners should consider whether a NIC's management information systems and internal reports provide accurate, pertinent information such as:

- Liquidity needs and the sources of funds available to meet these needs over various time horizons and scenarios (reports are often referred to as pro forma cash flow reports, sources and uses reports, or scenario analyses);
- Collateral positions and funds providers (lienholders), including pledged and unpledged assets (and when necessary, the availability of collateral by legal entity, jurisdiction, and currency exposure);
- Public funds and other material providers of funds (including rate and maturity information);
- Funding categories and concentrations;
- Asset yields, liability costs, net interest margins, and variations from the prior month and budget (beneficial reports are detailed enough to permit an analysis of interest margin variations);
- Early warning indicators for contingency funding events or signs of increasing liquidity pressure;
- Conformance with policy risk limits and the status of policy exceptions;
- Interest rate projections and economic conditions in the NIC's trade area;
- Information concerning non-relationship or higher cost funding programs;
- The stability of account holders, providers of wholesale funds (including staking), and other deposits received through third-party arrangements;
- The level of highly liquid assets;
- Stress test results; and
- Other items unique to the NIC.

Liquidity Risk Measurement

To identify potential funding gaps, management typically monitors cash flows, assesses the stability of funding sources, and projects future funding needs. When assessing a NIC's liquidity rating, examiners should evaluate a NIC's liquidity risk measurement and monitoring procedures.

Pro Forma Cash Flow Projections

Cash flow forecasts can be useful for all NICs and become essential when operational areas (e.g., digital asset business activities, or investments) are complex or managed separately from other areas. Cash flow projections enhance management's ability to evaluate and manage these areas individually and collectively.

The sophistication of cash flow forecasting ranges from the use of simple spreadsheets to comprehensive liquidity risk models. Some vendors that offer interest rate risk (IRR) models also provide options for modeling liquidity cash flows because the base information is already maintained for IRR modeling. When reviewing liquidity risk models, examiners should verify that management compares funding sources and uses over various periods and that modeling assumptions are appropriate for evaluating liquidity risk rather than IRR.

Cash flow projections typically forecast funding sources and uses over short-, medium-, and long-term time horizons. Non-complex community NICs that are in sound condition may forecast short-term positions monthly. More complex NICs may need to perform weekly or daily forecasts, and NICs with large payment systems and settlement activities may need to conduct intraday measurements. All NICs can benefit from having the ability to increase the frequency of monitoring and reporting during a stress event.

Effective cash flow analysis allows management to plan for tactical (short-term) and strategic (medium- and long-term) liquidity needs. Examiners should review the NIC's procedures, assumptions, and information used to develop cash flow projections. For example, examiners should consider whether funding sources and uses are adequately stratified, as excessive account aggregations in liquidity

analysis can mask substantial liquidity risk. Similar to measuring IRR, there are advantages to using account-level information. For some NICs, gathering and measuring information on specific accounts may not be feasible due to information system limitations. Although the advantages of using detailed account information may not be as evident for a non-complex NIC, generally, all NICs can benefit from using more detailed account information in their liquidity models.

Examiners should carefully assess the assumptions that management uses when projecting cash flows. Reliability is enhanced when projections are based on reasonable assumptions and reliable data. Additionally, the accuracy and reliability of cash flow projections are enhanced when projected cash flows consider contractual and expected cash flows.

Modeling assumptions play a critical role in projecting cash flows and measuring liquidity risks. Therefore, NICs benefit from ensuring key assumptions are reasonable, well documented, and periodically reviewed and approved by the board. Ensuring the accuracy of assumptions is also important when assessing the liquidity risk of complex assets, liabilities, and off-balance sheet positions and can be critical when evaluating the availability of funding sources under adverse liquidity scenarios. Accurate and reliable cash flow forecasting can benefit NICs by identifying liquidity risks.

Back Testing

The reliability of cash flow projections may also be enhanced if management evaluates assumptions about customer behavior, separately estimates gross cash flows on both sides of the balance sheet and compares modeling projections to actual results (back testing). Back testing allows management to make adjustments to cash flow models and modeling assumptions, as appropriate, to reflect changes in cash flow characteristics.

Scenario Analysis

Cash flow projections can also be used in scenario analysis and to develop CFPs. Management typically starts with base case projections that assume normal cash flows, market conditions, and business operations over the selected time horizon. Management then tests stress scenarios by changing a variety of cash flow assumptions in the base case scenario. Management typically uses the stress testing results in developing funding plans to mitigate risks, including determining appropriate amounts for – or sizing – the liquidity buffer and contingent borrowing lines.

Funding Sources - Assets

A NIC must maintain adequate liquidity to meet its outstanding stablecoin obligations, the risk characteristics of its balance sheet, and the adequacy of its liquidity risk measurement program, among other items. Generally, a lower level of unencumbered liquid assets may be sufficient if funding sources in base case and in various stress scenarios remain stable, established borrowing facilities have been operationalized and are largely unused, and other risk characteristics are predictable. A higher level of unencumbered liquid assets may be required if:

- NIC customers have numerous alternative stablecoin options,
- Recent trends show a substantial reduction in large liability accounts,
- The NIC has a material reliance on potentially less stable funding sources,
- The loan portfolio includes a high volume of non- marketable loans,
- A concentration of accounts is extended to an industry with existing or anticipated financial problems,
- A close relationship exists between accounts and principal employers in the trade area who have financial problems,
- A material amount of assets is pledged to support wholesale borrowings,
- The NIC's access to capital markets is impaired,
- Stress testing results indicate the need for increased levels of unencumbered, liquid assets, or
- The NIC is experiencing financial duress.

A NIC's assets provide varying degrees of liquidity and can create cash inflows and outflows. NICs must retain a certain level of highly liquid assets to meet immediate funding needs and hold other types of highly liquid investments to provide liquidity for meeting ongoing operational needs and responding to contingent funding events. Income derived from holding longer-term, higher-yielding assets may be offset if management is forced to sell the assets quickly due to adverse balance sheet fluctuations.

Cash and Due from Accounts

Cash and due from accounts are essential for meeting daily liquidity needs. Management relies on cash and due from accounts to fund account redemptions (particularly in stress situations), disburse lending proceeds, cover cash letters, fund operations, meet reserve requirements when applicable, and facilitate correspondent transactions.

Controllable Electronic Lending Products and Services

The loan portfolio is an important factor in liquidity management. Loan payments provide steady cash flows, and loans can be used as collateral for secured borrowings or sold for cash in the secondary loan market. However, the quality of the loan portfolio can directly impact liquidity. For example, if a NIC encounters asset quality issues, operational cash flows may be affected by the level of non-accrual borrowers and late payments.

For many NICs, loans serve as collateral for wholesale borrowings such as FHLB advances. If asset quality issues exist, management may find that delinquent loans do not qualify as collateral. Also, higher amounts of collateral may be required because of doubts about the overall quality of the portfolio or because of market volatility that affects the value of the loan collateral. These "haircuts" can be substantial and are an important consideration in stress tests.

Comprehensive liquidity analysis considers contractual requirements and customers' behavior when forecasting loan cash flows. Prepayments and renewals can significantly affect contractual cash flows for many types of loans. Customer prepayments are a common consideration for residential mortgage loans (and mortgage-backed securities) and can be a factor for commercial and commercial real estate loans (and related securities). Assumptions related to revolving lines of credit and balloon loans can also have a material effect on cash flows. Examiners should determine whether management's loan cash flow assumptions are supported by historical data.

Asset Sales and Securitizations

As noted above, assets can be used as collateral for secured borrowings or sold for cash in the secondary market. Sales in the secondary market can provide fee income, relief from interest rate risk, and a funding source for the NIC. However, for an asset to be saleable at a reasonable price in the secondary market, it will generally have to conform to market (investor) requirements. Because loans and loan portfolios may have unique features or defects that hinder or prevent their sale into the secondary market, management would benefit from thoroughly reviewing loan characteristics and documenting assumptions related to loan portfolios when developing cash flow projections.

Some NICs are able to use securitizations as a funding vehicle by converting a pool of assets into cash. Asset securitization typically involves the transfer or sale of on-balance sheet assets to a third party that issues mortgage-backed securities (MBS) or asset-backed securities (ABS). These instruments are then sold to investors. The investors are paid with the cash flow from the transferred assets.

Assets that are typically securitized include credit card receivables, automobile receivables, commercial and residential mortgage loans, commercial loans, home equity loans, and student loans.

Securitization can be an effective funding method for some NICs. However, there are several risks associated with using securitization as a funding source. For example:

- Some securitizations have early amortization clauses to protect investors if the performance of the underlying assets does not meet specified criteria. If an early amortization clause is triggered, the issuing NIC is legally obligated to begin paying principal to bondholders earlier than originally anticipated and fund new receivables that would have otherwise been transferred to the trust. NICs involved in securitizations benefit from monitoring asset performance to better anticipate the cash flow and funding ramifications of early amortization clauses.
- If the issuing NIC has a large concentration of residual assets, the NIC's overall cash flow might be dependent on the residual cash flows from the performance of the underlying assets. If the performance of the underlying assets is worse than projected, the NIC's overall cash flow will be less than anticipated.
- Residual assets retained by the issuing NIC are typically illiquid assets for which there is no active market. Additionally, the assets are not acceptable collateral to pledge for borrowings.
- An issuer's market reputation can affect its ability to securitize assets. If the NIC's reputation is damaged, issuers might not be able to economically securitize assets and generate cash from future sales of loans to the trust. This is especially true for NICs that are relatively new to the securitization market.
- The timeframe required to securitize loans held for sale may be considerable, especially if the NIC has limited securitization experience or encounters unforeseen problems.

NICs that identify asset sales or securitizations as contingent liquidity sources, particularly NICs that rarely sell or securitize loans, benefit from periodically testing the operational procedures required to access these funding sources. Market-access testing helps ensure procedures work as anticipated and helps gauge the time needed to generate funds; however, testing does not guarantee the funding sources will be available or on satisfactory terms during stress events.

A thorough understanding of applicable accounting and regulatory rules is critical when securitizing assets. Accounting standards establish conditions to achieve sales treatment of financial assets. The standards influence the use of securitizations as a funding source, because transactions that do not qualify for sales treatment require the selling NIC to account for the transfer as a secured borrowing with a pledge of collateral. As such, management must account for, and risk weight, the transferred financial assets as if the transfer had not occurred. Accordingly, management should continue to report the transferred assets in financial statements with no change in the measurement of the transferred financial assets.

When financial assets are securitized and accounted for as a sale, NICs often provide contractual credit enhancements, which may involve over-collateralization, retained subordinated interests, asset repurchase obligations, cash collateral accounts, spread accounts, or interest-only strips. Part 324 of the FDIC Rules and Regulations requires the issuing NIC to hold capital against the retained credit risk arising from these contractual credit enhancements.

There can also be non-contractual support for ABS transactions that would be considered implicit recourse. This implicit recourse may create credit, liquidity, and regulatory capital implications for issuers that provide support for ABS transactions. NICs typically provide implicit recourse in situations where management perceives that the failure to provide support, even though not contractually required, would damage the NIC's future access to the ABS market. For risk-based capital purposes, NICs deemed to be providing implicit recourse are generally required to hold capital against the entire outstanding amount of assets sold, as though they remained on the books.

NIC Investment Portfolio

Investment securities are utilized to provide NICs with earnings, liquidity, and capital appreciate. They are also used to back each outstanding issued stablecoin on a basis. As a matter of sound practice, NICs should have programs to manage the market, credit, liquidity, legal, operational, and other risks inherent with investment securities and activities. While risk management programs will differ among each NIC, there are certain elements that are fundamental to all sound risk management programs. These elements include but are not limited to effective board and senior management oversight and a comprehensive risk management process that appropriate identifies, measures, monitors, and controls risk. NICs should fully understand and effectively manage the risks inherent in their investment activities.

Investment Securities Risk Management Program

An effective risk management program for investment activities includes policies, procedures, and limits; the identification, measurement, and reporting of risk exposures; and a system of internal controls.

Investment policies, procedures, and limits provide the structure to effectively manage investment activities. Policies should be commensurate with the NIC's broader digital asset business strategies, capital adequacy, technical experience, and risk tolerance. Policies should identify relevant investment objections, permissible securities, constraints, risk limits, and guidelines for pre-purchase analysis and ongoing due diligence.

NICs should ensure that they identify and measure the risks associated with individual transactions prior to any investment security acquisition and periodically after purchase. Additionally, to the extent applicable, NIC's should proactively measure exposures to each type of risk and aggregate these measures to obtain the NIC's overall risk profile.

Additionally, a NIC's internal control structure is critical in safe and sound risk management practices. A system of internal controls promotes efficient operations, reliable financial and regulatory reporting, and compliance with relevant laws, regulations, and NIC polices. Depending upon the investment activities and products, internal and external audits must be implemented to a risk management process to control risks investments.

Permissible Securities

In order to diversify investment risk and ensure multiple income streams, NICs are able to invest in the following types of common investment types, as leveraged by the Office of the Comptroller of Currency (OCC) regulations (12 CFR, Part 1):

- **Type I:** Obligations of the United States; general obligations of state or political subdivisions; unsecured debt and pass through obligations of Federal Home Loan Banks, Government National Mortgage Association, FNMA and FHLMC. Preferred stock is issued by FNMA, FHLMC and

Student Loan Marketing Association. Municipal revenue bonds are also considered Type I securities if held by well-capitalized institution. Type I securities are considered permissible investments regardless of whether they meet the investment grade standard.

- **Type II:** State obligations for housing, university and dormitory purposes, as well as obligations of development banks.
- **Type III:** An investment security that does not qualify as Type I, II, IV, or V security, such as a corporate bonds and municipal revenue bonds. This category includes most trust preferred securities.
- **Type IV:** Certain residential and commercial mortgage related securities, and small business related securities backed by a pool of obligors.
- **Type V:** An investment grade marketable security that is not a Type IV security and is fully secured by interests in a pool of loans to numerous obligors and in which a national bank could invest directly such as asset-backed securities and certain mortgage-backed securities.

When used, examiners should determine whether management has a basic understanding of the methodologies of the rating agencies, as well as the limits associated with these methodologies.

Assets Backing Outstanding Stablecoin

The reserve account, or account for assets backing outstanding stablecoin, must adhere to Neb. Rev. Stat. §8-3009, which indicates at all times, a NIC shall maintain unencumbered liquid assets denominated in United States dollars valued at not less than one hundred percent of the digital assets in custody. Liquid assets means the following: United States currency held on the premise of the NIC by a federal reserve bank or a FDIC insured financial institution which has a main chartered office in Nebraska, any branch thereof in this state, or any branch of the financial institution which maintained a main office in this state prior to becoming a branch of such financial institution, or investments which are highly liquid and obligations of the United States Treasury or other federal agency obligation, consistent with rules and regulations or order adopted by the director. Thus, the assets that back the outstanding issued stablecoin, or in the reserve account are much more limited. The reserve account must also have an effective risk program that implements the same elements stated within the above subsection titled Investment Securities Risk Management Program.

Funding Sources - Liabilities

Deposits are the most common funding source for most NICs; however, other liability sources, such as borrowings, can also provide funding for daily business activities, or as alternatives to using assets to satisfy liquidity needs. Deposits and other liability sources are often differentiated by their stability and customer profile characteristics.

Core Funding

Core deposits are generally stable, lower-cost funding sources that typically lag behind other funding sources in repricing during a period of rising interest rates. The deposits are typically funds of local customers that also have a borrowing or other relationship with the NIC.

Examiners should assess the stability of deposit accounts when reviewing liquidity and funds management practices. Generally, higher-cost, non-relationship deposits, such as Internet deposits or deposits obtained through special-rate promotions, may be considered less-stable funding sources. Brokered deposits are not considered core deposits or a stable funding source due to their brokered status and wholesale characteristics.

Core deposits are defined in the Uniform Bank Performance Report (UBPR) User's Guide as the sum of all transaction accounts, money market deposit accounts (MMDAs), non-transaction other savings deposits (excluding MMDAs), and time deposits of $250,000 and below, less fully insured brokered deposits of $250,000 and less. However, examiners should not assume that all deposits meeting the UBPR definition of core are necessarily stable or that all deposits defined as non-core are automatically volatile.

In some instances, core deposits included in the UPBR's core deposit definition might exhibit characteristics associated with less stable funding sources. For example, out-of-area certificates of deposit (CDs) of $250,000 or less that are obtained from a listing service may have less stability although they are included in core deposits under the UBPR definition, given the lack of direct relationship and motivation of such depositors seeking competitive rates. As another example, transactional account deposits brought to the NIC through an arrangement with a third party (whether a broker-dealer, financial technology firm, reciprocal network, or other third party) and which may qualify for an exception from brokered deposit treatment, may also be less stable as movement of such deposits is often controlled by a third party. Management and examiners should not automatically view "core" deposits as a stable funding source without additional analysis.

Alternatively, some deposit accounts generally viewed as volatile, non-core funds by UBPR definitions (for example, CDs larger than $250,000) might be considered relatively stable after a closer analysis. For instance, a local depositor might have CDs larger than $250,000 that may be considered stable because the depositor has maintained those deposits with the NIC for several years. However, while some deposit relationships over $250,000 remain stable when the NIC is in good condition, such relationships, because of their uninsured status, might become less stable if the NIC experiences financial problems. Additionally, deposits identified as stable during good economic conditions may not be reliable funding sources during stress events. Therefore, examiners should consider whether management identifies deposit accounts likely to be unstable in times of stress and appropriately evaluates these deposits in its liquidity stress testing and in determining the adequacy of the liquidity buffer.

Deposit Management Programs

The critical role deposits play in a NIC's successful operation demonstrates the importance of implementing programs for retaining or expanding the deposit base. Strong competition for depositors' funds and customers' preference to receive market deposit rates also highlight the benefit of deposit management programs. Effective deposit management programs generally include:

- Regular reports detailing existing deposit types and levels,
- Projections for asset and deposit growth,
- Associated cost and interest-rate scenarios,
- Clearly defined marketing strategies,
- Procedures to compare results against projections, and
- Steps to revise the plans when needed.

Deposit management programs generally take into account the make-up of the market-area economy, local and national economic conditions, and the potential for investing deposits at acceptable margins. Other considerations include management expertise, the adequacy of NIC operations, the location and size of facilities, the nature and degree of NIC and non-NIC competition, and the effect of monetary and fiscal policies on the NIC's service area and capital markets in general.

Effective deposit management programs are monitored and adjusted as necessary. The long-term success of such programs is closely related to management's ability to identify the need for changes quickly. Effective programs include procedures for accurately projecting deposit trends and carefully monitoring the potential volatility of accounts (e.g., stable, fluctuating, seasonal, brokered).

Wholesale Funds

Wholesale funds include, but are not limited to, brokered deposits, deposits obtained through programs marketed by third parties (such as a broker-dealer, financial technology firm, reciprocal network, or other third party) even though not defined or reported as brokered deposits, Internet deposits, deposits obtained through listing services, foreign deposits, public funds, federal funds purchased, FHLB advances, correspondent line of credit advances, and other borrowings.

Providers of wholesale funds closely track NICs' financial condition and may cease or curtail funding, increase interest rates, or increase collateral requirements if they determine a NIC's financial condition is deteriorating. As a result, some NICs may experience liquidity problems due to a lack of wholesale funding availability when funding needs increase.

The Internet, listing services, and other automated services enable investors who focus on yield to easily identify high-yield deposits. Customers who focus primarily on yield are a less stable source of funding than customers with typical deposit relationships. If more attractive returns become available, these customers may rapidly transfer funds to new NICs or investments in a manner similar to that of wholesale investors.

It is important to measure the impact of the loss of wholesale funding sources on the NIC's liquidity position. The challenge of measuring, monitoring, and managing liquidity risk typically increases as the use of wholesale and nontraditional funding sources increases. NICs that rely more heavily on wholesale funding will often need enhanced funds management and measurement processes and may require more comprehensive scenario modeling. In addition, contingency planning and capital management take on added significance for NICs that rely heavily on wholesale funding.

Brokered and Higher Rate Deposits

For financial institutions subject to the FDI Act, Section 29 establishes certain brokered deposit restrictions on those that are not well capitalized. Section 337.6 of the FDIC Rules and Regulations, as applicable, implements Section 29 and defines a brokered deposit as a deposit obtained through or with assistance of a deposit broker. The term deposit broker is generally defined by Section 29 as any person engaged in the business of placing deposits, or facilitating the placement of deposits, of third parties with financial institutions or the business of placing deposits with insured depository institutions for the purpose of selling

interests in those deposits to third parties; and an agent or trustee who establishes a deposit account to facilitate a business arrangement with an insured depository institution to use the proceeds of the account to fund a prearranged loan.

Section 337.6, as applicable, exempts financial institutions from the deposit broker definition third parties that have exclusive deposit relationships with only one other financial institution and defines relevant terms, including "placing," "facilitating," "engaged in the business of placing deposits," "engaged in the business of facilitating the placement of deposits," and "engaged in the business." Refer to Section 337.6(a)(5)(i)-(iv) for these definitions. The rule excludes an entity with a "primary purpose exception" from the deposit broker definition.

Involvement of Additional Third Parties

A NIC that receives deposits from an unaffiliated third party with a primary purpose exception (PPE) for a particular business line must determine whether there are any additional third parties involved in the deposit placement arrangement that qualify as a deposit broker, because the NIC is responsible for accurately reporting the deposits on its Call Report. If an additional third party is involved that would qualify as a "deposit broker" under 12 CFR § 337.6(a)(5), for example if the additional third party is engaging in "matchmaking activities" under 12 CFR § 337.6(a)(5)(iii)(C), then the deposits received from that arrangement must be reported as a brokered deposit by the NIC, even if the unaffiliated third party has a primary purpose exception for the relevant business line. Note that even when the sweep deposits are placed by the third party directly, the insured depository institution must consider whether an additional third party may be "facilitating the placement of the deposits."

For example, the FDIC has received PPE notice filings from broker dealers asserting that an additional third party involved in the unaffiliated sweep program provides the broker dealers with "administrative services." It has been the FDIC's experience that such services include activities that meet the facilitation part of the deposit broker definition, for example by engaging in matchmaking activities. When receiving sweep deposits under such an arrangement, it is the NIC's responsibility to evaluate the third party's role and determine whether that role constitutes facilitating the placement of deposits, including by engaging in matchmaking activities, when it files its Call Report.

During examinations, examiners should determine whether NICs are relying upon PPEs to except certain deposits involving third parties and assess the NIC's Call Report filing documentation supporting the NIC's reliance on the PPE.

Listing Services

A listing service is a company that compiles information about the interest rates offered by NICs on deposit products. A particular company can be a listing service (compiler of information) as well as a deposit broker (facilitating the placement of deposits). Whether a listing service, or a similar service that posts information about deposit rates, is a deposit broker will likely depend on whether the service meets the criteria under the "facilitation" part of the deposit broker definition. Based on the "facilitation" definition, a listing service that passively posts rate information and sends trade confirmations between the depositor and the NIC is unlikely to be a deposit broker. However, if a listing service provides services that meet one of the three prongs of the "facilitation" definition, then it would be considered a deposit broker.

Sweep Accounts

Some brokerage firms and investment companies that invest money in stocks, bonds, and other investments on behalf of clients operate sweep programs in which customers are given the option to sweep uninvested cash into a bank deposit. This arrangement provides the brokerage customer with additional yield and insurance coverage on swept funds. These swept funds are generally considered brokered deposits unless the third-party brokerage firm meets the PPE.

Sweep accounts that rely on the PPE must fit a designated exception from the definition of deposit broker. The entity will qualify for the "25 percent test" designated exception if it is in a business relationship where, with respect to a particular business line, less than 25 percent of the total assets that the entity has under administration for its customers is placed at depository NICs and where the entity has filed a notice with the FDIC. The entity may also rely on another exception from the definition of deposit broker for which it qualifies.

Network and Reciprocal Deposits

NICs sometimes participate in networks established for the purpose of sharing deposits. In such a network, a participating NIC places funds, either directly or through a third-party network sponsor, at other participating network NICs in order for its customer to receive full deposit insurance coverage.

Some networks establish reciprocal agreements allowing participating NICs to send and receive deposits with the same maturity (if any) and in the same aggregate amount simultaneously. This reciprocal agreement allows NICs to

maintain the same volume of funds they had when the customer made the initial deposit, while providing participating customers with deposits in excess of the $250,000 deposit insurance limit additional deposit insurance through placement at other insured depository NICs. While reciprocal deposits meet the definition of a brokered deposit, under certain conditions a limited amount of reciprocal deposits may be excluded from treatment and reporting as brokered deposits.

Examiners should determine whether a NIC's reciprocal deposits are being reported appropriately on its Call Report and in conformance with the statutory and regulatory definitions under Section 29(i) of the FDI Act and Section 337.6(e) of the FDIC Rules and Regulations, as applicable.

Network member NICs may receive other deposits through a network such as (1) deposits received without the NIC placing into the network a deposit of the same maturity and same aggregate amount (sometimes referred to as "one-way network deposits) and (2) deposits placed by the NIC into the network where the deposits were obtained, directly or indirectly, by or through a deposit broker. Such other network deposits meet the definition of brokered deposits and would not be eligible for, as previously described, the statutory and regulatory exception provided for a capped amount of reciprocal deposits.

The stability of reciprocal deposits may differ depending on the relationship of the initial customer with the NIC. Examiners should consider whether management adequately supports their assessments of the stability of reciprocal deposits, or any funding source, for liquidity management and measurement purposes.

Brokered Deposit Restrictions

Pursuant to Section 29 of the FDI Act and Section 337.6 of the FDIC Rules and Regulations, as applicable, a NIC that is less than well-capitalized for the purposes of PCA is restricted from accepting, renewing, or rolling over brokered deposits. Well-capitalized NICs may accept, renew, or roll over brokered deposits at any time. An adequately capitalized NIC may not accept, renew, or roll over any brokered deposit unless the NIC has applied for and been granted a waiver by the FDIC. An undercapitalized NIC may not accept, renew, or roll over any brokered deposit (refer to Section 337.6(b)(3)). If a NIC is under any type of formal agreement pursuant to Section 8 of the FDI Act with a directive to meet or maintain any specific capital level, it will no longer be considered well capitalized for the purposes of Part 337.

With respect to adequately capitalized NICs that have been granted a brokered deposit waiver, any safety and soundness concerns arising from the acceptance of brokered deposits are ordinarily addressed by the conditions imposed in granting the waiver application. In monitoring such conditions, examiners should not only verify compliance but also assess whether the waiver has contributed to an increasing risk profile.

Deposit Rate Restrictions

In addition to the brokered deposit restrictions noted above, Section 29 of the FDI Act also places certain restrictions on deposit interest rates for applicable financial institutions that are less than well-capitalized. Deposit rate restrictions prevent an applicable NIC that is not well-capitalized from circumventing the prohibition on brokered deposits by offering rates significantly above market in order to attract a large volume of deposits quickly.

Section 29's implementing regulation and Section 337.7 of the FDIC Rules and Regulations, contain two interest rate restrictions, one based on when funds are accepted by a financial institution, the other on when a financial institution solicits deposits. One restriction provides that an adequately capitalized financial institution accepting reciprocal deposits, or brokered deposits pursuant to a waiver granted under Section 29(c) of the FDI Act, may not pay a rate of interest that, at the time the funds are accepted, significantly exceed the following:

(1) The rate paid on deposits of similar maturity in such financial institution's normal market area for deposits accepted in the financial institution's normal market area; or (2) the national rate paid on deposits of comparable maturity, as established by the FDIC, for deposits accepted outside the financial institution's normal market area. The other interest rate restriction prohibits a less than well capitalized financial institution from soliciting any deposits by offering a rate of interest that is significantly higher than the prevailing rate.

The national rate for each deposit product is defined as the average of rates paid by all applicable financial institutions and credit unions for which data is available, with rates weighted by each financial institution's share of domestic deposits. The national rate cap is calculated as the higher of: (1) the national rate plus 75 basis points; or (2) 120 percent of the current yield on similar maturity U.S. Treasury obligations plus 75 basis points. The national rate cap for non-maturity deposits is the higher of the national rate plus 75 basis points or the federal funds rate plus 75 basis points. The national rates and national rate caps are published monthly on the FDIC's public website.

Section 337.7 provides a simplified process for financial institutions that seek to offer a competitive rate when the prevailing rate in a financial institution's local market area exceeds the national rate cap. The local rate cap for a less than well capitalized financial institution is 90 percent of the highest interest rate paid in the financial institution's local market area on a particular deposit product by a bank or credit union accepting deposits at a physical location within

the financial institution's local market area. The local market area is any readily defined geographic market in which the financial institution accepts or solicits deposits.

Under Section 337.7(d), a less than well capitalized financial institution that seeks to pay a rate of interest up to its local market rate cap must provide notice to the appropriate FDIC regional director. The notice must include evidence of the highest rate paid on a particular deposit product in the financial institution's local market area. The financial institution must:

- Update its evidence and calculations monthly for both existing and new accounts, unless otherwise instructed by the NDBF
- Maintain records of the rate calculations for at least the two most recent examination cycles; and
- Upon the NDBF's request, provide the documentation to the appropriate NDBF office and to examination staff during any subsequent examinations.

An adequately capitalized financial institution that accepts non-maturity brokered deposits subject to waiver, with respect to a particular deposit broker, is subject to the applicable interest rate cap on:

- Any new non-maturity accounts opened by or through that particular deposit broker;
- An amount of funds that exceeds the amount(s) in the account(s) that, at the time the financial institution fell to less than well capitalized, had been opened by or through the particular deposit broker; or
- For agency or nominee accounts, any funds for a new depositor credited to a non-maturity account or accounts.

Refer to the interest rate restrictions in Section 337.7 for specific information, including the solicitation and acceptance of non-maturity deposits. Examiners should review conformance with interest rate restrictions during examinations of NICs that are not well capitalized. While the FDIC may grant a brokered deposit waiver to a less than well capitalized NIC to retain brokered deposits, the FDIC may not waive the interest rate restrictions under the brokered deposit regulations.

Uninsured Deposits

Borrowings

Stable deposits are a key funding source for applicable NICs; however, NICs also use borrowings and other wholesale funding sources to meet their funding needs. Borrowings include debt instruments or loans that NICs obtain from other entities such as correspondent lines of credit, federal funds purchased, and FHLB and Federal Reserve Bank advances.

Generally, borrowings are viewed as a supplemental funding source rather than as a replacement for deposits. If a NIC is using borrowed funds to meet contingent liquidity needs, examiners should determine whether management understands the associated risks and has commensurate risk management practices. Effective practices typically include a comprehensive CFP that specifically addresses funding plans if the NIC's financial condition or the economy deteriorates. Active and effective risk management, including funding concentration management by size and source, can mitigate some of the risks associated with borrowings.

To make effective use of borrowing facilities, knowledgeable risk managers seek to understand the conditions, limitations, and potential drawbacks of borrowing from different sources and facilities. Additionally, effective managers understand and monitor borrowing capacity, terms, acceptable collateral, and collateral borrowing values (e.g., collateral haircuts). They maintain a detailed inventory of pledged assets posted to various funds providers and know their remaining capacity to post additional unencumbered assets to execute borrowings quickly. Effective managers are also aware of the execution constraints that may arise when attempting to borrow at the end of a business day or week and ensure CFPs acknowledge these constraints.

Key considerations when assessing liquidity risks associated with borrowed funds include the following:

- Pledging assets to secure borrowings can negatively affect a NIC's liquidity profile by reducing the amount of securities available for sale during periods of stress.
- Unexpected changes in market conditions can make it difficult for management to secure funds and manage its funding maturity structure.
- It may be more difficult to borrow funds if the NIC's condition or the general economy deteriorates.
- Management may incur relatively high costs to obtain funds and may lower credit quality standards

in order to invest in higher-yielding loans and securities to cover the higher costs. If a NIC incurs higher-cost liabilities to support assets already on its books, the cost of the borrowings may result in reduced or negative net income.

- Preoccupation with obtaining funds at the lowest possible cost, without proper consideration given to diversification and maturity distribution, intensifies a NIC's exposure to funding concentrations and interest rate fluctuations.
- Some borrowings have embedded options that make their maturity or future interest rate uncertain. This uncertainty can increase the complexity of liquidity management and may increase future funding costs.

Common borrowing sources, if applicable, include:

- Federal Reserve Bank facilities,
- Federal Home Loan Bank advances,
- Federal funds purchased,
- Repurchase agreements,
- Dollar repurchase agreements,
- Commercial paper, and
- International funding sources.

Federal Reserve Bank Facilities

The Federal Reserve Banks could provide short-term collateralized credit to NICs through the Federal Reserve's discount window. The discount window could be available to any applicable NIC that maintains deposits subject to reserve requirements. The most common types of collateral are U.S. Treasury securities; agency, GSE, mortgage-backed, asset-backed, municipal, and corporate securities; and commercial, agricultural, consumer, residential real estate, and commercial real estate loans. Depending on the collateral type and the condition of the NIC, collateral may be transferred to the Federal Reserve, held by the borrower in custody, held by a third party, or reflected by book entry. Collateral pledged to the discount window cannot be shared with other funding providers. Therefore, an important consideration for management is whether collateral is pre-positioned or pre- pledged to another entity and the operational requirements, including timeframes, to transfer the pledging to the Federal Reserve in a timely manner to obtain funding when needed.

Types of discount window credit include primary credit (generally overnight credit to meet temporary liquidity needs), secondary credit (available to NICs that do not qualify for primary credit), seasonal credit (available to NICs that demonstrate a clear seasonal pattern to deposits and assets), and emergency credit (rare circumstances).

The Federal Reserve's primary credit program was designed to ensure adequate liquidity in the banking system and is intended as a backup, short-term credit facility for eligible NICs. In general, applicable NICs are eligible for primary credit if they have a composite CAMELS rating of 1, 2, or 3 and are at least adequately capitalized under the PCA framework.

Since primary credit can serve as a viable source of backup, short-term funds, examiners should not automatically criticize the occasional use of primary credit. At the same time, overreliance on primary credit borrowings or any one source of short-term contingency funds may indicate operational or financial difficulties. Examiners should consider whether NICs that use primary credit facilities maintain viable exit strategies.

Secondary credit is available to NICs that do not qualify for primary credit and is extended on a very short- term basis at a rate above the primary credit rate. This program entails a higher level of Reserve Bank administration and oversight than primary credit.

If a financial institution's borrowing becomes a regular occurrence, Federal Reserve Bank officials will review the purpose of the borrowing and encourage management to initiate a program to eliminate the need for such borrowings. Appropriate reasons for borrowing include preventing overnight overdrafts, loss of deposits or borrowed funds, unexpected loan demand, liquidity and cash flow needs, operational or computer problems, or a tightened federal funds market. Accordingly, well-managed financial institutions develop longer-term funding or take-out alternatives to transition from reliance on the discount window. These alternatives can include FHLB advances, deposit gathering strategies, and other contingency funding options.

Examiners should be aware that the Federal Reserve will not permit financial institutions that are not viable to borrow at the discount window. Section 10B(b) of the Federal Reserve Act limits Reserve Bank advances to not more than 60 days in any 120-day period for undercapitalized financial institutions or financial institutions with a composite CAMELS rating of 5. This limit may be overridden only if the primary federal banking agency supervisor certifies the borrower's viability or if, following an examination of the borrower by the Federal Reserve, the Chairman of the Board of Governors of the Federal Reserve certifies in writing to the Reserve Bank that the borrower is viable. These certifications may be renewed for additional 60-day periods.

Federal Home Loan Bank (FHLB) Advances

The FHLBs provide secured loans or "advances" to their members, which may include applicable financial institutions. Many well-performing financial institutions use FHLB advances to prudently address funds management needs, facilitate credit intermediation, and supplement contingent funding sources. FHLB borrowings are secured by eligible collateral according to each FHLB district's credit policy and generally include certain real estate-related loans and securities. Financial institutions can borrow from the FHLBs on a short- and longer-term basis, with maturities ranging from overnight to 30 years on various repayment, amortization, and interest rate terms.

Each FHLB establishes credit and collateral policies that set the terms for member advances. Interest rates and collateral requirements may be subject to a member financial institution's financial condition or other prudential considerations. Although the FHLBs serve as a reliable source of funding for members, certain eligibility requirements for advances have been set by the Federal Housing Finance Agency (FHFA), the FHLB System's supervisor. For example, the FHFA regulations (12 CFR 1266.4) prohibit FHLBs from making new advances to members without positive tangible capital, among other requirements. Therefore, effectively managed FHLB members consider their continuing eligibility to borrow as part of funds management and contingency funding strategies.

Examiners should analyze several factors when reviewing a NIC's use of FHLB advances. Foremost among these factors, FHLBs may impose strict collateral and borrowing capacity requirements for the quality of pledged assets, collateral margins, loan documentation, and maximum advance levels. Changes in a member NIC's financial condition can also impact its ability and cost to borrow. In addition, collateral pledged to an FHLB cannot be readily shared with other funds providers, such as the Federal Reserve's discount window, and it could take time to reassign that collateral to another lender. Examiners should assess whether NICs have considered these requirements as part of their overall funds management process and CFP.

Examiners should also consider a NIC's use of FHLB advances in terms of overall wholesale funding usage (versus stable deposit funding), leverage, and balance sheet management. In certain circumstances, a NIC can become over-leveraged with wholesale funds or collateral encumbrance, which could impact liquidity, earnings, and other measurable areas of performance.

Examiners should review the NIC's analysis of FHLB borrowing capacity in the event of severe market stress. In certain instances, the FHLBs may have their own liquidity capacity limitation on a given business day if unexpectedly large advance requests are made from multiple members. Therefore, NICs should have an appropriate level of unencumbered on-balance liquid assets and CFP strategies that enable borrowing from other sources such as the Federal Reserve's discount window.

Federal Funds Purchased

Federal funds are reserves held in a member NIC's Federal Reserve Bank account (during periods when Federal Reserve requirements are warranted) that can be lent (sold) by NICs with excess reserves to other NICs with an account at a Federal Reserve Bank. NICs borrow (purchase) federal funds to meet their reserve requirements or other funding needs. NICs rely on the Federal Reserve Bank or a correspondent NIC to facilitate federal funds transactions. State nonmember NICs that do not maintain balances at the Federal Reserve may purchase or sell federal funds through a correspondent member NIC.

In most instances, federal funds transactions take the form of overnight or short-term unsecured transfers of immediately available funds between NICs. However, NICs also enter into continuing contracts that have no set maturity but are subject to cancellation upon notice by either party to the transaction. NICs also engage in federal funds transactions of a set maturity, but these include only a small percentage of all federal funds transactions. In any event, these transactions can be supported with written verification from the lending NIC.

Some NICs may access federal funds as a liability management technique to fund a rapid expansion of loan or investment portfolios and enhance profits. In these situations, examiners should determine whether appropriate board approvals, limits, and policies are in place and should discuss with management and the board their plans for developing appropriate long-term funding solutions. Liquidity risks typically decline if management avoids overreliance on federal funds purchased, as the funds are usually short-term, highly credit sensitive instruments that may not be available if the NIC's financial condition deteriorates.

Repurchase Agreements

In a security's repurchase agreement (repo), a NIC agrees to sell a security to a counterparty and simultaneously commits to repurchase the security at a mutually agreed upon date and price. In economic terms, a repo is a form of secured borrowing. The amount borrowed against the security is generally the full market value less a reasonable discount. Typically, the security does not physically change locations or accounting ownership; instead, the selling NIC's safekeeping agent makes entries to recognize the purchasing NIC's interest in the security.

From an accounting standpoint, repos involving securities are either reported as secured borrowings or as sales and a forward repurchase commitment based on whether the selling NIC maintains control over the transferred financial asset. Generally, if the repo both entitles and obligates the selling NIC to repurchase or redeem the transferred assets from the transferee (i.e., the purchaser) the selling NIC may report the transaction as a secured borrowing if various other conditions outlined in U.S. Generally Accepted Accounting Principles (GAAP) have been met. If the selling NIC does not maintain effective control of the transferred assets according to the repurchase agreement, the transaction would be reported as a sale of the securities and a forward repurchase commitment. For further information, see the Call Report Glossary entries pertaining to Repurchase/Resale Agreements and Transfers of Financial Assets.

Bilateral repos involve only two parties and are most commonly conducted with either a primary dealer NIC or a central counterparty. In a tri-party repo, an agent is involved in in matching counterparties, holding the collateral, and ensuring the transactions are executed properly. Like bilateral repos, the terms of tri-party repos are negotiated by the collateral provider and the cash investor. Once the terms are established, the settlement details are transmitted to the clearing NIC, which confirms the terms and settles the transaction on its books for the two parties. In deep stress, the traditional tri-party repo market may close to the cash borrower as counterparties may no longer negotiate with the cash borrower and may not roll maturing contracts or enter into new contracts.

The General Collateral Finance (GCF) Repo market removes for cash lenders the counterparty credit exposure present in the bilateral and triparty repo markets. The GCF market is a brokered and centrally cleared market – with the Fixed Income Clearing Corporation (FICC) being the central counterparty. GCF trades are negotiated through interdealer brokers (IDBs) on a blind basis. In other words, participants provide an IDB the terms under which they are willing to borrow or lend cash. The IDB then tries to broker a trade while maintaining each participant's anonymity. Once a trade has been brokered, the IDB submits the details to FICC, which substitutes itself as the counterparty to each side of the repo transaction.

The majority of repurchase agreements mature in three months or less. One-day transactions are known as overnight repos, while transactions longer in duration are referred to as term repos. Financial institutions typically use repos as short-term, relatively low-cost funding mechanisms. The interest rate paid on a repurchase agreement depends on the type of underlying collateral. In general, the higher the credit quality of the collateral and the easier the security is to deliver and hold, the lower the repo rate. Supply and demand factors for the underlying collateral also influence the repo rate.

There are also timing considerations in settling repo transactions. The centrally cleared contracts, including GCF transactions, clear earlier in the day and the tri-party market clears later in the day. The quality of collateral also affects the timing of tri-party repos. Since riskier collateral can only be accepted by some subset of all market participants, cash borrowers offering lower quality collateral tend to arrange trades earlier in the day to allow for ample market participation. Repo borrowing programs that are inadequately managed may result in a loss of essential funding at a critical time.

The opposite side of a repo transaction is sometimes called a reverse repo. A reverse repo that requires the buying financial institution to sell back the same asset purchased is treated as a loan for Call Report purposes. If the reverse repurchase agreement does not require the financial institution to resell the same, or a substantially similar, security purchased, it is reported as a purchase of the security and a commitment to sell the security.

Reverse repos can involve unique risks and complex accounting and recordkeeping challenges, and financial institutions benefit from establishing appropriate risk management policies, procedures, and controls. In particular, financial institutions can benefit from controls when relying on reverse repos that are secured with high-risk assets. Reverse repo activity exposes the financial institution to a risk of loss if the cash lent exceeds the market value of the security received as collateral, and the value of the underlying assets may decline significantly in a stress event, creating an undesirable amount of exposure. Reverse repos/cash lending programs that are inadequately managed can expose a financial institution to risk of loss and may be regarded as an unsuitable investment practice.

Since the fair value of the underlying security may change during the term of the transaction, both parties to a repo may experience credit exposure. Although repo market participants normally limit credit exposures by maintaining a cushion between the amount loaned and the value of the underlying collateral and by keeping terms short to allow for redemption as necessary, credit reviews of repo counterparties prior to the initiation of transactions remains a critical step. Properly administered repurchase agreements conducted within a comprehensive asset/liability management program are not normally subject to regulatory criticism. The Policy Statement on Repurchase Agreements of Depository Institutions with Securities Dealers and Others, dated February 11, 1998, provides additional information on repos, associated policies and procedures, credit risk management practices, and collateral management practices.

Dollar Repurchase Agreements

Dollar repurchase agreements, also known as dollar repos and dollar rolls, provide financial institutions with an alternative method of borrowing against securities owned. Unlike standard repurchase agreements, dollar repos require the buyer to return substantially similar, versus identical, securities to the seller. Dealers typically offer dollar roll financing to financial institutions as a means of covering short positions in particular securities. Short positions arise when a dealer sells securities that it does not currently own for forward delivery. To compensate for potential costs associated with failing on a delivery, dealers are willing to offer attractive financing rates in exchange for the use of the financial institution's securities in covering a short position. Savings associations, which are the primary participants among financial institutions in dollar roll transactions, typically use mortgage pass-through securities as collateral for the transactions.

Supervisory authorities do not normally take exception to dollar repos if the transactions are conducted for legitimate purposes and the financial institution has appropriate controls.

International Funding Sources

International funding sources exist in various forms. The most common source of funds is the Eurodollar market. Eurodollar deposits are U.S. dollar-denominated deposits taken by a NIC's overseas branch or its international banking facility. Reserve requirements and deposit insurance assessments do not apply to Eurodollar deposits.

The market is highly volatile, and management typically benefits from analyzing Eurodollar deposit activities within the same context as all other potentially less stable funding sources.

Commercial Paper

Subject to safety and soundness requirements, NICs can issue commercial paper to quickly raise funds from the capital markets. Commercial paper is generally a short-term, negotiable promissory note issued for short-term funding needs by a NIC holding company, large commercial NIC, or other large commercial business. Commercial paper usually matures in 270 days or less, is not collateralized, and is purchased by NIC investors.

Some commercial paper programs are backed by assets and are referred to as asset-backed commercial paper. Some programs also involve multi-seller conduits where a special- purpose entity is established to buy interests in pools of financial assets (from one or more sellers). Entities fund such purchases by selling commercial paper notes, primarily to NIC investors.

NICs that provide liquidity lines or other forms of credit enhancement to their own or outside commercial paper programs face the risk that the facilities could be drawn upon during a crisis situation. Prudent NICs plan for such events and include such events in stress scenario analysis and contingency plans. In addition, NICs benefit from addressing the NIC's ability to continue using commercial paper conduits as a funding source in the NIC's CFP.

Off-Balance Sheet Items

Off-balance sheet items, such as those described below, can be a source or use of funds.

Loan Commitments

Loan commitments are common off-balance sheet items. Typical commitments include unfunded commercial, residential, and consumer loans; unfunded lines of credit for commercial and retail customers; and fee-paid, commercial letters of credit. Sound risk management practices include closely monitoring the amounts of unfunded commitments that require funding over various periods and detailing anticipated demands against unfunded commitments in internal reports and contingency plans. Examiners should consider the nature, volume, and anticipated use of the NIC's loan commitments when assessing and rating the liquidity position.

Derivatives

Management can use derivative instruments (financial contracts that generally obtain their value from underlying assets, interest rates, or financial indexes) to reduce business risks. However, like all financial instruments, derivatives contain risks that must be properly managed. For example, interest rate swaps typically involve the periodic net settlement of swap payments that can substantially affect a NIC's cash flows. Additionally, derivative contracts may have initial margin requirements that require a NIC to pledge cash or investment securities that reflect a specified percentage of the contract's notional value. Variation margin requirements (which may require daily or intraday settlements to reflect changes in market value) can also affect a NIC's cash flows and investment security levels. Examiners should consider the extent to which management engaging in derivative activities understands and manages the liquidity, interest rate, and price risks of these instruments.

Other Contingent Liabilities

Legal risks can have a significant financial impact on NICs that may affect liquidity positions. Examiners should consider whether NICs identify these contingencies when measuring and reporting liquidity risks as exposures become more certain.

Liquidity Risk Analysis and Mitigation

There are many ways management can analyze and mitigate liquidity risk and maintain the NIC's current and future liquidity positions within the risk tolerance targets established by the board. For managing routine and stressed liquidity needs, NICs typically establish diversified funding sources and maintain a cushion of high-quality liquid assets. Examiners should consider whether CFPs identify backup funding sources, action steps to address acute liquidity needs, and whether management tests various stress scenarios to identify risks to mitigate and address in CFPs.

Cushion of Highly Liquid Assets

One of the most important components of a NIC's ability to effectively respond to liquidity stress is the availability of unencumbered, highly liquid assets (i.e., assets free from legal, regulatory, or operational impediments). Unencumbered liquid assets can be sold or pledged to obtain funds under a range of stress scenarios. The quality of the assets is a critical consideration, as it significantly affects management's ability to sell or pledge the assets in times of stress.

When determining what type of assets to hold for contingent liquidity purposes, management typically considers factors such as:

- **Level of credit and market risk:** Assets with lower levels of credit and market risk tend to have higher liquidity profiles.
- **Liquidity during stress events:** High-quality liquid assets are generally not subject to significantly increased risk during stress events such as credit or market risk. Conversely, certain assets, such as specialty assets with small markets or assets from industries experiencing stress, are often less liquid in times of stress in the banking sector.
- **Ease and certainty of valuation:** Prices based on trades in sizeable and active markets tend to be more reliable, and an asset's liquidity increases if market participants are more likely to agree on its valuation. Formula-based pricing is less desirable than data from recent trades.

NICs with high-quality liquid assets are generally able to monetize the assets through the sale of the assets or the use of secured borrowings. This generally means a NIC's cushion of liquid assets is concentrated in cash and due from accounts, federal funds sold, and high-quality assets, such as U.S. Treasury securities or GSE bonds. However, with digital services and social media, severe liquidity stress can transpire in as little as a few hours. Because severe stress can occur so rapidly, cash and cash equivalents are an essential component of the liquidity cushion.

Cash remains the most liquid asset. Hence, appropriate cash cushions can help to meet liquidity requirements until asset sales or borrowings can be executed. If NICs change the mix of their pool of liquid assets by substituting out cash for other types of liquid assets (e.g., during a period of rising interest rates when the opportunity cost of holding cash increases), effective management will be able to demonstrate that it can readily monetize these assets to meet stressed needs for liquidity without undue losses that impact the NIC's financial condition.

The ability of management to monetize marketable securities or access secured borrowing lines without delay can be critical in times of stress. Access to unencumbered liquid assets is critical, where such assets are easy to sell or pledge with little or no discount throughout an interest rate or credit cycle. Unrealized holding losses in liquid securities portfolios, however, reduce amounts that can be monetized by means of sale or pledging as collateral against borrowings.

Occasionally, it may be appropriate for examiners to consider pledged assets as part of the highly liquid cushion, such as when management pledges Treasury notes as part of an unfunded line of credit. In other instances, it may be appropriate for examiners to consider an asset that has not been explicitly pledged as illiquid.

Examiners assess whether the size of the NIC's liquid asset cushion is aligned with its risk tolerance and profile and supported by documented analysis and stress test results. Factors that may indicate a need to maintain a larger liquid asset buffer include:

- Easy customer access to alternative investments,
- Recent trends showing substantial reductions in large liability accounts,
- Significant volumes of less-stable funding,
- High levels of assets with limited marketability (due to credit quality issues or other factors),
- Expectations of elevated draws on unused lines

of credit or lending commitments,

- A concentration of credit to an industry with existing or anticipated financial problems,
- Close ties between stablecoin accounts and employers experiencing financial problems,
- A significant volume of assets is pledged to wholesale borrowings, and
- Impaired access to funds from capital markets.

Evaluation of Asset Encumbrance

Asset encumbrance is another important consideration of liquidity risk management. Assets typically become encumbered when they are pledged against borrowings, standby letter of credit (SBLC), or public deposits or could be considered restricted even though there is no explicit pledge agreement as described earlier. Examiners should understand, and assess management's understanding of, the dynamics of asset encumbrance and the triggers and requirements of the products and programs that are used to manage liquidity and collateral positions.

In a favorable economic environment, profitable, well-capitalized NICs generally have a wide capacity to borrow and can obtain secured borrowings with a pledge of loans or securities. In some cases, management provides a blanket lien on the NIC's mortgage loans and other assets to secure credit. When asset quality and on-balance sheet liquidity are strong, secured borrowings and other arrangements can be reliable and cost-effective.

In the event of asset quality or other financial deterioration, secured creditors often seek to protect their position by increasing collateral requirements. These collateral calls typically lead to increases in asset encumbrance at a time when the NIC has elevated funding needs to address losses and other outflows. Therefore, asset encumbrance is a critical consideration for examiners when assessing a NIC's scenario testing and CFP.

In addition to traditional secured borrowings, two examples of arrangements that could lead to elevated collateral requirements during financial stress include SBLCs and state pooled collateral programs. Management can use SBLCs for a variety of purposes, such as securing public deposits, accommodating derivative counterparties, and corporate borrowing needs. Typically, SBLCs are secured with eligible loans and securities. If asset quality declines or the NIC's financial condition deteriorates, the SBLC could be exercised and effectively convert to a borrowing, thereby increasing collateral encumbrance at a time when the NIC may have identified FHLB borrowings as a contingent source to address other funding gaps.

Under the state-sponsored pooled collateral model, participating NICs pledge securities to a pool that is coordinated by state finance officials to collateralize multiple public deposits. In these programs, the states monitor the financial condition of participants and increase collateral requirements if the NIC's financial condition deteriorates.

For NICs that pledge assets for secured borrowings and for those that use SBLCs or pooled collateral systems for managing uninsured public deposits, examiners should assess whether stress testing scenarios consider the potential for increased collateral requirements. Examiners should also determine whether the analysis includes assets that may be restricted but not explicitly pledged. Potential asset encumbrances under a stress scenario (to cover heightened collateral calls for borrowings and any public deposit arrangements or similar agreements) are typically incorporated into the CFP.

Diversified Funding Sources

An important component of liquidity management is the diversification of funding sources. Undue reliance on any one source of funding can have adverse consequences in a period of liquidity stress. Management typically diversifies funding across a range of retail sources and, if used, across a range of wholesale sources, consistent with the NIC's sophistication and complexity. NICs that rely primarily on directly gathered retail deposit accounts are generally not criticized for relying on one primary funding source. However, examiners should consider whether alternative sources are identified in formal CFPs and periodically tested.

To reduce risks associated with funding concentrations, management generally benefits from considering the correlations between sources of funds and market conditions and having available a variety of short-, medium- and long-term funding sources. The board is responsible for setting and clearly articulating a NIC's risk tolerance in this area through policy guidelines and limits for funding diversification.

Although management uses diversified funding sources to reduce funding concentration risks, management also considers other factors when selecting funding sources. For example, the cost of a particular funding source is a critical consideration when developing profitability strategies. Additionally, the stability and availability of a funding source are important factors when planning for asset growth. Examiners should assess strategies that rely on less-stable funding sources, particularly strategies that fund significant growth in new business lines.

When assessing the diversification of funding sources, important factors for examiners to consider include:

- Internal evaluations of risks associated with funding sources (e.g., stress tests and diversification limits) and whether the evaluations are reasonable and well- documented,
- Potential curtailment of funding or significantly higher funding costs during periods of stress,
- Time required to access funding in stressed and normal periods,
- Sources and uses of funds during significant growth periods, and
- Available alternatives to volatile funding sources.

Maintaining market access to funds is also an essential component of ensuring funding diversity. Market access can be critical, as it affects a NIC's ability to raise new funds and to liquidate assets. Examiners should consider whether management actively manages, monitors, and tests the NIC's market access to funds. Such efforts are typically consistent with the NIC's liquidity risk profile and sources of funding. For example, access to the capital markets is an important consideration for most large or complex NICs, whereas the availability of correspondent lines and other sources of wholesale funds are critical for community NICs. Market perceptions play a critical role in a NIC's ability to access funds readily and at reasonable terms. For this reason, examiners should determine whether liquidity risk managers are aware of any information (such as an announcement of a decline in earnings or a downgrade by a rating agency) that could affect perceptions of a NIC's financial condition.

Assessing the Stability of Funding Sources

Assessing the stability of funding sources is an essential part of liquidity risk measurement and liquidity management. NICs may rely on a variety of funding sources, and a wide array of factors may impact the stability of those funding sources. Some of the primary factors that examiners should consider when assessing the stability of funding sources include:

- **The cost of the NIC's funding sources compared to market costs and alternative funding sources:** If a NIC pays significantly above local or national rates to obtain or retain deposits, the NIC's deposit base may be highly cost sensitive, and depositors may be more likely to move deposits if terms become more favorable elsewhere. Examiners should determine whether management uses rate specials or one-time promotional offerings to obtain deposits or to retain rate-sensitive customers. Examiners should also assess how much of the deposit base consists of rate specials and determine whether management measures and reports the level of such deposits.
- **Large deposit growth or significant changes in deposit composition:** Examiners should carefully consider strategies that rely on less stable funding sources to fund significant growth in new business lines. The level of risk in new strategies can be misjudged and could be compounded using less stable funding sources.
- **Stability of deposit base:** Deposits can be a stable source of funding depending on the NIC's depositor base; client relationships across credit, deposit, and other financial products; the tenure of the deposit relationship; and the sensitivity of depositors to interest rates, the NIC's condition, adverse media attention, and counterparty and market participants' views toward the NIC. These deposits are not automatically considered stable; however, in times of stress or when a NIC's condition deteriorates, depositors are more likely to withdraw their funds. Therefore, examiners should closely review large volumes of deposits, along with their risk characteristics, including concentrations of large individual depositors, as well as depositors' potential behavior in stressed environments.
- **Secured borrowings and asset encumbrance:** Secured borrowing can be a stable source of funding depending on the NIC's condition and quality of collateral that can be pledged. Well-performing applicable NICs may obtain secured credit from the

Federal Reserve's discount window, the FHLB, or other providers by pledging eligible loans and securities.

- **The current rate environment:** Depositors may be less rate sensitive in a low-rate environment due to the limited benefits (only marginally higher rates) obtained by shifting deposits into longer-term investments.
- **The current business cycle:** If the national or local economy is in a downward cycle, individuals and businesses may decide to keep more cash on hand rather than spending or investing.
- **Contractual terms and conditions:** Terms and requirements related to the NIC's condition, such as its PCA category, credit ratings, or capital levels, can materially affect liquidity. Specific contractual terms and conditions are often associated with brokered deposits, funds from deposit listing services, correspondent NIC accounts, repurchase agreements, and FHLB advances.
- **The relationship with the funding source:** Large deposits might be more stable if the deposit is difficult to move (e.g., the deposit is in a transaction account used by a payroll provider), if the depositor is an insider in the NIC, or if the depositor has a long history with the NIC. However, examiners should consider that depositors may withdraw funds during stress periods regardless of administrative difficulties or the effect on the NIC.

Intraday Liquidity Monitoring

Intraday liquidity monitoring is an important component of liquidity risk management. It is important for a NIC to manage and understand its potential intraday liquidity needs associated with wholesale payments and trading activity, including derivative positions. While most community NICs do not experience significant wholesale payments inflows and outflows, operate trading accounts, or have large derivative positions and settlement risk, some use derivatives to hedge interest rate risk exposure that can require an intraday use of liquidity to collateralize a position.

For example, as part of a derivatives transaction, a NIC may be required to submit either initial or maintenance/variation margin associated with the contract on a given business day by a specific time. Even though the NIC could be "in the money" (meaning it has a net positive exposure to the dealer counterparty) and expect a net liquidity inflow, the derivative contract could require a short-term or intraday cash payment. The NIC's payment could occur before the counterparty remits its payment, creating a timing difference and potential short-term or intraday liquidity need. Also, NICs that conduct wholesale payments over a large value payment system4 could encounter situations that result in intraday cash deficits, such as if expected payments receipts are throttled/slowed by senders concerned about the NIC's financial condition (and the risk of having a large intraday loan to the NIC) but the NIC is unable to throttle outgoing payments in a similar manner, in turn potentially causing daylight overdrafts5 in excess of the regular net debit cap. The Federal Reserve may provide credit to support potential intraday mismatches, but there may also be limits on the NIC's ability to access this support.

The Role of Equity

Issuing new equity is often a relatively slow and costly way to raise funds and is not viewed as an immediate or direct source of liquidity. However, to the extent that a strong capital position helps a NIC quickly obtain funds at a reasonable cost, issuing equity can be considered a liquidity facilitator. For NICs with a holding company, cash can be injected from the parent in the form of equity, ideally tier 1 capital.

Contingency Funding

Contingency Funding Plans

All NICs, regardless of size or complexity, benefit from a formal CFP that clearly defines strategies for addressing liquidity shortfalls in emergency situations. Comprehensive CFPs delineate policies to manage a range of stress environments, establish clear lines of responsibility, and articulate clear implementation and escalation procedures. The reliability of a CFP improves if it is regularly tested and updated to ensure that it is operationally sound. Often, management coordinates liquidity risk management plans with disaster, contingency, and business planning efforts and aligns them with business line and risk management objectives, strategies, and tactics.

CFPs are tailored to the business model, risk, and complexity of the individual NIC. Such CFPs:

- Establish a liquidity event management framework (including points of contact and public relations plans),
- Establish a monitoring framework,
- Identify potential contingent funding events,
- Identify potential funding sources,

- Require stress testing, and
- Require periodic testing of the CFP framework.

Contingent Funding Events

The primary goals of most CFPs are to identify risks from contingent funding events and establish an operational framework to deal with those risks. Contingent funding events are often managed based on their probability of occurrence and potential effect. CFPs generally focus on events that, while relatively infrequent, could have a high impact on the NIC's operations. Appropriate plans typically set a course of action to identify, manage, and control significant contingent funding risks.

Stress factors that may provide early warning signs for identifying potential funding risks can be NIC- specific or systemic and may involve one or more of the following:

- Deterioration in asset quality,
- Downgrades in credit ratings,
- Downgrades in PCA capital category,
- Deterioration in the liquidity management function,
- Widening of credit default spreads,
- Declining NIC or holding company stock prices,
- High put-call ratios (i.e., high put volume relative to call volume) or increases in the volume of short selling,
- Operating losses,
- Rapid growth,
- Inability to fund asset growth,
- Inability to renew or replace maturing liabilities,
- Price volatility or changes in the market value of various assets,
- Negative press coverage, including social media channels,
- Anticipation of a significant negative reaction to an investor earnings call,
- Deterioration in economic conditions or market perceptions,
- Disruptions in the financial markets,
- General or sector-specific market disruptions (e.g., payment systems or capital markets), and
- Competitor or peer NICs experiencing liquidity duress with the potential for spillover effects or contagion risk spreading to the subject NIC.

Counterparties can also cause stress events (both credit and non-credit exposures). For example, if a NIC sells financial assets to correspondent NICs for securitization, and its primary correspondent exits the market, the NIC may need to use a contingent funding source.

NICs with unrealized holding losses on debt securities should fully understand potential restrictions that could be imposed by the FHLB and other NIC counterparties (e.g., public depositors, deposit brokers, and listing and registry services) should the unrealized losses affect certain capital measures, such as GAAP equity. These restrictions may include a curtailment of new advances or placements (based on law or policy) at NICs that report a low or negative GAAP equity position.

Comprehensive CFPs identify NIC-specific events that may impact on- and off-balance sheet cash flows given the specific balance-sheet structure, business lines, and organizational structure. For example, NICs that securitize loans have CFPs that consider a stress event where the NIC loses access to the market but still has to honor its commitments to customers to extend loans.

Comprehensive CFPs also delineate various stages and severity levels for each potential contingent liquidity event. For example, asset quality can deteriorate incrementally and have various levels of severity, such as less than satisfactory, deficient, and critically deficient. CFPs also address the timing and severity levels of temporary, intermediate-term, and long-term disruptions. For example, a natural disaster may cause temporary disruptions to payment systems, while deficient asset quality may occur over a longer term. NICs can then use the stages or severity levels identified to establish various stress test scenarios and early-warning indicators.

Stress Testing Liquidity Risk Exposure

After identifying potential stress events, management often implements quantitative projections, such as stress tests, to assess the liquidity risk posed by the potential events. Stress testing helps management understand the vulnerability of certain funding sources to various risks and to determine when and how to access alternative funding sources. Stress testing also helps management identify methods for rapid and effective responses, guide crisis management planning, and determine an appropriate liquidity buffer.

Generally, the magnitude and frequency of stress testing is commensurate with the complexity of the NIC, as well as the level and trend of its liquidity risk. If liquidity risk becomes elevated, management could benefit from conducting more frequent stress testing, while large or complex NICs may also benefit from daily liquidity stress

testing to inform, in part, day-to-day liquidity management.

The growing prevalence of digital banking and online banking applications has facilitated 24/7 banking. These innovations, in addition to the influence of social media, can accelerate and intensify liquidity risk due to deposit runs and contagion. A comprehensive CFP reflects this risk and could include within the suite of stress scenarios an end-of- day or end-of-week stress scenario with severe deposit run- off occurring in hours or minutes as opposed to days or weeks. For example, the modeling and testing of a severe stress event that begins on a Friday afternoon may expose vulnerabilities in the ability to execute a CFP (e.g., the ability to quickly monetize unencumbered collateral and execute on borrowing lines) that would not be identified in longer-duration scenarios.

Liquidity stress tests are typically based on existing cash-flow projections that are appropriately modified to reflect potential stress events (NIC-specific or market-wide) across multiple time horizons. Stress tests are used to identify and quantify potential risks and to analyze possible effects on the NIC's cash flows, liquidity position, profitability, and solvency. For instance, during a crisis, a NIC's liquidity needs can quickly escalate while liquidity sources can decline (e.g., customers may withdraw uninsured deposits or draw down borrowing lines, or the NIC's lines of credit may be reduced or canceled). Stress testing allows a NIC to evaluate the possible impact of these events and to plan accordingly.

Examiners should review documented assumptions regarding the cash flows used in stress test scenarios and consider whether they incorporate:

- Customer behaviors (early deposit withdrawals, renewal and run-off of loans, exercising options);
- Significant runoff of surge, uninsured, or volatile deposits;
- Prepayments on loans and mortgage-backed securities;
- Curtailment of committed borrowing lines;
- Material reduction in asset values;
- Regulatory restrictions on brokered deposits or interest rates paid on deposits;
- Significant changes in market interest rates;
- Seasonality (public fund fluctuations, agricultural credits, construction lending); and
- Various time horizons.

Effective assumptions generally incorporate both contractual and non-contractual behavioral cash flows, including the possibility of funds being withdrawn. Examples of non-contractual funding requirements that may occur during a financial crisis include supporting auction rate securities, money market funds, commercial paper programs, special purpose vehicles, and structured investment vehicles. NICs may be compelled to financially support shortfalls in money market funds or asset-backed paper that does not sell or roll due to market stress, and assets may be taken on-balance sheet from sponsored off-balance sheet vehicles. While this financial support is not contractually required, management may determine that the negative press and reputation risks outweigh the costs of providing the financial support.

Effective stress testing generally assesses various stress levels and stages ranging from low- to severe-stress scenarios. To establish appropriate stress scenarios, management may use the different stages and severity levels that the NIC assigns to stress events. For example, a low-stress scenario may include several events identified as low severity, while a severe-stress scenario may combine several high-severity events. A severe stress scenario may tie a sharp change in interest rates with asset quality deterioration or combine severe declines in asset quality, financial condition, and PCA category.

Management's active involvement and support is critical to the effectiveness of the stress testing process. Stress test results are typically discussed with the board, and when appropriate, management takes actions to limit the NIC's exposures, build up a liquidity cushion, or adjust the NIC's liquidity profile to fit its risk tolerance. In some situations, management may adjust the NIC's business strategy to mitigate a contingent funding exposure.

Potential Funding Sources

Identification of potential funding sources for shortfalls resulting from stress scenarios is a key component of CFPs. Management generally identifies alternative funding sources and ensures ready access to the funds.

The most important and reliable funding source is a cushion of highly liquid assets. Other common contingent funding sources include the sale or securitization of assets, repurchase agreements, FHLB borrowings, or borrowings through the Federal Reserve discount window. However, in a stress event, many of these liquidity sources may become unavailable or cost prohibitive. Therefore, effective stress tests typically assess the availability of contingent funding in stress scenarios. CFPs can also establish a hierarchy for contingent funding sources. For example, cash and cash equivalents are typically placed at the top of the hierarchy (e.g., where applicable, reserve

balances at the Federal Reserve, interest- bearing balances, federal funds sold, and due from accounts), followed by operationalized borrowing lines with the Federal Reserve discount window or FHLB borrowing lines, for applicable NICs, unencumbered highly liquid securities, etc. The use of these sources can depend on the nature and duration of a prospective liquidity or market stress event, as well as the ability to sell liquid assets or draw on contingent lines of credit.

NICs that rely on unsecured borrowings for contingency funding normally consider how borrowing capacity may be affected by a NIC-specific or market-wide disruption. Management that relies on secured funding sources for contingency funding generally also consider whether the NIC may be subject to higher margin or collateral requirements in certain stress scenarios. Higher margin or collateral requirements may be triggered by deterioration in the NIC's overall financial condition or in a specific portfolio. Potential collateral values are also normally subjected to stress tests, because devaluations or market uncertainties could reduce the amount of contingent funding available from a pledged asset. Similarly, stress tests often consider correlation risk when evaluating margin and collateral requirements. For example, if a NIC relies on its loan portfolio for contingent liquidity, a stress test may assess the effects of poor asset quality. If loans previously securitized were of poor credit quality, the market value and collateral value of current and future loans originated by the NIC could be significantly reduced.

NICs also benefit by operationalizing other secured funding lines, giving management the ability to draw on these lines immediately. Effective management will generally determine an appropriate contingent borrowing capacity and pledge collateral to funds providers as appropriate.

Monitoring Framework for Stress Events

Early identification of liquidity stress events is critical to implementing an effective response. The early recognition of potential events allows the NIC to position itself into progressive states of readiness as an event evolves, while providing a framework to report or communicate within the NIC and to outside parties. As a result, effective CFPs typically identify early warning signs that are tailored to the NIC's specific risk profile. The CFPs also establish a monitoring framework and responsibilities for monitoring identified risk factors.

Early warning indicators may be classified by management as early-stage, low-severity, or moderate-severity stress events and include factors such as:

- Decreased credit-line availability from correspondent NICs,
- Demands for collateral or higher collateral requirements from counterparties that provide credit to the NIC,
- Cancellation of loan commitments or the non-renewal of maturing loans from counterparties that provide credit to the NIC,
- Decreased availability of warehouse financing for mortgage banking operations,
- Increased trading of the NIC's debt, or
- Unwillingness of counterparties or brokers to participate in unsecured or long-term transactions.

Testing and Updating Contingency Funding Plans

Management periodically tests and updates the CFP to assess its reliability under times of stress. Generally, management tests contingent funding sources at least annually. Testing may include both drawing on a contingent borrowing line and operational testing. Operational testing is often designed to ensure that:

- Roles and responsibilities are up to date and appropriate,
- Legal and operational documents are current and appropriate,
- Cash and collateral can be moved where and when needed, and
- Contingent liquidity lines are available.

Effective CFP testing typically includes periodically testing the operational elements associated with accessing contingent funding sources. The tests help ensure funds are available when needed. For example, there may be extended time constraints for applicable NICs to establish lines with the Federal Reserve or FHLB. Often, the lines are set up in advance to establish availability and to limit the time required to pledge assets and draw on lines. However, establishing lines in advance and testing the lines does not guarantee funding sources will be available within the same time frames or on the same terms during stress events.

In addition, NICs can benefit by employing operational CFP simulations to test communications, coordination, and decision-making involving managers with different responsibilities, in different geographic locations, or at different operating subsidiaries. Simulations or tests performed late in the day can highlight specific problems such as difficulty in selling assets or borrowing new funds at a time when the capital markets may be less active. The complexity of these tests can range from a simple communication and access test for a non-complex NIC or can include multiple tests throughout the day to assess the timing of funds access.

Liquidity Event Management Processes

In a contingent liquidity event, it is critical that management's response be timely, effective, and coordinated. Therefore, comprehensive CFPs typically provide for a dedicated crisis management team and administrative structure and include realistic action plans to execute the plan elements for various levels of stress. CFPs establish clear lines of authority and reporting by defining responsibilities and decision-making authority. CFPs also address the need for more frequent communication and reporting among team members, the board, and other affected parties. Critical liquidity events may also require daily computation of liquidity risk reports and supplemental information, and comprehensive CFPs provide for more frequent and more detailed reporting as the stress situation intensifies.

The reputation of a NIC is a critical asset when a liquidity crisis occurs, and proactive management maintains plans (including public relations plans) to help preserve the NIC's reputation in periods of perceived stress. Failure to appropriately manage reputation risk could cause severe damage to a NIC.

And finally, comprehensive CFPs also address effective communication with key stakeholders, such as counterparties, credit-rating agencies, and customers. Smaller NICs that rarely interact with the media may benefit from having plans in place for how they will manage press inquiries and training front-line employees on how to respond to customer questions.

Internal Controls

Adequate internal controls are integral to ensuring the integrity of a NIC's liquidity risk management process. An effective system of internal controls promotes effective operations, reliable financial and regulatory reporting, and compliance with relevant laws and NIC policies. Effective internal control systems are designed to ensure that approval processes and board limits are followed and any exceptions to policies are quickly reported to, and promptly addressed by, senior management and the board.

Independent Reviews

A key internal control involves having an independent party regularly evaluate the various components of the liquidity risk management process. A review typically assesses the effectiveness of liquidity risk management programs, considering the complexity of the NIC's liquidity risk profile. NICs may achieve independence by assigning this responsibility to the audit function or other qualified individuals independent of the liquidity risk management process. To facilitate the independence of the review process, reviewers typically report key issues requiring attention (including instances of noncompliance with laws and regulations or the NIC's policies) to the ALCO and audit committee for prompt action. Independent reviews are typically performed at least annually.

Evaluating Liquidity

Liquidity Component Review

Under the *Uniform Financial Institutions Rating System*, in evaluating the adequacy of a NIC's liquidity position, consideration should be given to the current level and prospective sources of liquidity compared to funding needs, as well as the adequacy of funds management practices relative to the NIC's size, complexity, and risk profile.

In general, funds management practices should ensure that a NIC is able to maintain a level of liquidity sufficient to meet its financial obligations in a timely manner and to fulfill the legitimate banking needs of its community. Practices should reflect the ability of the NIC to manage unplanned changes in funding sources, as well as react to changes in market conditions that affect the ability to quickly liquidate assets with minimal loss.

In addition, funds management practices should ensure that liquidity is not maintained at a high cost or through undue reliance on funding sources that may not be available in times of financial stress or adverse changes in market conditions.

Liquidity is rated based upon, but not limited to, an assessment of the following evaluation factors:

- The adequacy of liquidity sources compared to present and future needs and the ability of the NIC to meet liquidity needs without adversely affecting its operations or condition.
- The availability of assets readily convertible to cash without undue loss.
- Access to money markets and other sources of funding.
- The level of diversification of funding sources, both on- and off-balance sheet.
- The degree of reliance on short-term volatile funding sources (including borrowings and brokered deposits) to fund longer-term assets.
- The trend and stability of deposits.
- The ability to securitize and sell certain pools of assets.
- The capability of management to properly identify, measure, monitor, and control the NIC's liquidity position, including the effectiveness of funds management strategies, liquidity policies, management information systems, and contingency funding plans.

Rating the Liquidity Factor

A rating of 1 indicates strong liquidity levels and well-developed funds management practices. The NIC has reliable access to sufficient sources of funds on favorable terms to meet present and anticipated liquidity needs.

A rating of 2 indicates satisfactory liquidity levels and funds management practices. The NIC has access to sufficient sources of funds on acceptable terms to meet present and anticipated liquidity needs. Modest weaknesses may be evident in funds management practices.

A rating of 3 indicates liquidity levels or funds management practices in need of improvement. NICs rated 3 may lack ready access to funds on reasonable terms or may evidence significant weaknesses in funds management practices.

A rating of 4 indicates deficient liquidity levels or inadequate funds management practices. NICs rated 4 may not have or be able to obtain a sufficient volume of funds on reasonable terms to meet liquidity needs.

A rating of 5 indicates liquidity levels or funds management practices so critically deficient that the continued viability of the NIC is threatened. NICs rated 5 require immediate external financial assistance to meet maturing obligations or other liquidity need

SENSITIVITY TO MARKET RISK

Introduction

Sensitivity to market risk reflects the degree to which changes in interest rates, foreign exchange rates, digital asset prices, commodity prices, or equity prices can adversely affect a NIC's earnings or capital. For most NICs, market risk primarily reflects exposure to changing interest rates. Therefore, this section focuses on assessing interest rate risk (IRR). However, examiners may apply these same guidelines when evaluating foreign exchange, commodity, digital asset prices, or equity price risks. A brief discussion of other types of market risks is included at the end of this section.

Market risks may include more than one type of risk and can quickly impact a NIC's earnings and the economic value of its assets, liabilities, and off-balance sheet items. In order to effectively manage IRR, each NIC should have an IRR management program that is commensurate with its size, complexity, scope, and risk of activities.

The adequacy of a NIC's IRR program is dependent on its ability to identify, measure, monitor, and control all material interest rate exposures. To do this accurately and effectively, NICs need:

- Appropriate IRR policies, procedures, and controls;
- Sufficiently detailed reporting processes to inform senior management and the board of IRR exposures;
- Comprehensive systems and standards for measuring and monitoring IRR; and
- Appropriate internal controls and independent review of procedures.

Types and Sources of Interest Rate Risk

IRR can arise from a variety of sources and financial transactions and has many components including repricing risk, basis risk, yield curve risk, option risk, and price risk.

Types of Interest Rate Risk

Repricing risk reflects the possibility that assets and liabilities will reprice at different times or amounts and negatively affect a NIC's earnings, capital, or general financial condition.

Basis risk is the risk that different market indices will not move in perfect or predictable correlation.

Yield curve risk reflects exposure to unanticipated changes in the shape or slope of the yield curve. It occurs when assets and funding sources are linked to similar indices with different maturities. For example, a 30-year Treasury bond's yield may change by 200 basis points, but a 3-year Treasury note's yield may change by only 50-basis points during the same time period. This risk is commonly expressed in terms of movements of the yield curve for a type of security (e.g., a flattening, steepening, or inversion of the yield curve).

Option risk is the risk that a financial instrument's cash flows (timing or amount) can change at the exercise of the option holder, who may be motivated to do so by changes in market interest rates. Lenders are typically option sellers, and borrowers are typically option buyers (as they are often provided a right to prepay). The exercise of options can adversely affect a NIC's earnings by reducing asset yields or increasing funding costs.

For example, assume that a NIC purchased a 30-year callable bond at a market yield of 10 percent. If market rates subsequently decline to 8 percent, the bond's issuer will be motivated to call the bond and issue new debt at the lower market rate. At the call date, the issuer effectively repurchases the bond from the NIC. As a result, the NIC will not receive the originally expected yield (10 percent for 30 years). Instead, the NIC must re-invest the principal at the new, lower market rate.

Price risk is the risk that the fair value of financial instruments will change when interest rates change. For example, the securities portfolio and, held-for-sale loan portfolios contain price risk. When interest rates increase, the value of a NIC's bond portfolio will generally decrease. Consequently, when interest rates decrease, the bond portfolio will generally increase in value.

Sources of Interest Rate Risk

Funding sources may involve repricing risk, basis risk, yield curve risk, or option risk, and examiners should carefully evaluate all significant relationships between funding sources and asset structures when matched to a longer-term asset portfolio. For example, long-term securities funded by time sensitive digital asset accounts may involve repricing risk, basis risk, or yield curve risk. As a result, interest rate movements could cause repricing mismatch causing changes in funding costs to increase substantially while asset yields remain fixed.

Derivative instruments may be used for hedging but can introduce complex IRR exposures. Depending on the specific instrument, derivatives may create repricing, basis, yield curve, option, or price risk.

Fee income businesses may be influenced by IRR, particularly fiduciary, credit card servicing, and non-deposit product sales. Changing interest rates could affect such activities.

Product pricing strategies may introduce IRR, particularly basis risk or yield curve risk. Basis risk exists if funding sources and assets are linked to different market indices. **Yield curve risk** exists if funding sources and assets are linked to similar indices with different maturities.

Embedded options associated with assets, liabilities, and off-balance sheet derivatives can create IRR. Embedded options are features that provide the holder with the right, but not the obligation, to buy, sell, pay down, payoff, withdraw, or otherwise alter the cash flow of the instrument. The holder of the option can be the NIC, the issuer, or a counterparty. Many instruments contain embedded options that can alter cash flows and impact the IRR profile of the NIC, including:

- **Redemptions:** Customers have the option to redeem funds at any time.
- **Callable bonds**: The issuer has the option to redeem all or part of a bond before maturity (based on contractual call dates).
- **Structured notes:** Options can vary by the type of instrument and may include step-up features, interest rate caps and floors, and cash flow waterfall triggers.
- **Wholesale borrowings:** Lenders may have a call option (requiring NICs to repay borrowings), or borrowing NICs may have a put option (allowing them to prepay borrowings).
- **Derivatives:** Derivative owners may hold an option to purchase additional securities or to exercise an existing derivative contract.

Embedded options can create various risks, such as contraction risk, extension risk, and negative convexity. Contraction risk increases when rates decline and borrowers can refinance at a lower rate, forcing the NIC to reinvest those funds at a lower rate. Extension risk increases when rates rise and borrowers become less likely to prepay loans, thereby locking NICs into below-market returns. Convexity measures the curvature in the relationship between certain investment prices and yields and reflects how the duration of an instrument changes as rates also change.

IRR Risk Management Framework

The IRR management framework sets forth strategies and risk tolerances as established in the NIC's policies and procedures that guide the identification, measurement, management, and control of sensitivity to market risk. The framework begins with sound corporate governance and covers strategies, policies, risk controls, measurements, reporting responsibilities, independent review functions, and risk mitigation processes.

The formality and sophistication of the IRR management program should correspond with a NIC's balance sheet complexity and risk profile. Less complex programs may be adequate for NIC's that maintain basic balance sheet structures, have moderate exposure to embedded options, and do not employ complicated funding or investment strategies. However, all NICs should clearly document their procedures, and senior management should actively supervise daily operations.

More complex NICs need more formal, detailed IRR management programs. In such cases, management should establish specific controls and produce sound analyses that address all major risk exposures. Internal controls at complex NICs should include a more thorough independent review and validation process for the IRR models employed, as well as more rigorous requirements for separation of duties.

At all NICs, management and the board should understand the IRR implications of their business activities, products, and strategies, while also considering their potential impact on market, liquidity, earnings, capital, credit, and operational risks.

Board Oversight

Effective board oversight is the cornerstone of sound risk management. The board of directors is responsible for overseeing the establishment, approval, implementation, and annual review of IRR management strategies, policies, procedures, and risk limits. The board should understand and regularly review reports that detail the level and trend of the NIC's IRR exposure.

The board or an appropriate board committee should review sensitivity to market risk information at least quarterly. The information should be timely and of

sufficient detail to allow the board to assess senior management's performance in monitoring and controlling market risks and to assess management's compliance with board-approved policies.

In order to fulfill its responsibilities in this area, the board is expected to:

- Establish formal risk management policies, strategies, and risk tolerance levels;
- Define management authorities and responsibilities;
- Communicate its risk management strategies and risk tolerance levels to all responsible parties;
- Monitor management's compliance with board- approved policies;
- Understand the NIC's risk exposures and how those risks affect enterprise-wide operations and strategic plans; and
- Provide management with sufficient resources to measure, monitor, and control IRR.

Senior Management Oversight

Senior management is responsible for ensuring that board- approved IRR strategies, policies, and procedures are appropriately executed. Management should ensure that risk management processes consider the impact that various risks, including but not limited to credit, liquidity, and operational risks could have on IRR.

Management is responsible for maintaining:

- Appropriate policies, procedures, and internal controls that address IRR management, including limits and controls that ensure risks stay within board-approved tolerances;
- Comprehensive systems and standards for measuring IRR, valuing positions, and assessing performance;
- Adequate procedures for updating IRR measurement scenarios and documenting key assumptions that drive IRR analysis; and
- Sufficient reporting processes for informing senior management and the board of the level of IRR exposure.

IRR reports should provide sufficient aggregate information and supporting details to enable senior management and the board to assess the impact of market rate changes and the impact of key assumptions in the IRR model.

The Asset/Liability Committee (ALCO) or a similar senior management committee should actively monitor the IRR profile. The committee should have sufficient representation across major functions (e.g., lending, investment, and funding activities) that they can directly or indirectly influence the NIC's IRR exposure.

Policies and Procedures

Policies and procedures should be comprehensive and govern all material aspects of a NIC's IRR management process. IRR policies and procedures should:

- Address board and senior management oversight;
- Outline strategies, risk limits, and controls;
- Define general methods used to identify risk;
- Describe the type and frequency of monitoring and reporting;
- Provide for independent reviews and internal controls;
- Ensure that significant new strategies, products, and businesses are integrated into the IRR management process;
- Incorporate the assessment of IRR into the NIC's risk management procedures so that interrelated risks are identified and addressed; and
- Provide controls over permissible risk mitigation activities, such as hedging strategies and instruments, if applicable.

Interest Rate Risk Strategies

Management should develop IRR strategies that reflect board-approved risk tolerances and do not expose the NIC to excessive risk. A NIC's risk profile is a function of the NIC's activities and products. For example, a NIC's IRR strategy may be to maintain a short-term, non-complex balance sheet. In order to implement that strategy, management may hold assets with short durations and minimal embedded options and fund the assets with customer accounts and short-term borrowings.

Some NICs may conduct borrowing and investment transactions (leverage strategies) that are separate from the NIC's core operations. In a typical leverage strategy management acquires short or intermediate term wholesale funds or borrowings and invests those funds in longer-term bonds. Prior to implementing a

leverage strategy, management should have the skills to understand, measure, and manage the risks. Management should be able to demonstrate a transaction's effect on the NIC's risk profile and document that the exposure is within established risk limits.

Management should measure and document a strategy's effect on IRR exposure prior to implementation, periodically thereafter, and prior to any significant strategy changes. NICs should consider stress testing all prospective strategies and ensure IRR exposures are within established risk limits.

Risk Limits and Controls

Risk limits should reflect the board's tolerance of IRR exposure by restricting the volatility of earnings and capital for given rate movements and applicable time horizons. Risk limits should be explicit dollar or percentage parameters. IRR exposure limits should be commensurate with the complexity of NIC activities, balance sheet structure, and off-balance sheet items. At a minimum, limits should be expressed over one- and two-year time horizons, correspond to the internal measurement system's methodology, and appropriately address all key IRR risks and their effect on earnings and capital.

Examiners should carefully evaluate policy guidelines and board-approved risk limits. NICs should establish limits that are neither so high that they are never breached, nor so low that exceeding the limits is considered routine and unworthy of action. Effective limits will provide management sufficient flexibility to respond to changing economic conditions yet be stringent enough to prevent excessive risk-taking.

Policies should be in place to ensure excessive IRR exposures receive prompt attention. Controls should be designed to help management identify, evaluate, report, and address excessive IRR exposures. Policies should require management to regularly monitor risk levels, and controls should be altered as needed when economic conditions change, or the board alters its risk tolerance level. Reports or stress tests that reflect significant IRR exposure should be promptly reported to the board (or appropriate board committee), and the board should review all risk limit exceptions and management's proposed actions.

Earnings-based risk limits may include volatility considerations involving:

- Net interest margin,
- Net interest income,
- Net operating income, and
- Net income.

Capital-based risk limits may include volatility considerations involving:

- Economic value of equity, and
- Other comprehensive income.

The board should provide staffing resources sufficient to ensure:

- Effective operation of measurement systems,
- Appropriate analytic expertise,
- Adequate training and staff development, and
- Regular independent reviews.

Risk Monitoring and Reporting

Management should report IRR in an accurate, timely, and informative manner. At least quarterly, senior management and the board should review IRR reports. NICs that engage in complex or higher risk activities should assess IRR more frequently. At a minimum, IRR exposure reports should contain sufficient detail to permit management and the board to:

- Identify the source and level of IRR;
- Evaluate key assumptions, such as interest rate forecasts, redemption behaviors, and potential lending prepayments; and
- Determine compliance with policies and risk limits.

Interest Rate Risk Analysis

An effective risk management system must clearly quantify risks and report such risks in a timely manner. NICs should have sound IRR measurement procedures and systems that assess exposures relative to established risk tolerances. Such systems should be commensurate with the complexity of the NIC. Although management may rely on third-party IRR models, they should fully understand the underlying analytics, assumptions, and methodologies of the models and ensure such systems and processes are incorporated appropriately in the strategic (long-term) and tactical (short-term) management of IRR exposures.

Management should conduct careful due diligence/pre- acquisition reviews to ensure they understand the IRR characteristics of new products, strategies, and initiatives. Management should also consider whether existing measurement systems can adequately capture new IRR exposures. When analyzing whether or not a product or activity introduces new IRR exposures, management should consider that changes to an instrument's maturity, repricing, or repayment terms can materially affect a product's IRR characteristics. NICs may be able to run alternative scenarios in their IRR models to test the effects of new products and initiatives. If a NIC is unable to run alternative scenarios using existing models, they should use other methods to estimate the risk of new products, strategies, and initiatives. All NICs should ensure that the method(s) they use to evaluate new products and initiatives (running alternative scenarios in existing models or through other means), adequately captures potential market risks.

Management should consider earnings and the economic value of equity when evaluating IRR. Additionally, due to rapid changes within the digital asset industry, NIC's must also consider risks associated with reputation, AML/CFT, IT, and legal risk. Reduced earnings or losses can harm capital, liquidity, and the NIC's reputation. Risk-to-earnings measurements are normally derived from simulation models that estimate potential earnings variability. Economic value of equity (EVE) measurements allows for longer-term earnings and capital analysis. The analysis may be useful for long-term planning and may also indicate a need for short-term actions to mitigate IRR exposure. Long term earnings-at-risk simulations (5 to 7 years) can be a helpful supplement to EVE measures, but they are not a replacement for EVE measurements.

Interest Rate Risk Measurement Methods

NICs are encouraged to use a variety of measurement methods to assess their IRR profile. Regardless of the methods used, a NIC's IRR measurement system should be sufficient to capture all material balance sheet items and to quantify exposures to both earnings and capital. The most common types of IRR measurement systems are:

- Gap Analysis,
- Duration Analysis,
- Earnings Simulation Analysis,
- Earnings-at-Risk,
- Capital-at-Risk, and
- Economic Value of Equity.

Gap Analysis

Gap analysis is a simple IRR methodology that provides an easy way to identify repricing gaps. It can also be used to estimate how changes in rates will affect future income. However, gap analysis has several weaknesses and is generally not sufficient as a NIC's sole IRR measurement method. Gap analysis can be a first step in identifying IRR exposures and may serve as a reasonableness check for more sophisticated forms of IRR measurement, particularly in less complex NICs with simple balance sheets.

Gap analysis helps identify maturity and repricing mismatches between assets, liabilities, and off-balance sheet instruments. Gap schedules segregate rate-sensitive assets (RSA), rate-sensitive liabilities (RSL), and off- balance sheet instruments according to their repricing characteristics. Then, the analysis summarizes the repricing mismatches for defined time horizons. Additional calculations can then estimate the effect the repricing mismatches may have on net interest income.

A basic gap ratio is calculated as:

$$\frac{RSA\ minus\ RSL}{Average\ Earning\ Assets}$$

Gap analysis may identify periodic, cumulative, or average mismatches, or it may show the ratio of RSA-RSL divided by average assets or total assets. However, using those denominators does not produce a standard gap ratio. They simply provide other ways of describing the degree of repricing mismatches.

A NIC has a positive gap if the amount of RSAs repricing in a given period exceeds the amount of RSLs repricing during the same period. When a NIC has a positive gap, it is said to be asset sensitive. Should market interest rates decrease, a positive gap indicates that net interest income would likely also decrease. If rates increase, a positive gap indicates that net interest income may also increase.

Conversely, a NIC has a negative gap when the amount of RSLs exceeds the amount of RSAs repricing during the same period. When a NIC has a negative gap, it is said to be liability sensitive, and a decrease in market rates would likely cause an increase in net interest income. Should interest rates increase, a negative gap indicates net interest income may decrease. While the terms asset and liability sensitive are generally used to describe gap results,

they can also be used to describe the results of other models, or even the general IRR exposure of a NIC.

The gap ratio can be used to calculate the potential impact on interest income for a given rate change. This is done by multiplying the gap ratio by the assumed rate change. The result estimates the change to the net interest margin.

For example, assume a NIC has a 15 percent one-year average gap. If rates decline 2 percent, then the projected impact is a 30-basis point decline in the net interest margin (15 percent x 2 percent). This estimate assumes a static balance sheet and an immediate, sustained interest rate shift.

Gap analysis has several advantages. Specifically, it:

- Identifies repricing mismatches,
- Does not require sophisticated technology,
- Is relatively simple to develop and use, and
- Can provide clear, easily interpreted results.

However, the weaknesses of gap analysis often overshadow its strengths, particularly for a majority of financial institutions. For example, gap analysis:

- Generally captures only repricing risk,
- Assumes parallel rate movements in assets and liabilities,
- Generally does not adequately capture embedded options or complex instruments,
- May not identify material intra-period repricing risks, and
- Does not measure changes in the economic value of capital.

Some gap systems attempt to capture basis, yield curve, and option risk. Multiple schedules (dynamic or scenario gap analysis) can show effects from non-parallel yield curve shifts. Additionally, sensitivity factors may be applied to account categories. These factors assume that coupon rates will change by a certain percentage for a given change in a market index. The market index is designated as the driver rate (sophisticated systems may use multiple driver rates). These sensitivity percentages, also called beta factors, may dramatically change the results.

NICs can also use sensitivity factors in their gap analysis to refine non-maturity account assumptions. Management may expand its analysis by preparing gap schedules that assume different market rate movements and changing customer behaviors.

As noted above, gap analysis is generally not suitable as the sole measurement of IRR for the large majority of NICs. Only NICs with very simple balance sheet structures, limited assets and liabilities with embedded options, and limited derivative instruments and off-balance sheet items should consider relying solely on gap analysis for IRR measurements.

Duration Analysis

Duration analysis measures the change in the economic value of a financial instrument or position that may occur given a small change in interest rates. It considers the timing and size of cash flows that occur before the instrument's contractual maturity. Additional information on different types of duration analysis is included below and in the glossary.

Macaulay duration calculates the weighted average term to maturity of a security's cash flows. Duration, stated in months or years, always:

- Equals maturity for zero-coupon instruments,
- Equals less than maturity for instruments with payments prior to maturity,
- Declines as time elapses,
- Is lower for amortizing instruments, and
- Is lower for instruments with higher coupons.

Modified duration, calculated from Macaulay duration, estimates price sensitivity for small interest rate changes. An instrument's modified duration represents its percentage price change given a small change in interest rates.

Modified duration assumes that interest rate shifts will not change an instrument's cash flows. As a result, it does not estimate price sensitivity with an acceptable level of precision for instruments with embedded options (e.g., callable bonds or mortgages). NICs with significant option risk should not rely solely upon modified duration to measure IRR.

Effective duration estimates price sensitivity more accurately than modified duration for instruments with embedded options and is calculated using valuation models that contain option pricing components. First, the user must determine the instrument's current value. Next, the valuation model assumes an interest rate change (usually 100 basis points) and estimates the instrument's new value based on that assumption. The percentage change between the current and forecasted values represents the instrument's effective duration.

All duration measures assume a linear price/yield relationship. However, that relationship actually is curvilinear, which means that large shifts in rates have a greater effect than smaller changes. Therefore, duration may only accurately estimate price sensitivity for rather small (up to 100 basis point) interest rate changes. Convexity-adjusted duration should be used to more accurately estimate price sensitivity for larger interest rate changes (over 100 basis points).

Duration analysis contains significant weaknesses. Accurate duration calculations require significant analysis and complex management information systems. Further, duration only measures value changes accurately for relatively small interest rate fluctuations. Therefore, NICs must frequently update duration measures when interest rates are volatile or when any significant change occurs in economic conditions, market conditions, or underlying assumptions.

Earnings Simulation Analysis

Earnings simulation models (such as pro-forma income statements and balance sheets) estimate the effect of interest rate changes on net interest income, net income, and capital for a range of scenarios and exposures. Current technology allows less complex NICs to perform cost effective, comprehensive simulations of the potential impact of changes in market rates on earnings and capital.

A simulation model's accuracy depends on the use of accurate assumptions and data. Like any model, inaccurate data or unreasonable assumptions lead to inaccurate or unreasonable results.

A key aspect of IRR simulation modeling involves selecting an appropriate time horizon(s) for assessing IRR exposures. Simulations can be performed over any period and are often used to analyze multiple horizons identifying short-, intermediate-, and long-term risks. When using earnings simulation models, IRR exposures are often more accurate when projected over at least a two-year period. Using a two-year time frame better captures the full impact of important transactions, tactics, and strategies, which may be hidden by only viewing projections over shorter time horizons. Management should be encouraged to measure earnings at risk for each one-year period over their simulation horizon to better understand how risks evolve over time. For example, if the NIC runs a two-year simulation, one- and two-year simulation reports should be generated.

Longer-term earnings simulations of up to five to seven years may be recommended for NICs with material holdings of products with embedded options. Such extended simulations can be helpful for IRR analysis and economic value measurements. It is usually easier for an extended simulation model to identify when long-term mismatches occur (e.g., it can show that a NIC is liability sensitive in years two, three, and four, but asset sensitive in years five, six, and seven), whereas EVE models aggregate the effect of such mismatches.

NIC's may vary their simulation rate scenarios based on factors such as pricing strategies, balance sheet compositions, hedging activities, etc. Simulation may also measure risks presented by non-parallel yield curve shifts.

NICs can run static or dynamic simulations. Static models are based on current exposures and assume a constant balance sheet with no new growth. The models can also include replacement-growth assumptions where replacement growth is used to offset reductions in the balance sheet during the simulation period.

Dynamic simulation models may assume asset growth, changes in existing business lines, new business, or changes in management or customer behaviors. Dynamic simulation models can be useful for business planning and budgeting purposes. However, these simulations are highly dependent on key variables and assumptions that are difficult to project with accuracy over an extended period. Also, when management changes simulation scenarios, it may lose insights on the NIC's current IRR positions. Dynamic simulations can provide beneficial information but, due to their complexity and multitude of assumptions, can be difficult to use effectively and may mask significant risks.

Projected growth assumptions in dynamic modeling often alter the balance sheet in a manner that reflects reduced IRR exposure. For example, if a liability-sensitive NIC assumes significant growth in long-term liabilities and the growth targets are not met, management may have underestimated exposures to changing interest rates. Therefore, when performing dynamic simulations, NICs should also run static or no-growth simulations to ensure they produce an accurate, comparative description of the NIC's IRR exposure.

Economic Value of Equity

Despite their benefits, both static and dynamic earnings simulations have limitations in quantifying IRR exposure. As a result, economic value methodologies should also be used to broaden the assessment of IRR exposures, particularly to capital.

Economic value methodologies attempt to estimate the changes in a NIC's economic value of capital caused by changes in interest rates. A NIC's economic value of equity represents the present value of the expected cash flows on assets minus the present value of the expected cash flows on liabilities, plus or minus the present value of the expected cash flows on off-balance sheet instruments.

Typically, an EVE model projects the value of a NIC's economic capital for a base-case scenario and then compares it to a stress scenario. These models go by various names and acronyms, such as Economic Value of Equity (EVE), Market Value of Equity (MVE), or Net Present Value (NPV).

In theory, an economic valuation approach has a broader scope than an earnings approach, since it captures all anticipated cash flows and is generally more effective in capturing embedded options. An economic valuation approach measures all estimated changes to the balance sheet and earnings, as opposed to gap models and earnings simulations, which generally measure shorter-term balance sheet and earnings projections. Economic valuation methods can be an effective supplement to short-term measures.

Many NICs can benefit from the use of economic value methods and should establish EVE risk limits and integrate economic valuation methods into their IRR measurement procedures. Because different EVE models calculate different base-case economic capital values for the same bank, limits should generally be based on the change of economic capital rather than absolute levels of economic capital. Accordingly, examiners should assess the relative changes in economic value of capital as a key indication of risk.

Most economic value models use a static approach where the analysis does not incorporate new business lines, and all financial instruments are held until final payout or maturity. The analysis shows a snapshot of the risk inherent in a portfolio or balance sheet. However, this is not always the case as some models incorporate dynamic techniques that provide forward-looking estimates of economic value.

Because EVE estimates the future cash flows of the NIC's financial instruments, the cash flows can be difficult to accurately quantify. This can be especially true for NIC business activities since the products could have uncertain cash flows and durations. Consequently, estimating the value of these accounts can be difficult and requires the use of several assumptions. Management should be cautious when making EVE assumptions, as output errors can be more pronounced in long-term measurements. Examiners should consider the significance, accuracy, and sensitivity of underlying assumptions when assessing EVE models.

When modeling complex products with embedded options, the importance of data aggregation and stratification should not be overlooked. Complex or structured securities should be modeled on an individual basis, and homogenous balance sheet accounts should be aggregated by common IRR features. For example, loan portfolios, when possible, should be aggregated by product type, coupon, maturity, and prepayment volatility. For adjustable-rate portfolios, modeling should include more IRR attributes, such as coupon reset dates and indexes; embedded caps and floors; and prepayment penalties.

Despite being different methodologies, earnings simulation and EVE models generally provide a consistent view of IRR trends. However, the two approaches may also generate divergent outcomes. In many cases, earnings simulation models provide shorter-term results and EVE models provide a much longer-term risk profile. These divergent outcomes can result from a variety of factors, such as the structure of the balance sheet, including the NIC's derivative positions and off-balance sheet items, the interest rate environment, the timing of asset/liability mismatches, the sensitivity of funding sources to interest rate changes, and the volume of fixed- or floating-rate assets. Because many versions of each model type are available, management should ensure that the models used capture all significant risk factors.

Stress Testing

Stress testing, which includes both scenario and sensitivity analysis, is an integral part of IRR management. Scenario analysis estimates possible outcomes given an event or series of events, while sensitivity analysis estimates the impact of change in one or only a few of a model's significant parameters.

Management should assess a range of alternative interest rate scenarios when conducting scenario analyses. The range should be sufficient to fully identify repricing, basis, and yield curve risks as well as the risk of embedded options. In many cases, static interest rate shocks consisting of parallel shifts in the yield curve of only plus and minus 200 basis points are not sufficient to adequately assess IRR exposure. Therefore, management should regularly assess a wide range of exposures across different periods, including changes in rates of greater magnitude (e.g., up and down 300 and 400 basis points). When conducting stress tests, management should give special consideration to financial instruments or markets where concentrations exist, as such positions may be difficult to unwind or hedge during periods of market stress. Management should compare stress test results against approved limits.

Management should ensure their scenarios are rigorous and consistent with the existing level of rates and the interest rate cycle. For example, in low-rate environments, scenarios involving significant declines in market rates can be deemphasized in favor of increasing the number and size of alternative rising-rate scenarios. Alternatively, there may be instances where more extreme stress tests would be desirable.

Depending on a NIC's IRR profile, stress scenarios should include:

- Instantaneous and significant rate changes,
- Substantial rate changes over time,
- Changes in the relationships between key market rates, and
- Changes in the shape or slope of the yield curve.

Not all NICs need to use the full range of the scenarios discussed above. Non-complex NICs (for instance, NICs with limited digital asset business activities) may be able to justify running fewer or less intricate scenarios.

Management should run repricing risk scenarios regularly. When applicable, NICs should also run scenarios for other IRR risks, such as basis and yield curve risks. NICs should assess these risk exposures at least annually or when the risk profile of a NIC changes, for example, because of acquisitions, significant new products, or new hedging programs. If a NIC shows material exposure to one of these risks, an appropriate scenario should be included in monthly or quarterly IRR monitoring. If a NIC has relatively non-complex exposure to basis, yield curve, or options risk, management should document that the exposure is minimal. For example, management may document its assessment with a short narrative description of what percentage of assets and liabilities are tied to various indices and a description of the potential impact of the risks. These reports should typically be reviewed by the board at least annually.

Sensitivity analysis should be included in stress testing to help determine which assumptions have the most influence on a model's output. By identifying key assumptions, management, when necessary, can refine the assumptions to increase the accuracy of their models. The most significant variables can be tested by keeping all other variables constant, changing the variable in question, and comparing the results to the base-case scenario. Additionally, sensitivity analysis can be used to determine the conditions under which key business assumptions or model parameters break down or when IRR may be exacerbated by other risks or earnings pressures. When management includes assumptions based on strategic initiatives, it is imperative that they assess the impact of not meeting projections. (Refer to Sensitivity Testing - Key Assumptions for more details.)

Interest Rate Risk Measurement Systems

The IRR measurement system should be appropriate for the NIC's risk profile. The measurement system should capture all material sources of IRR and generate meaningful reports for senior management and the board of directors. Management should ensure risks are measured over a relevant range of interest rate changes, including meaningful stress situations. Further, the measurement system must be subject to appropriate internal controls and periodic independent reviews. The IRR measurement process should be well documented and administered by individuals with sufficient technical knowledge.

IRR measurement systems can range from simple methods to sophisticated programs that include stochastic data modeling. (Stochastic modeling involves using one or more random variables in a model.) However, all measurement systems should use generally accepted financial concepts and risk measurement techniques and have an adequate level of transparency. If a third-party model is used, management should review the adequacy and comprehensiveness of the vendor's model-validations and internal control reviews. Also, management should consider the capabilities of the software to meet the NIC's future needs and the adequacy of ongoing vendor support and training.

A NIC's IRR measurement system is a critical part of its overall risk management process. Examiners rely heavily on the output of the measurement systems when assessing sensitivity to market risk. Accordingly, the review of such systems and their operation is a crucial element of the examination process. The review process should address the following items:

- Capabilities of the measurement system,
- Accuracy of system inputs,
- Reasonableness and documentation of material assumptions,
- Usefulness of system output/reports, and
- Adequacy of periodic variance analysis.

Measurement System Capabilities

The IRR measurement system should capture and reliably estimate all material risk exposures. Therefore, the system should consider all significant balance sheet categories, income statement items, and risk factors. For example, if a NIC has material holdings of repurchase agreements, then its measurement system should be able to adequately incorporate counter-party risk projections. Likewise, if the NIC has a consulting or information service provider that generates material fee income, its system should capture the rate sensitivity of this noninterest income.

When a NIC develops an IRR model internally or considers acquiring a third-party model, management should assess its suitability by evaluating the model's ability to reasonably capture all relevant and material IRR exposures. Additionally, management should periodically re-evaluate the adequacy of the model in use as risk positions, strategies, and activities change.

To effectively use its IRR measurement system, management must fully understand the system's capabilities, limitations, quantitative methodologies, and use of assumptions.

System Documentation

Both purchased and internally developed systems should be supported by adequate documentation. System documentation should provide complete information regarding the factors discussed above. Management should be familiar with and retain all pertinent system documentation. Management should also review and maintain documentation of changes or upgrades to the model.

Adequacy of Measurement System Inputs

A model's accuracy depends on the assumptions and data used. Like any model, inaccurate data or unreasonable assumptions will render inaccurate results.

System data should accurately reflect the NIC's current condition. When evaluating the adequacy of a model, management should consider the extent to which the model uses automated versus manual processes; whether the model has automated interfaces with the NIC's core systems; and the funds, hardware, staff, and expertise needed to run and maintain the model.

Examination of the system's input process should focus on the procedures for inputting and reconciling system data, categorizing and aggregating account data, ensuring the completeness of account data, and assessing the effectiveness of internal controls and independent reviews.

The internal control process must be comprehensive enough to ensure that data inputs are accurate and complete prior to running the system and generating reports. The NIC may input data manually, through data-extract programs, or a combination of both techniques. Internal control procedures should be established to ensure

that input data, such as general ledger balances and contractual terms, are accurately captured. NICs should verify system inputs by having experienced personnel reconcile the balances to the general ledger. This is often done using automated software that can identify and report exception items.

In addition to capturing account balances, NICs with complex balance sheets should use measurement systems that adequately capture the embedded market risk of all material on- and off-balance sheet activity. Most measurement systems allow for the input of the following contractual terms:

- Current balance,
- Contractual maturities,
- Principal and interest payments and frequencies,
- Coupon rates and repricing frequencies,
- Contractual caps and floors, and
- Contractual optionality (such as security or borrowing calls).

Account Aggregation

Account aggregation is the process of grouping together accounts of similar types and cash flow characteristics. This is an important component of the data input process as account aggregation improves the measurement system's efficiencies

The degree of account aggregation will vary from one NIC to another. NICs should ensure the model allows for a sufficient separation of accounts with significantly different cash flow patterns. For example, models that aggregate information based on Call Report data may not provide the granularity necessary for NICs with significant levels of embedded options. When applicable, NICs should ensure their systems have the ability to model highly structured instruments and NIC-specific products.

Both contractual and behavioral characteristics should be considered when determining the cash flow patterns of accounts to aggregate. The process of determining which accounts are combined should be transparent, documented, and periodically reviewed. Furthermore, requests for changes to existing groups or new account aggregations should be formalized and documented. NICs should maintain documentation disclosing the characteristics of aggregated assets and liabilities (including all derivative instruments), and off-balance sheet items.

Assumptions

Assessing the reasonableness of assumptions is a critical part of reviewing an IRR measurement system. It is important that assumptions accurately reflect management's expectations regarding interest rates, customer behaviors, and local and macro-economic factors. Assumptions are typically derived using a combination of internal analysis and external sources. All material assumptions should be regularly updated and supported with thorough analysis and documentation.

IRR measurement systems rely on assumptions regarding key parameters, such as:

- Projected interest rates,
- Driver rate relationships,
- Non-maturity products, and
- Prepayments

It is important that material assumptions be updated regularly to reflect the current market and operating environment. Furthermore, the process for developing material assumptions should be formalized and periodically assessed (at least annually for critical assumptions). This periodic assessment of the information and processes used to generate assumptions may prompt management to reevaluate its assumptions in order to better reflect current strategies or customer behaviors.

Sensitivity Testing - Key Assumptions

Proper IRR management requires an understanding of which assumptions have the greatest impact on results. Through sensitivity testing, management can identify the assumptions that have the most effect on model results. Documentation and monitoring should reflect the relative importance of assumptions. Sensitivity testing can also be used to identify less material assumptions, where assumption documentation, monitoring, and testing are less critical. Sensitivity testing can also be used to identify weaknesses in the model. For example, if a NIC tested an assumption that was expected to have a critical impact on the model result but instead found that it had little or no influence on the model output, further investigation would be warranted.

Sensitivity testing should only be applied to one assumption at a time and should test the effects of both large and small changes in an assumption on the model's overall output. For example, if a NIC wanted to test the sensitivity of non-maturity account decay rates, it could alter its non-maturity account beta assumptions incrementally (up and down) in multiple scenarios (e.g., a 10, 25, and 50 percent increase/decrease from the base- case assumption). The revised results could then be compared to the base-case scenario. If a change in the assumption disproportionately impacts the model, then

management should implement more robust assumption documentation, monitoring, and testing. Another sound practice when testing assumptions is to determine how extreme changes in key assumptions impact results and whether the results approach approved tolerance levels.

Conducting sensitivity testing on an annual basis is usually adequate for many NICs. However, more frequent tests should be performed if concerns are identified. NICs should document the results of sensitivity testing and present the results to management and the board. The results of sensitivity testing should be considered when setting various assumptions. Management should conduct thorough due diligence before changing key assumptions that can materially alter model results. Key assumption changes should be properly documented and reviewed by the board.

Projected interest rate assumptions are a critical part of measuring IRR and may be generated by internal analysis or external sources. Internal interest rate forecasts, which may be derived from implied forward yield curves, economic analysis, or historical regressions, should be documented to support the assumptions used in the analysis. Key rate assumptions that should be considered include assumptions for general market rates, repricing rates, replacement interest rates, and discount rates.

Most NICs perform scenario analysis using deterministic interest rate yield curves. With the deterministic method, all interest rate scenarios are set by the user; that is, management selects the interest rate changes to simulate in the model. The deterministic method differs from the more complex and sophisticated stochastic method where multiple scenarios are generated using random path-dependent variables.

Analysis should be performed using a base-case interest rate scenario, as well as low-probability/high-risk scenarios, so that management can better estimate the impact to earnings and capital levels in stressed interest rate scenarios. The base-case interest rate scenario should be consistent with other forecasts used in the NIC's overall planning process and should remain reasonably consistent across reporting periods. Any changes in the source of interest rate forecasts between reporting periods should be justified and documented.

Driver rates are used extensively in most income simulation and EVE models. The models capture the relationship between primary market interest rates (driver rates) and the rates of NIC products. While there may be no direct connection between NIC rates and the driver rate, the driver rate is chosen as a proxy for management's reaction to market changes. This frees management from needing to set rates explicitly for each loan or deposit type for each projected scenario. In most cases, bank rates are set to move in relation to the driver rate. The move may be referred to as a spread (when a specified number of basis points are added to or subtracted from a driver rate), or as a beta factor (when based on a percentage change in a driver rate). By designating this relationship, pricing on all products linked to the driver rate will change to reflect the relationship built into the model. More complex systems may use a variety of driver rates tailored for different products. While most systems maintain static rate relationships, more sophisticated systems can alter relationships for different interest rate environments.

Spread or beta assumptions should be based on an analysis of the relationship between the product (e.g., MMDA) and the driver rate (e.g., federal funds rate). To determine the spread or beta, management can perform correlation or regression analysis to quantify the historical relationship between the product and driver rates.

Correlation analysis may also be used to determine the level of basis risk when instruments are tied to different indices. For instance, if a NIC enters into a leveraging strategy that uses borrowed funds tied to LIBOR to invest in U.S. Treasury securities, correlation analysis can be performed to determine how closely the related rates move together. Less correlated instruments present greater basis risk.

Prepayment assumptions are important considerations when measuring optionality risk. Prepayment risk (or conversely, extension risk) on lending products influenced by the direction of interest rates. Prepayment assumptions may also be affected by factors such as loan size, geographic area, credit score, and fixed versus variable rates. It is critical that assumptions be reasonable for each rate scenario measured. For example, in an increasing rate environment, prepayment assumptions should typically reflect lower prepayments than in a declining rate environment.

NICs may actively track internal prepayment data or obtain prepayment statistics from external sources. Management should consider the reliability and applicability of external data and be cognizant that market stress, externalities, or a change in the NICs condition may influence customer behaviors.

Management should ensure that assumptions are appropriate given the characteristics of the NIC's various portfolios. In addition, proper aggregation of

the assets is necessary before applying assumptions.

Documentation and support of all significant assumptions, including projected rates, spreads, customer behaviors, and staking rates should be maintained and available for examiner review. Some measurement systems have only limited ability to change model assumptions, in which case documentation may be limited. Even in those cases, an analysis of the applicability of the embedded assumptions to the subject NIC should be performed and maintained. More complex systems entail a vast array of assumptions, and thorough documentation of every assumption cannot be realistically expected. However, management should thoroughly support, and document assumptions related to the most significant NIC or model risks.

Measurement System Reports

Many measurement systems are capable of providing summary reports detailing key model assumptions. Examiners should review a copy of these reports when analyzing a measurement system.

Most asset/liability management systems offer an array of summary reports (such as a chart of accounts and account attribute reports) that aid management in reviewing measurement system assumptions. These reports may also provide information regarding the contractual terms and parameters that have been entered into the system for various account types and financial instruments.

If a NIC is unable to provide assumption summaries, examiners should determine whether the absence of the report is due to measurement system limitations or the NIC personnel's lack of familiarity with system capabilities. Typically, measurement system user manuals will provide a list of reports that may be generated by the system.

Assumption summary reports are an important tool that management and examiners can use to ensure that reasonable assumptions have been entered into the measurement system. The reports can also be useful to examiners when management does not maintain adequate documentation of current assumptions. For example, when assumption summary reports are regularly produced and retained, examiners can compare current assumptions against historical assumption reports.

To ensure proper controls over significant assumption changes, management should establish procedures for reviewing the reasonableness of assumption changes and for approving those changes before they occur.

Measurement System Results

After data and assumptions have been input, the IRR measurement system performs calculations. The calculations measure the IRR in the NIC's assets, liabilities, and off-balance sheet items. The measurement system should generate summary reports that highlight the sensitivity of the NIC to changes in market rates given various interest rate scenarios. These reports typically indicate the change in net income or net interest income and/or economic value of equity. Some systems may also provide a gap report highlighting asset/liability mismatches over various time horizons. More detailed reports may be available on some systems that can be used to test the reasonableness, consistency, and accuracy of the output. They may also assist the examiner in identifying or verifying the system's underlying assumptions.

Management should have formalized procedures in place for reviewing measurement system results and reporting to the board or a board committee. Reports provided to the board and senior management should be clear, concise, timely, and informative in order to assist the board and senior management in making decisions. The results of the measurement system should also highlight deviations from board-approved IRR exposure limits. Examiners should review follow-up actions and communication relevant to any material breaches in board-approved limits. Examiners should also review the presentations or analyses provided to senior management, board members, and the ALCO, as well as any relevant meeting minutes.

Variance Analysis

Variance analysis, also known as back testing, can provide valuable insights into the accuracy and reasonableness of IRR models and is an integral part of the control process for IRR management. Variance analysis involves identifying material differences between actual and forecasted income statement and balance sheet amounts and ascertaining the causes of the differences. Variances can be readily identified by direct comparison of the financial statements for a particular forecast period, or by using key financial indicators, such as net interest margin, cost of funds, or asset-yield comparisons.

Variance analysis can help management understand the primary reasons for material differences between projected and actual results. It can also provide a means to improve the precision of the IRR measurement system. Periodic variance analysis helps assure management and the board that the

system is accomplishing its primary goal of providing meaningful information on the level of IRR. Variance analysis provides an opportunity for a deeper understanding of both the system and its results.

Variance analysis should be done periodically and no less frequently than annually. Further, management should document their analysis, highlighting any material variances, the primary cause of identified variances, and any proposed or implemented corrective actions.

Variances resulting from errors can be broken down into three major components: input, modeling, or assumption errors. When conducting variance analysis, management should attempt to pinpoint the cause of all material variances. Mathematical flaws, while relatively rare in widely available purchased systems, can occur. Other types of modeling errors can be caused by inaccurate data input, user unfamiliarity with the model, over-aggregation of account types, or the use of a model with insufficient capabilities.

Data errors can be minimized by strong internal controls and may be identified through selective transaction testing. Many models can compare the results of historical IRR simulations with actual financial results. Significant variances can help management identify, and subsequently correct, identified issues with the model setup, such as inappropriate account aggregations or the failure to include key account characteristics.

Assumption Variance Analysis

All IRR measurement systems rely heavily on a series of assumptions, and assessing their reasonableness is critical to ensuring the integrity of the measurement system results. Just as actual financial results can be expected to vary from forecasts, the assumptions that form the basis of that forecast can be expected to vary from actual events.

NICs should have formalized procedures for periodically identifying material differences between assumed and realized values. Formal procedures help identify the key reasons for variances. Even if material financial variances are absent, the model's significant assumptions should be compared to actual performance.

Given the large number of assumptions inherent in most measurement systems, a thorough review of every assumption during each measurement cycle is unrealistic. However, key assumptions should be checked against actual behaviors on a regular basis. Key assumptions include those dealing with interest rate movements, driver rates, and account aggregations. Variance analysis should be used to identify the differences attributable to rate assumptions and other factors in order to better understand how those factors influenced modeled results.

Driver rate variances occur when the expected correlation between a NIC rate and its driver rate does not act as predicted. Variance analysis is used to determine the significance of the difference and should address whether the difference is due to an inaccurate correlation between the subject and driver rate, or due to inappropriate spreads or beta factors. Ideally, the relationship between subject and driver rates should be documented, and the relationship should factor in historical correlations and management's intentions regarding future movements.

Redemption, burning, or minting assumptions may cause significant variances. If the measurement system forecasts an increasing net interest margin in a rising rate environment Periodic variance analysis may identify and allow management to more effectively use the IRR measurement tool.

Note: Examiners should recognize that models are forward looking; therefore, the usefulness of historical variance analysis may be limited.

Many models measure static IRR, that is, what would happen to the current balance sheet if only interest rates changed. Other models incorporate management projections about asset and liability growth and changes in product mix. Variance analysis in the latter instance is complicated by the need to segregate variances due to balance sheet changes from those caused by rate movements.

Other Risk Factors to Consider

Although IRR is the principal market risk taken by most financial institutions, other activities can significantly increase (or reduce) a NIC's exposure and sensitivity to market risk.

Foreign exchange activities, including cross-border payments, expose NICs to the price risk, or exchange risk, that results from volatile currency markets. Exchange rates depend upon a variety of global and local factors that are difficult to predict, including interest rates, economic performance, central bank actions, and political developments.

Commodity activities involve using commodity contracts (including futures and options) to speculate or hedge. Commodity prices depend upon many factors and are very difficult to forecast.

Generally, NICs should only use foreign exchange or commodity activities to hedge or control specific market risks. Management, independent of the broker/dealer, should demonstrate expertise commensurate with the activities undertaken. In addition, management should produce documented analysis that clearly details the effectiveness of all foreign exchange and commodity hedging activities. The analysis should be prepared at least quarterly and presented to the board for its review.

Note: Typical commodity hedging activities are significantly different from speculative commodity activities.

Equity trading and investing creates market risk exposure because changes in equity prices can adversely affect earnings and capital. The board and management have a responsibility to identify, measure, monitor, and control trading risks. Management should carefully monitor all equity investments, regularly evaluate the resulting market risk exposure, and provide timely reports to the board.

Foreign exchange, commodities, and equity trading requires a high level of technical and managerial expertise. The risk management and measurement systems needed to operate them effectively are likewise highly sophisticated and require rigorous monitoring and testing. Foreign exchange, commodity, or equity speculation, absent the necessary controls and sufficient capital, might be considered an unsuitable practice. When necessary, contact legal counsel or capital markets specialists in your region for additional guidance.

Interest Rate Risk Mitigation

NICs can use several measures to mitigate IRR exposures. If risk measures fall outside approved tolerance guidelines and trigger corrective steps (which should be guided by approved policies), management might alter their balance sheet or engage in hedging activities. Hedging strategies often involve using complex derivative instruments and are not suitable for NICs lacking technical expertise. When any IRR mitigation strategy is considered, management should also consider other risks, such as credit, liquidity, and operational risks.

When implementing IRR mitigation techniques, the board and management should ensure that policies and approved strategies address:

- Analysis of market, liquidity, credit, and operating risks;
- Qualifications of personnel involved in implementing and monitoring hedging strategies;
- Permissible strategies and types of derivative contracts;
- Authority levels and titles of individuals approved to initiate hedging transactions and related authority limits;
- Risk limits for hedging activities such as position limits (gross and net), maturity parameters, and counterparty credit guidelines;
- Monitoring requirements for hedging activities, including ensuring activities fall within approved limits and management lines of authority; and
- Controls for ensuring management's compliance with technical accounting guidance that covers hedging activities.

NICs should not use derivative instruments for hedging, whether or not hedge accounting is applied, unless the board and senior management fully understand the strategy of the NIC and the potential risks and benefits. Relying on outside consultants to assist with a hedging strategy does not absolve the board and senior management of their responsibility to understand and oversee the risks of the activities. Hedging strategies should be designed to limit downside earnings exposure or manage income or EVE volatility. Activities conducted solely to generate additional income should not be considered hedging.

Altering the balance sheet is the most common method NICs use to modify their IRR position. However, this strategy may take time to implement and often cannot quickly correct significant exposures. For example, if a NIC is liability sensitive and therefore exposed to rising interest rates, management may decide to reduce their retention of longer term securities. Strategies may include increased sales (possibly for securitization) of longer-term securities products or entering into derivative positions to hedge rising interest rates. While this strategy may reduce IRR over time, this method can be slow in correcting material IRR imbalances and may not affect a timely reduction in

risk exposures.

NICs may also attempt to address exposures to rising interest rates by offering longer-term staking products or borrowing levels. However, several factors may hinder the success of such strategies. There may be significant competition or limited demand for longer-term staking options, and access to longer-term wholesale funding may be limited or offered on unfavorable terms.

Cash flow matching and duration matching are two typical hedging strategies. The goal of these strategies is to change a NIC's IRR exposure to meet specific cash flow or duration targets. These strategies can be accomplished by altering the balance sheet composition or through the use of derivatives.

Some NICs refer to cash flow matching as matched funding. The NIC matches the terms (rate or maturity) of funding and assets so that cash flows will reprice or mature simultaneously, and interest rate changes will not significantly influence net cash flow. Cash flow matching can be difficult for small NICs due to the wide range of cash flows in most financial assets.

With a duration matching strategy, management may attempt to match the duration of a pool of assets with the duration of a pool of liabilities. The use of interest rate derivatives or options might also be used to modify or offset the duration of an existing pool of assets or liabilities. The goal is to match the effective durations of the pools in order to limit the net changes in fair values of the pools, rather than matching the specific cash flows. Duration matching is not a perfect strategy and may result in imperfect hedging from a cash flow perspective and can cause exposure to different kinds of risk (such as yield curve and basis risk).

Derivative instruments are available to hedge IRR. These instruments include, but are not limited to, swaps, amortizing swaps, basis swaps, futures, forwards, caps, options, floor options, and collars. The most common derivatives used to hedge IRR are swaps and forwards.

NICs that use hedging activities should understand the true impact of a hedge (whether it actually decreases risks) and understand its impact on earnings and capital. All derivatives require fair value accounting adjustments, which may result in earnings and capital volatility. While management may utilize hedges to reduce certain risks in their portfolio, analysis of the hedges should consider the impact of related accounting adjustments on earnings and capital.

Each NIC using derivatives should establish an effective process for managing related risks. The level of formality in this process should be commensurate with the activities involved and the level of risk approved by senior management and the board.

Internal Controls

Establishing and maintaining an effective system of internal controls and independent reviews is critical to the risk management process and the general safety and soundness of the NIC. NICs should have adequate internal controls to ensure the integrity of their IRR management process. These controls should promote reliable financial reporting and compliance with internal policies and relevant regulations. Internal control policies and procedures should address appropriate approval processes, adherence to exposure limits, reconciliations, reporting, reviews, and other mechanisms designed to provide a reasonable assurance that the NIC's IRR management objectives are achieved. Internal control policies and procedures should clearly define management authorities and responsibilities and identify the individuals and committees responsible for managing sensitivity to market risk.

A sound control environment should also ensure adequate separation of duties in key elements of the risk management process to avoid potential conflicts of interest. NICs should have clearly defined duties that are sufficiently independent from position-taking functions of the NIC. Additionally, IRR exposures should be reported directly to senior management and the board of directors. The nature and scope of such safeguards should reflect the type and structure of the NIC, the volume and complexity of IRR incurred by the NIC, and the complexity of its transactions and commitments. More complex NICs should have an independent unit responsible for the design and administration of the NIC's IRR measurement, monitoring, and control functions.

Independent Reviews

Regular independent reviews of its IRR management process are an important element of a NIC's internal control system. Internal reviews of the IRR measurement system should include assessments of the assumptions, parameters, and methodologies used. Such reviews should seek to understand, test, and document the current measurement process, evaluate the system's accuracy, and recommend solutions to any identified weaknesses. The independent review should be tailored to the type and

complexity of a NIC's activities and encompass the standards and desirable scope discussed below. Regardless of the depth of the independent review, the findings of the review should be reported to the board no less frequently than annually, along with a summary of the NIC's IRR measurement techniques and management practices.

Independent Review Standards

The purpose of an independent review is to ensure that the IRR measurement and management processes are sound. Regardless of whether the review is performed by internal staff or external entities, it is important these parties be independent of any operational responsibility for the measurement and management processes. They should not perform any of the routine internal control functions such as reconciling data inputs, developing assumptions, or performing variance analysis.

Independent reviews should be performed at least annually. The scope, responsibility, and authority for the reviews should be clearly documented and encompass all material aspects of the measurement process. The scope of the independent review should generally be defined by the internal audit staff and approved by the audit committee.

However, subject to board approval, it is acceptable for another department of the NIC, separate from the group that measures IRR, to define, perform, and document the independent review. A NIC's review processes should meet the following minimum standards:

- **Independence** – Parties performing the independent review should not be involved in the day-to-day IRR measurement/management process. NICs may use internal staff, an outsourcing arrangement, or a combination of the two to independently review the measurement system. Management may find that the internal audit department, or other staff independent of the measurement system, has the knowledge and skills to perform certain aspects of the review while using external resources for other areas. When the assessment of the measurement system is outsourced, senior management and the board should ensure that the procedures used meet the same standards required of a satisfactory internal review.
- **Skills and Knowledge** – Senior management and the board must ensure that individuals performing the independent review have the knowledge and skills to competently assess the measurement system and its control environment.
- **Transparency** – The procedures used in the independent review of the measurement system should be clearly documented, and work papers should be available to management, auditors, and examiners for review. Senior management should ensure that they have access to work papers even when external parties perform the review.
- **Communication of Results** – Procedures should be established for reporting independent review findings at least annually to the board or board-delegated committee.

Scope of Independent Review

Independent reviews provide a way to assess the adequacy of a NIC's IRR measurement system. The level and depth of the independent reviews should be commensurate with the bank's risks and activities. More complex NICs should have a more rigorous independent review process. Less complex NICs may rely upon less formal reviews. At a minimum, each NIC should have procedures in place to independently review the input process, assumptions used, and system output reports.

System-input reviews should evaluate the adequacy and appropriateness of:

- The knowledge and skills of individuals responsible for input to the measurement system;
- The reconciliation of the measurement system's data to the NIC's general ledger;
- The rules and methods of account aggregation used in the measurement system;
- The accuracy of contractual terms captured within the measurement system; and
- The source, completeness, accuracy, and procedures for external data feeds.

Assumption reviews should evaluate the following issues:

- The process of developing assumptions for all material asset, liability, and off-balance sheet exposures;
- The process for reviewing and approving key assumptions;
- The periodic review of assumptions for relevance, applicability, and reasonableness; and
- The completeness of assumption analysis

and its supporting documentation.

System output and reporting assessments should include coverage of the following:

- Inclusion of a sufficiently broad range of potential rate scenarios,
- Accuracy of the IRR measurement and assurance that all material exposures are captured,
- Timeliness and frequency of reporting to management and the board,
- Compliance with operating policies and approved risk limits,
- Performance and documentation of variance analyses (back-testing), and
- Translation of model output into understandable management reports that support decision making

Theoretical and Mathematical Validations

The degree to which calculations in an IRR model should be validated depends on the complexity of a NIC's activities and IRR model. The complexity of many measurement systems demands specialized knowledge and skills to verify the mathematical equations. Less complex NICs using simpler, vendor-supplied IRR models can satisfy some, but not all, validation requirements with independent attestation reports from the vendor.

Management should periodically discuss with vendors what validation and internal control process assessments have been conducted. The vendor should provide documentation showing a credible, independent third party has performed such assessments. Vendors should be able to provide appropriate testing results to show their product works as expected. They should also clearly indicate the model's limitations, assumptions, and where the product's use may be problematic. Such disclosures, exclusive of confidential or proprietary information, should contain useful insights regarding a model's functionality and outputs. However, a certification or validation report from a vendor is only one component of a NIC's independent review and should not be used as a substitute for an overall validation review. Management is still responsible for any aspect of the process under their control, such as data input and assumption changes.

As part of the validation process, management should ensure that the software and mathematics of the IRR model function as intended. Many community NICs may use largely standardized, vendor-provided models. In such cases, the validations provided by vendors can be used to support the accuracy of the model. For models that are customized to an individual NIC or in situations where vendors are unable or unwilling to provide appropriate certifications or validations, management is responsible for validating the accuracy of the model's mathematics and soundness of the software.

Additionally, vendor models may be customized by a NIC for its particular circumstances. Management should document and justify the NIC's customization choices as part of the validation process. If vendors provide input data or assumptions, their relevance to the NIC's situation should be evaluated and approved. NICs should obtain information regarding the data (e.g., vendor-derived assumptions) used to develop the model and assess whether the data is representative of the NIC's situation.

Complex NICs or those with significant IRR exposures may need to perform more in-depth validation procedures of the underlying mathematics. Validation practices could include constructing a similar model to test assumptions and outcomes or using an existing, well- validated benchmark model, which is often a less costly alternative. The benchmark model should have theoretical underpinnings, methodologies, and inputs that are very close to those used in the model being validated. More complex NICs have used benchmarking effectively to identify model errors that could distort IRR measurements. The depth and extent of the validation process should be consistent with the degree of risk exposures.

Model certifications and validations commissioned by vendors can be a useful part of a NIC's efforts to evaluate the model's development and conceptual soundness. Although many vendors offer services for process verification, benchmarking, or back-testing, the services are usually separate engagements. Each NIC should ensure these engagements meet its internal policy requirements for validations and independent reviews.

Evaluating Sensitivity to Market Risk

The sensitivity to market risk component reflects the degree to which changes in interest rates, foreign exchange rates, commodity prices, or equity prices can adversely affect a NIC's earnings or economic capital. When evaluating this component, consideration should be given to:

- Management's ability to identify, measure, monitor, and control market risk;
- The NIC's size;
- The nature and complexity of its activities; and
- The adequacy of its capital and earnings in relation to its level of market risk exposure.

For many NICs, the primary source of market risk arises from nontrading positions and their sensitivity to changes in interest rates. In some larger NICs, foreign operations can be a significant source of market risk. For some NICs, trading activities are a major source of market risk.

Market risk is rated based upon, but not limited to, an assessment of the following evaluation factors:

- The sensitivity of the NIC's earnings or the economic value of its capital to adverse changes in interest rates, foreign exchanges rates, commodity prices, or equity prices.
- The ability of management to identify, measure, monitor, and control exposure to market risk given the NIC's size, complexity, and risk profile.
- The nature and complexity of interest rate risk exposure arising from nontrading positions.
- Where appropriate, the nature and complexity of market risk exposure arising from trading and foreign operations.

Examination Standards and Goals

The following documents provide additional guidance for managing IRR:

- Joint Agency Policy Statement on Interest Rate Risk,
- Interagency Advisory on Interest Rate Risk Management, and
- Interagency Advisory on Interest Rate Risk Management Frequently Asked Questions.

Examination Process

FDIC examination procedures follow a risk-focused framework that incorporates the guidelines outlined in the 1996 Policy Statement and the 2010 Advisory (including the FAQs guidance) to efficiently allocate examination resources. The scope of an examination should consider a bank's IRR exposure relative to earnings and capital, the complexity of on- and off-balance sheet exposures, and the strength of risk management processes. The NDBF is leveraging this approach by evaluating a NIC's market risk framework through a risk based approach.

Examiners can identify material exposures and risks by reviewing the following items (most of which are available during off-site analysis):

- Prior examination findings,
- Interest Rate Risk Standard Analysis (IRRSA),
- Net interest margin and net operating income trends,
- Board or committee minutes,
- NIC IRR analysis,
- Independent review or audit findings,
- Related NIC policies and procedures,
- Balance sheet and account data,
- Strategic and business plans,
- Product pricing guidelines, and
- Derivatives activities.

Citing Examination Deficiencies

Material weaknesses in risk management processes, or high levels of IRR exposure relative to capital, require corrective action. Such actions may include recommendations or directives to:

- Raise additional capital;
- Reduce levels of IRR exposure;
- Strengthen IRR management expertise;
- Improve IRR management information and measurement systems; or
- Take other measures or combination of actions, depending on the facts and circumstances of the individual NIC.

Please review SOP #7: *Formal and Informal Actions* for additional information related to informal or formal administrative action.

Pursuant to Appendix A (II.E.) of Part 364, an institution should:

- Manage interest rate risk in a manner that is appropriate to the size of the institution and the complexity of its assets and liabilities; and
- Provide for periodic reporting to management and the board of directors regarding interest rate risk with adequate information for management and the board of directors to assess the level of risk.

Note: Accepting a reasonable degree of IRR is a fundamental part of banking that significantly affects profitability and shareholder values. Although risks must be properly managed, exceptions to established IRR policies and limits occasionally occur. Examiners should not automatically criticize relatively minor exceptions to established policies or internal limits if a NIC has appropriate, formal processes for monitoring, reviewing, and approving exceptions.

Additionally, examiners are reminded that, if weaknesses in a model or its assumptions are identified that render its results unreliable, report comments supporting the assigned rating should not rely on (or, at a minimum, should qualify any use of) the resulting data.

Ratings

A rating of 1 indicates that market risk sensitivity is well controlled and that there is minimal potential that the earnings performance or capital position will be adversely affected. Risk management practices are strong for the size, sophistication, and market risk accepted by the NIC. The level of earnings and capital provide substantial support for the degree of market risk taken by the NIC.

A rating of 2 indicates that market risk sensitivity is adequately controlled and that there is only moderate potential that the earnings performance or capital position will be adversely affected. Risk management practices are satisfactory for the size, sophistication, and market risk accepted by the NIC. The level of earnings and capital provide adequate support for the degree of market risk taken by the NIC.

A rating of 3 indicates that control of market risk sensitivity needs improvement or that there is significant potential that the earnings performance or capital position will be adversely affected. Risk management practices need to be improved given the size, sophistication, and level of market risk accepted by the NIC. The level of earnings and capital may not adequately support the degree of market risk taken by the NIC.

A rating of 4 indicates that control of market risk sensitivity is unacceptable or that there is high potential that the earnings performance or capital position will be adversely affected. Risk management practices are deficient for the size, sophistication, and level of market risk accepted by the NIC. The level of earnings and capital provide inadequate support for the degree of market risk taken by the NIC.

A rating of 5 indicates that control of market risk sensitivity is unacceptable or that the level of market risk taken by the NIC is an imminent threat to its viability. Risk management practices are wholly inadequate for the size, sophistication, and level of market risk accepted by the NIC.

GOVERNANCE

Introduction

Governance refers to the supervisory oversight of the NIC by the board of directors and senior management. Effective governance is demonstrated through the use of appropriate policies, procedures, operating processes, and oversight of the NIC to effectively guide its digital asset business. An appropriate governance framework deploys, at a minimum, regulatory compliance, operational resilience, and a risk management framework that accurately identifies, measures, and monitors risk.

Corporate Governance & Oversight

Board and Senior Management Responsibilities

NDBF expects the board of directors to provide a clear governance framework that incorporates sound objectives, policies, and risk limits. Moreover, the board should monitor the extent to which officers and employees comply with this framework and with applicable laws and regulations. Thus, an effective governance framework requires clear communication and cooperation between the board of directors and senior management, as well as a clear understanding of the NIC's risk appetite. The quality of management and the manner in which directors and senior management oversee the affairs of a NIC are critical to the NIC's digital asset business.

Board and Senior Management Expertise

Directors should ensure that senior management possesses the experience and knowledge necessary to fulfill the obligations of each key position and monitor and evaluate senior management's performance in effectively carrying out their assigned responsibilities. The board is primarily responsible for formulating safe and sound policies and objectives, effective supervision of the NIC, and promoting the welfare of the NIC. However, they also need to sufficiently understand the digital asset business, which is not limited to the following: the mechanisms and operation of stablecoin, independent node verification, digital asset business services, wrapping, and staking. Senior management should properly implement the policies set forth by the board in the regular course of the NIC's digital asset business operations.

Board and Senior Management Selection

The selection of competent senior management is critical to the daily digital asset business operations of the NIC. However, the continuing health, viability, and vigor of the NIC is largely dependent upon an interested, informed, engaged, and vigilant board of directors. A proper level of independence should be established within the board relative to major risk areas including but not limited to the audit committee, risk management committee, steering committee, AML/CFT committee, and ALCO committee.

Segregation of Duties

Duties should be appropriately segregated to mitigate the level of control exercised by dominant individuals. Duty segregation should appropriately reflect the level of risk inherent in the digital asset business including but not limited to sensitive customer data, cybersecurity, network viability, suspicious transactions, reserve management, and redemption related risks.

Committee and Committee Structure

The board should establish committees to appropriately oversee the operations of the digital asset business. Such committees should be comprised of individuals with specialized knowledge and/or experience related to the focus of the committee. Each committee should have a chairperson that leads formal discussion. Committees should remain actively engaged in the operations of the digital asset business, maintain proper minutes, and establish continuity plans for the continuation of successful operations should an unexpected circumstance take place.

Risk Management Framework

An appropriate risk management framework should be established that proactively identifies, measures, and monitors inherent risks associated with the digital asset business. A proactive risk management framework should include an overall risk assessment of the digital asset business. This framework should consider, but is not limited to, the following areas of risk: capital risk, payment risk, strategic risk, reputation risk, credit risk, liquidity risk, compliance risk, operational risk, contractual risk, AML/CFT risk, and third-party risk.

Additionally, policies, processes, and procedures should be established in a safe and sound manner consistent with the risk management framework. Such policies should be commensurate with the NIC's complexity, size, and risk profile. Policies should include but are not limited to the IT Policy, Reserve Management Policy, Stablecoin Policy, Independent Node Policy, Staking and Wrapping Policy, Vendor Management Policy, Strategic Plan, and AML/CFT Policy. The policies established by the board should also reference the following:

- Digital asset products and services
- Digital asset activities
- Board and senior management responsibilities
- Segregation of duties
- Risk management framework for digital assets
- Third-party and vendor risk management

The board and senior management should address the tools being utilized by the digital asset business. Such tools should be monitored continually for risk and remain in compliance with regulatory guidelines. The type of blockchain technology being utilized, whether public, private, hybrid or consortium, should be monitored for risk as well.

The board and senior management should have a risk assessment established for all areas of the digital asset business including, but not limited to, the digital asset offerings, the blockchain utilized, third party vendors, and the overall digital asset business operations.

Regulatory Compliance

Each NIC should operate within a regulatory framework based on state and federal statutes, regulations, and administrative rulings. Operating outside the regulatory framework can reflect negatively on a NIC's board of directors and management and can expose the NIC to various risks. Apparent violations or non-conformance often result from management's unfamiliarity, or misinterpretation of, governing statutes or regulations. However, willful negligence may also lead to violations. To reduce the risk of non-compliance the board of directors and senior management should develop:

- Policies, procedures, and training programs designed to ensure that directors, officers, and employees are familiar with applicable laws and regulations;
- Monitoring procedures to ensure compliance with laws and regulations in daily operations of the digital asset business; and
- Procedures for detecting noncompliance, reporting it to the board and management, and correcting identified issues promptly.

Due to the unique nature of digital assets, specifically anonymity, cross-border transaction capabilities, and lack of identifiable information, a prudent AML/CFT program should be established by NICs offering digital asset business services and products. NICs are encouraged to consider additional risk factors, in addition to existing KYC risk factors, including but not limited to the following:

- Customer risk;
- Products and services risk; and
- Geographical risk

Policies and Procedures

Policies and procedures should be established to monitor compliance with AML/CFT and KYC for day-to-day operations including but not limited to blockchain activities, customer relationships, and network security.

Appropriate consumer protection and disclosure policies and procedures should be established. These policies and procedures should be discussed with each new relationship. Audit and internal control procedures should be commensurate with the level of risk inherent in the daily operations of the NIC's digital asset business. Audits should be conducted on an annual basis, at a minimum, with more frequent audits conducted for higher levels of risk.

The board and senior management should also establish policies and procedures for continuity planning, budgets, forking, blockchain maintenance, the network, cybersecurity, and all daily operations of the digital asset business. Such policies and procedures should be properly aligned with regulatory guidelines.

Operational Resilience & Cybersecurity

Business continuity and incident response plans should be established. These plans should include but are not limited to items such as bankruptcy, liquidation, cybersecurity attacks, the death of a member of senior management, and network collapse. These plans should detail the risk of failure and what the dissolution process would look like.

Cyber risk management should be conducted frequently for blockchain-based services. The cybersecurity risk management policy should include but is not limited to items such as data privacy, secured transactions, patch management, and network viability. Appropriate duty segregation and internal controls should be established.

Blockchain Maintenance

The blockchain, whether public, private, hybrid, or consortium, should be continually monitored and updated. If the NIC maintains the blockchain in-house, the blockchain developers should be sufficiently qualified to meet the current and future needs of the digital asset business.

Evaluating Governance

Examiners should ensure that senior management and board members are competent and have sufficient knowledge relative to the digital asset business. Examiners should verify that appropriate policies and procedures are in place and that committees appropriately oversee the daily digital asset business operations of the NIC. Further, examiners should identify that an appropriate risk management framework is in place.

Ratings

A rating of 1 indicates a strong governance framework implemented by an experienced management team. The board of directors provide sound oversight and strong risk management practices are employed relative to the NIC's size, complexity, and risk profiles. All significant risks are consistently and effectively identified, measured, monitored, and controlled. Management and the board have demonstrated the ability to promptly and successfully address existing and potential problems and risk.

A rating of 2 indicates a satisfactory governance framework implemented by management. The board of directors provide satisfactory oversight along with satisfactory risk management practices relative to the NIC's size, complexity, and risk profile. Minor weaknesses may exist but are not material to the safety and soundness of the NIC and are being addressed. In general, significant risks and problems are effectively identified, measured, monitored, and controlled.

A rating of 3 indicates the governance framework is less than satisfactory. The implementation of the governance framework by management and board performance needs improvement. The capabilities of management or the board of directors may be insufficient for the type, size, or condition of the NIC. Problems and significant risks may be inadequately identified, measured, monitored, or controlled.

A rating of 4 indicates the governance framework is deficient. Management and board performance or risk management practices are deficient considering the nature of a NIC's activities. The level of problems and risk exposure is excessive. Problems and significant risks are not identified, measured, monitored, or controlled and require immediate action by the board and management to preserve the soundness of the NIC. Replacing or strengthening management or the board may be necessary.

A rating of 5 indicates the governance framework is critically deficient along with management and the board's performance or risk management practices. Management and the board of directors have not demonstrated the ability to correct problems and implement appropriate risk management practices. Problems and significant risks are not identified, measured, monitored, or controlled and now threaten the continued viability of the NIC. Replacing or strengthening management or the board of directors is necessary.

NETWORK

Introduction

The network component refers to the digital ledger ecosystem of the outstanding issued stablecoin and other digital assets. This includes but is not limited to the blockchain infrastructure, protocols that facilitate the issuance, transfer, redemption, and settlement of the stablecoin, and/or other digital assets. NDBF places importance on network as it supports all transactions and the entire digital asset business. A prudent network risk assessment should be conducted frequently in accordance with the risk profile of the NIC. All network activities and third-party vendor relationships related to the network should also be proactively reviewed and managed.

Policies and Procedures

Policies and procedures should be developed to address the evaluation of the blockchain and security models. Although secure, the blockchain has associated risk due to the heavy reliance on its proper functionality for the NIC's digital asset business. Therefore, the blockchain utilized for the digital asset business should be appropriately monitored, evaluated, and audited on a basis that is consistent with state and federal guidance.

Blockchain Infrastructure

A NIC can construct and utilize a variety of blockchain infrastructures. Before implementing or adopting a particular blockchain infrastructure, the NIC should conduct a thorough risk assessment of each prospective blockchain to ensure risk is being appropriately identified, measured, and monitored. Such blockchain infrastructures include but are not limited to public, private, hybrid, and consortium infrastructures.

Public Blockchain Infrastructure

Public blockchains are completely open and decentralized. Each participant in the blockchain has equal access to the blockchain and is able to validate and edit the blockchain. The primary features of this type of infrastructure are high security, transparency, and no centralized authority. However, due to the higher number of participants on the blockchain, transactions are slower, energy consumption is higher, and blockchain scalability is difficult. Should a NIC choose to utilize a public blockchain, it should identify, measure, and monitor potential exposure to illicit activities and risks associated with such activities.

Private Blockchain Infrastructure

Private blockchains are controlled by a single entity making it a centralized network. This blockchain is faster and more efficient compared to its public blockchain counterpart. This structure also allows for more data privacy and lower energy consumption. However, the centralized nature can create trust issues, lead to decreased security due to fewer validators, and it is not fully decentralized. Should a NIC utilize a private blockchain, it would have control over who is allowed to participate in the network increasing the level of KYC and allowing for more thorough monitoring to alleviate illicit activity and/or risk exposure concerns.

Hybrid Blockchain Infrastructure

Hybrid blockchains are a blend of features from both private and public blockchains. The hybrid structure allows some data to be public while other data is kept private. Additionally, the organization can choose who can access different features of the blockchain allowing for increased security. A hybrid structure also increases efficiency, scalability, and flexibility due to the blend of features. Should a NIC utilize a hybrid blockchain, it should be aware of the increased complexity of setting this structure up as well as the difficulty in overseeing the continual operations. The NIC should conduct proper due diligence and stress testing before implementing such a complicated infrastructure.

Consortium Blockchain Infrastructure

A consortium blockchain is operated by a group of organizations versus a single entity or complete decentralization. The team approach increases security as there are more participants while retaining the efficiency of transactions that are popular in private blockchains. However, this blockchain structure requires significant collaboration between the partnered organizations leading to complicated governance issues and less transparency. Should a NIC utilize a consortium blockchain, it should consider its partners and risk exposures through such partnerships. The NIC should continually identify, measure, and monitor risks from the blockchain itself as well as its operating partners.

Smart Contracts

A smart contract is an automatic program that runs on the blockchain that enforces the terms of an agreement/contract without the need for a third party. Depending on how the NIC is structured, should they choose to implement or utilize smart contracts, such contracts should be monitored on a regular basis for threats, resiliency, and accuracy. Risk associated with smart contracts should be identified, monitored, and analyzed on a regular basis. Additional attention should be given to the structure and architecture of the network to ensure security, functionality, and viability.

Smart contract maintenance, in terms of service providers and contract conditions, should be conducted as necessary and appropriate policies and procedures should be in place. Additionally, the smart contracts implemented or utilized by the NIC should be audited to identify potential security vulnerabilities and ensure they function as intended. Audits are crucial for mitigating risks. These audits should be completed regularly.

Training Program

Training programs should be established for internal employees and due diligence should be conducted for any third-party and/or vendor offerings. This also includes risks associated with independent node verification. NICs should be able to identify and analyze node participants on a frequent basis. Encryption should be addressed and is of particular importance for any outsourced operations.

Interoperability of the Network

Network Compatibility

The use of blockchain activities should be compatible with traditional banking and payment systems. On-chain and off-chain transactions should be tracked and monitored. Such transactions may be particularly susceptible to fraudulent and illicit activities. Additional prudent AML/CFT and KYC monitoring should be done, and duty segregation should be in place. Network validation and consensus mechanisms should be monitored for cybersecurity risks, failures, and attacks.

Consensus Mechanisms

Consensus mechanisms are a set of protocols utilized to achieve agreement among nodes. These mechanisms help to verify and validate transaction that take place on the blockchain. Consensus mechanisms add a layer of security to help prevent activities such as double spending and various network attacks. The primary focus of these protocols is to maintain an honest and secure network.

Proof of Work (PoW)

With a PoW consensus mechanism miners solve complex mathematical problems to validate transactions and create a secure network. The amount of computational power and energy required to solve such problems helps ensure the integrity of the blockchain network. Should a NIC consider utilizing this type of mechanism it should consider the complexity of the problems, miner computational ability, and reward payout.

Proof of Stake (PoS)

With a PoS consensus mechanism, participants place a pledge or “stake” in a digital asset. Depending on the value of the stake that a participant places at stake or as collateral, they can be chosen as a validator. The staking mechanism helps ensure that validators will be honest because their validation efforts are incentivized through transaction fees and/or newly minted coins. Should a NIC consider using this mechanism it should consider the risks of asset fluctuation, fees, and a finite number of validators.

Delegated Proof of Stake (DPoS)

With a DPoS consensus mechanism, participants elect delegates to validate and create new blocks in the blockchain based upon the stake the delegate has in a digital asset. The elected delegates then have the responsibility of producing new blocks and validating transactions that comply with the network protocols. If the NIC implements this type of protocol, it should consider the possibility of centralization through the delegates and the ability of those individuals to heavily influence the blockchain network.

Proof of Authority (PoA)

With a PoA consensus mechanism blockchain validators are limited to trusted individuals and/or organizations called authorities. This allows for identity and reputation verification before allowing individuals and/or organizations the authority to exert some sort of control on the blockchain. Should a NIC utilize this type of mechanism it should consider due diligence and sufficient KYC protocols before providing authorization power.

Private and Public Networks

NICs are permitted to operate on both private and public networks. A network encompasses the nodes and software that enable the blockchain and its transactions. In a private network, the network administrator can limit the entities that participate on the network. Limitations may be put in place for various AML/CFT and KYC operations or other specific qualifications as set forth by the administrator. Such limitations can assist in preventing criminal or illicit trading activities. A public network is accessible to anyone. While the digital asset authority can put some controls in place on a public network, it is not as restrictive as a private network controlled by an entity or group of entities

Risk Management

Network Activities

NICs can provide a variety of digital asset business services. Such services include but are not limited to governing stablecoin arrangements, issuing and redeeming stablecoins, oversight of stablecoin transfers, tokenized deposits, and stablecoin storage. As with all activities, appropriate due diligence and duty segregation should be in place.

Network Security

Security processes and procedures should be established for the NIC's physical location as well as the web-based network. Strong security procedures should be in place for the storage of digital assets to mitigate fraud, security breaches, and stolen digital assets. Moreover, procedures should be established for those who have access to the private keys of such funds and internal controls should be robust.

The custody models should be outlined in the policies and procedures. Such policies should address direct custody, sub-custody, and self-custody solutions dependent upon the custody methods the NIC chooses to utilize. Each custody method that the NIC uses should be appropriately addressed in the policies and procedures.

Network Participants

The NIC should conduct sufficient KYC procedures before onboarding participants on the blockchain platform. Network participants may have outside exposure to illicit activities or fraudulent actors. Proper KYC procedures should be conducted on potential participants to eliminate the risk to the blockchain and NIC as a whole.

Decentralized Autonomous Organizations (DAOs)

A DAO is an organization that operates a blockchain with the owners making decisions that are then automatically executed through a smart contract. The participants who "own" a share of the DAO control the decision making process. Some individuals are allowed to introduce proposals that can be voted on. If passed, these proposals are then implemented. Due to the potential influence a DAO could have on a NIC's network interoperability, NICs should include a risk assessment to address any associated risks. If the NIC interacts with a DAO it should continually measure, monitor, and identify risks present within the relationship.

Decentralized Finance (DeFi)

DeFi presents a variety of benefits and risks. The NIC should be aware of the technological risks that are present with using DeFi such as vulnerabilities to hacking, scams, and faulty programming. Because the NIC's network is reliant on technology, the NIC should implement a risk assessment to continually test the safety and soundness of the DeFi platform. This risk assessment should continually monitor, measure, and identify any risks or threats that may impact the NIC.

Other Platforms

If a NIC looks to partner or collaborate with other platforms it should be aware of the risks that these platforms could pose to the safety and soundness of the NIC. Exposure to illicit activities and/or cybersecurity threats could harm the health of the NIC. Due to this risk, the NIC should have a risk assessment that addresses such issues. Should a NIC engage with another platform, it should continually stress test the viability of that platform to continually monitor risks to the NIC.

Other Users

The NIC should also be aware of the threat that fraudulent actors and/or illicit actors could pose to its network. Individual network participants could have ties to illicit activities that could harm the safety and soundness of the NIC. Due to this risk, the NIC should have a rigorous KYC standard to properly screen all individuals who would like to participate in the network. Further, should the NIC identify potential illicit activities tied to a participant it should take the proper steps to mitigate the risk to the overall health of the network.

Blockchain Monitoring

Due to the interrelationship of the blockchain and the network, it is imperative for the blockchain to be monitored. A NIC should regularly stress test the blockchain for vulnerabilities in areas such as cybersecurity and asset exposure. Such stress tests should validate the health and viability of the network for optimal transaction security. These measures should include an ongoing risk assessment that identifies, measures, and monitors blockchain-specific risks.

Blockchain Protocols

Blockchain protocols are the foundation of the network. These protocols outline the rules of the network dictating how participants interact and how data is recorded. The NIC should clearly outline in its policies and procedures the protocols that will be used in its network. The complexity and structure of these protocols should be detailed to alleviate potential threats to the viability of the NIC.

Policies and procedures should detail who has the authority to revise the protocols, how the protocols are revised, what happens if access to the network is lost, and how the network is recovered if the key individual(s) who have had access to the network are indisposed. The protocols should also detail security risks and mitigation measures.

Forking

As part of regular maintenance, a NIC should address forking. Forking occurs when updates or upgrades are needed within the blockchain. Forking can occur as either a hard fork or a soft fork. The NIC should continually monitor forking to ensure that any forks made align with the goals and objectives of the NIC while remaining in compliance.

Hard Fork

A hard fork occurs when a split is made in a blockchain for the development of a new cryptocurrency or a fundamental change in the rules/code of the blockchain. When a hard fork occurs, there is an “old” and “new” blockchain with the “old” reflecting the previous rules/currency with the “new” reflecting new rules/currency.

Soft Fork

A soft fork occurs when upgrades or updates are made to a blockchain and are accepted by all users of the blockchain. This type of fork is comparable to a software update. A soft fork maintains the original blockchain with improvements resulting in a single blockchain.

Third-Party Service Providers

As part of a safe and sound risk management framework, a NIC should analyze the risks associated with each third party it does business with. Risk management practices should be tailored to each vendor commensurate with the NIC’s size, complexity, and risk profile relative to the nature of the third party relationship. If a NIC outsources any of its operations or digital asset business to other technology providers or third party vendors, due diligence policies and procedures should be in place.

A robust risk assessment should be established that identifies each party and calculates residual risk. Proper due diligence is imperative due to the potential risk of entering into multiple partnerships and/or operational agreements or contracts related to the digital asset business. *Refer to the Outsourcing section for additional information on third-party service provider relationships.*

Custodial Partnerships

Custodial partnerships and other operational risks should also be monitored. Due diligence in this area is critical to the digital asset business operations of the NIC. Considerations should be given to API-based integrations done by the third-party service provider. Bank partner relationships should be continually monitored, and due diligence should be conducted when selecting new or additional bank partners. After selecting a partner, NICs should also have a risk management framework established to conduct ongoing due diligence related to their third party service providers and partnerships. Effective ongoing monitoring throughout the duration of a third party relationship, commensurate with the level of risk and complexity of the relationship and the activity performed by the third party is crucial. Typical monitoring activities include, but are not limited to:

- Review of reports regarding the third party’s performance and effective controls
- Periodic visits and/or meetings with third party representatives to discuss updates or issues, and
- Regular testing of the NIC’s controls that manage risks from its third party relationships.

Evaluating Network

Examiners should verify that on-chain and off-chain transactions are appropriately tracked and monitored. Examiners should ensure that the network complies with AML/CFT and KYC guidelines and that appropriate due diligence is in place. Further, examiners should ensure that duty segregation is implemented and appropriate for the daily digital asset business activities. Examiners should also verify that security policies and procedures are sufficient for the daily digital asset business operations of the NIC. Examiners should verify that third-party vendor risks are addressed and monitored.

Ratings

A rating of 1 indicates a strong blockchain network that demonstrates strong security measures, compatibility with traditional systems, timely transactions, and risk management practices are commensurate with the risk profile of the NIC. Identified weaknesses are minor in nature and easily corrected during the normal course of business. The risk management process provides a comprehensive program to identify and monitor risk relative to the size, complexity, and risk profile of the NIC. Management identifies weaknesses promptly and takes appropriate corrective action to resolve regulatory concerns. Strong internal controls have been implemented. Overall performance shows no cause for supervisory concern.

A rating of 2 indicates a satisfactory blockchain network demonstrates satisfactory security measures, compatibility with traditional systems, timely transactions, and risk management practices that are commensurate with the risk profile of the NIC. Modest weaknesses may be present in operating performance, monitoring, management processes, or system development. Generally, senior management corrects weaknesses in the normal course of business. Risk management processes generally identify and monitor risk relative to the size, complexity, and risk profile of the NIC. Management normally identifies weaknesses and takes appropriate corrective action. Internal control weaknesses may exist, but there are no significant supervisory concerns.

A rating of 3 indicates the blockchain network demonstrates less than satisfactory security, compatibility with traditional systems, untimely transactions, and risk management measures that are less than satisfactory. The network security, system compatibility, settlement of payments, or risk management measures may have a combination of weaknesses that may range from moderate to severe. If weaknesses persist, further deterioration in the performance of the NIC is likely. Risk management processes may not effectively identify risks and may not be appropriate for the size, complexity, or risk profile of the NIC. Management often has difficulty responding to changes in business, market, and technological needs of the NIC. Internal control weaknesses exist. Financial or operational failure is unlikely but increased supervision is necessary.

A rating of 4 indicates the blockchain network has a deficient network security, compatibility with traditional systems, untimely payments, and risk management practices that subject the NIC or consumers to potential losses that, if left unchecked, may threaten its viability. Operating weaknesses are indicative of serious deficiencies. Risk management processes inadequately identify and monitor risk, and practices are not appropriate given the size, complexity, and risk profile of the entity. Management and the board are not committed to, or may be incapable of ensuring, that technological needs are met. Failure of the NIC may be likely unless network problems are remedied. Internal controls are deficient. Close supervisory attention is necessary.

A rating of 5 indicates the blockchain network has critically deficient network security, compatibility with traditional systems, untimely payments, and risk management policies that subject the NIC and consumers to losses. The level of risk inherent risk is an imminent threat to the NIC's viability. Risk management processes are severely deficient and provide management little or no perception of risk relative to the size, complexity, and risk profile of the entity. Management is unwilling or incapable of correcting regulatory concerns and failure is probable due to poor operating performance. Internal controls are critically deficient. Ongoing supervisory attention is necessary.

ASSET

Introduction

The following sections identify digital asset business services and activities that a NIC could conduct. Such digital asset business services and activities warrant an appropriate risk management program must be implemented in order to proactively identify, measure, and monitor the reserve account effectively. This includes live reconciliations of outstanding issued stablecoins to reserve account assets, stress testing, appropriate risk limits, identification of risk associated with staking, lending, and other permissible activities.

Digital Asset Classes

Digital assets have the unique ability to transition into assets that can be utilized for different purposes. Digital assets typically function as commodities, securities, and stablecoins. However, digital assets can also act as a tokenization of a real world asset. For the purposes of this manual, commodities, securities, and stablecoins will be the primary focus. Each type offers its own purpose, and associated risks should be monitored appropriately.

Digital Asset Commodities

Digital asset commodities are backed by the underlying commodity they represent and derive value from market demand and trades that take place within the market. Digital asset commodities do not represent ownership or a claim on profits from a particular business. If a NIC offers a digital asset commodity, a proper risk management structure should be in place to monitor the risk inherent in the changing value of these assets as they are traded on the market.

Digital Asset Securities

Digital asset securities represent ownership or a claim on a particular business. These digital assets are comparable to traditional stocks. If a NIC offers digital asset securities, it should ensure compliance with regulatory guidelines. Additionally, a risk management program should be in place to monitor the risks inherent in this asset.

Stablecoins

Stablecoins are a type of digital asset used for payments. They are typically designed to maintain a stable price because they are fixed to an asset such as a fiat currency. A risk management framework should be in place to monitor any fluctuations in the value of the asset that the stablecoin is pegged to.

According to Neb. Rev. Stat. §8-3009, any stablecoin that is issued to a customer must be fiat asset backed 1:1 by unencumbered liquid assets. Such reserves should be monitored for liquidity risk. NICs shall remain in compliance with state and federal laws including but not limited to the NFIA and the GENIUS Act.

The fiat reserves should be appropriately monitored to ensure a liquid position is maintained at all times. Attestations should be received relative to the liquidity and security of such reserves.

Policies and procedures should be in place in the event a NIC suffers a cybersecurity attack or breach resulting in the loss of customer data, customer funds, or NIC digital assets. Additional policies and procedures should be in place for freezing and seizing assets in the event a customer is defrauded, or digital assets are being used for illicit activities.

Smart Contracts

Should the NIC implement or utilize smart contracts, it should identify potential security vulnerabilities in assets it may transact with. These contracts should be monitored for risks inherent in the assets being utilized within the contract. Should an asset be found to be a critical risk to the operations of the digital asset business, the asset should cease to be utilized, or precautions should be put in place to mitigate the risk.

Digital Asset Classification & Risk

Considerations should be given to the accounting treatment, such as GAAP and IFRS, of digital assets. Liquidity risk, credit risk, and market risk assessments should be conducted. These risks should be continually monitored. Adequate capital levels should be maintained for risks that digital assets may be exposed to.

Stress testing should be conducted to monitor liquidity risk and market risk inherent in the digital asset business operations of the NIC. Specifically, stress testing should include but is not limited to traffic on the blockchain and network stability. Stress tests should be done on increases and decreases in transaction traffic on the blockchain. Stress tests should also be conducted on the network to effectively plan for partial or full network failure. Each digital asset the NIC is using or considering for use should also be stress tested to eliminate potential risks to the blockchain as a whole.

Digital Lending & Investment Activities

If a NIC conducts any type of lending activity, the risk for such activity should be assessed and monitored. Such activities could include but are not limited to controllable electronic record exchange, staking, controllable electronic record lending, and controllable electronic record borrowing. Further, NICs are permitted to purchase debt obligations as specified in the NFIA. Consideration should also be given to any investments in tokenized assets that could be impacted by DeFi exposure. For any lending activities the NIC may conduct, appropriate collateral should be perfected, and margin requirements should be established.

Secured Digital Lending

If a NIC utilizes secured digital lending, it should implement a policy outlining the methods by which it would underwrite, process, perfect collateral, service the loan, collect on the loan and manage adversely classified or defaulted loans. The NIC should be aware of collateral appreciation or depreciation present with the inherent value fluctuation of secondary market assets. A NIC should establish appropriate policies and procedures, stress tests, and a risk assessment to mitigate the risks associated with this type of lending.

Unsecured Digital Lending

The NIC should be aware of the risks associated with unsecured lending. This risk could be present with transfers between participants, based on transaction time, as well as any form of digital asset lending service where collateral is not obtained. Unsecured lending could cause harm to the NIC should an unsecured loan go into default. A NIC should establish appropriate policies and procedures, stress tests, and a risk assessment to mitigate the risks associated with this type of lending.

Tokenized Lending Activities

The NIC should establish policies and procedures related to its tokenized lending, investment, and deposit activities. These activities could include but are not limited to purchasing participations and selling participations. Depending on how the NIC structures its digital asset business, it could be possible for network participants to tokenize real world assets such as real estate, health care records, or deposits. The NIC could utilize tokenized real estate as the collateral for a digital asset loan. Should this be the case, the NIC should conduct due diligence to validate the creditworthiness of the individual as well as the validity of the tokenized collateral. A risk assessment should also be done to gauge the level of risk inherent in the loan.

Staking & Wrapping

NICs should be aware of the risks associated with staking and wrapping various digital assets as well as providing those services to customers. The NIC should have policies and procedures in place to outline how customers are able to stake and/or wrap assets utilizing the NIC's platform and/or the platform of a contracted third-party. It should be noted that wrapping a digital asset does not change the underlying asset. Rather, it allows enhanced compatibility with other digital asset products, services, and platforms.

Staking rewards and fees should be clearly outlined in the NIC's policies and procedures and disclosed to the customer at the time of account opening. Customers should be informed promptly of any updates made to the staking and wrapping policies and procedures to ensure compliance. The NIC should also provide disclosures regarding the potential variability in staking rewards and the risks associated with staking. Examples could include above market rate yields or lockout periods.

The NIC should have a system in place to ensure that any capital gains/losses made by the NIC, customers, or both, are properly documented and retained. This is especially important for tax compliance by both the NIC and its customers.

Evaluating Asset

Examiners should ensure that liquidity reserves are sufficient, monitored for liquidity risk, and comply with regulatory requirements. Examiners should verify that, at a minimum, policies and procedures are in place for cybersecurity risks, fraud, and asset seizure. Examiners should ensure that stress testing is commensurate with the level of risk inherent in the daily digital asset business activities of the NIC. Examiners should also investigate lending and investment activities for regulatory compliance, risk exposure, and appropriate collateral and margin requirements.

Ratings

A rating of 1 indicates a strong asset reserve position, and reserve management policy. The risk management practices relative to the assets backing the outstanding stablecoin provide strong NIC and consumer protection. Management proactively identifies potential weaknesses and risk exposure is minimal in relation to capital, earnings, and liquidity.

A rating of 2 indicates satisfactory asset reserves position and reserve management policy. The risk management practices relative to the assets backing the outstanding stablecoin provide satisfactory NIC and consumer protection. Management identifies potential weaknesses and risk exposure is minimal or modest in relation to capital, earnings, and liquidity. The level and severity of weaknesses warrant a limited level of supervisory attention.

A rating of 3 indicates a less than satisfactory asset reserve position and reserve management policy. The risk management practices relative to the assets backing the outstanding stablecoin provide less than satisfactory NIC and consumer protection. Management does not proactively identify weaknesses and risk exposure is modest or high in relation to capital, earnings, and liquidity. Trends may be stable or indicate deterioration in asset liquidity or an increase in risk exposure. The level and severity of weaknesses and risks require an elevated level of supervisory concern. There is generally a need to improve the reserve management policy, investment policy, and risk management practices.

A rating of 4 indicates deficient asset reserve position and reserve management policy. The risk management practices relative to the assets backing the outstanding stablecoin provide deficient NIC and consumer protection. Management does not appropriately identify weaknesses and risk exposure is high in relation to capital, earnings, and liquidity. The inherent risk associated with the reserve account may subject the NIC to potential losses that, if left unchecked, may threaten its viability. Management shows deficiencies that may lead to failure unless remedied. Close supervisory attention is necessary.

A rating of 5 indicates a critically deficient asset reserves position and reserve management policy. The risk management practices relative to the assets backing the outstanding stablecoin are critically deficient and do not protect the NIC or consumers. The level of risk presents an imminent threat to the NIC's viability. Losses are imminent. Management is critically deficient and has not corrected supervisory concerns. Ongoing supervision is necessary.

TOKENIZATION

Introduction

Tokenization is defined as the technological process of converting assets into a digital asset or digital token that can be issued, minted, burned, or redeemed as a store of value. Thus, tokenization is used to evaluate the NIC's ability to operate effectively and manage the risk associated with converting fiat deposits into stablecoin or digital tokens within the NIC's own system. This includes but is not limited to the operational risk, cybersecurity and fraud prevention, regulatory compliance, and interoperability with traditional financial rails.

Regulatory Considerations for Tokenized Assets

NICs should remain in compliance with all state and federal regulations including the NFIA and GENIUS Act. Smart contracts should be continually monitored for viability and risk. Audit policies and procedures should be established for smart contracts. These procedures should include, at a minimum, the monitoring of the accuracy, speed, and automation of the contract.

Operational Risk in Tokenization

Operational risks should also be considered. Such risks include but are not limited to settlement risks, secondary market trading, custodial arrangements, token stability, and the legal enforceability of smart contracts. Policies and procedures should be established to monitor and mitigate the risks associated with these activities. Policies and procedures should also be established to address the process of minting, burning, freezing, and seizing digital assets. Particular attention should be given to these items due to the risk of fraud, illicit activities, a network breach, or network failure.

Segregation of Duties

The NIC should establish policies and procedures to properly segregate duties. Specifically, the NIC should segregate the duties of individuals who have control over the minting, burning, and redemption process. The NIC should establish internal controls to ensure that key personnel do not have access to every component of the network therefore mitigating the risk of control by a single employee.

Internal Controls

The NIC should establish internal controls within its tokenization process. The tokenization process includes minting the digital asset, redeeming the digital asset, and burning the digital asset. This process should have internal controls to ensure the stability of the system and process. Should the NIC find errors in its processes that introduce risk or threats to the system these should risks should be addressed immediately. Further, in the normal course of business as employees are onboarded to, promoted within, or offboarded from the NIC, controls should be in place to create, modify, or remove access to different areas of the system.

Safeguarding of Keys

The NIC should develop policies and procedures outlining the safeguarding of private keys. Should the NIC choose to offer services to custody the keys of its participants, procedures should be in place for data security and recovery in the event of a potential compromise or loss of access due to a natural disaster, data breach, or other extenuating circumstances. The individuals with access to this information should be properly trained and held to strict confidentiality standards. In addition to access, policies and procedures should outline how the private keys will be stored, whether in hot wallet or cold wallet storage, who maintains custody over the keys, and who has the authorization to access the keys. A contingency plan should be established detailing private key recovery or encryption protection in the event of theft.

Minting Process

Minting is the process of creating cryptocurrency or tokens. The NIC should have policies and procedures in place to measure, monitor, and identify risks in the minting process. This should include control mechanisms to ensure minted coins are accurately accounted for in the system. Such mechanisms should seek to mitigate risks such as duplication, double spending, and skimming. The minting process should also have duty segregation to ensure that individuals are not able to mint mass quantities without a dual control authorization process.

Redemption Process

The NIC should establish policies and procedures detailing the redemption process. These should include guidance on how tokens are redeemed, at what valuation, who authorizes the redemption, and any customer identification necessary per KYC requirements. The redemption process should have proper dual controls in place to protect customer data and digital asset holdings. The redemption fee and fee structure should also be outlined in terms of how fees are allocated and who pays the fees.

Burning Process

Burning is the process of disposing of or removing a token or asset from circulation. The NIC should establish policies and procedures to detail how an asset is to be removed from circulation. Safeguards should be in place to ensure that the asset does not come back into circulation to preserve things such as trust in the network and the value of other digital assets on the network. The burning process should be dual controlled to ensure that burned assets are not brought back into circulation unless desired. A NIC may burn an asset due to a fault in the code or to infrequent user application. Control mechanisms should be in place to ensure that an asset is not burned or reintroduced without proper authorization.

Freezing and Seizing Digital Assets

A NIC should have the technological capability to seize and/or freeze its digital asset offering(s). The seizing and freezing of assets should be conducted in cases where fraudulent activity is suspected and/or confirmed. Should the NIC identify these activities, it should take immediate action. Policies and procedures should be implemented to ensure personnel are properly trained and aware of triggers, thresholds, and/or limits related to fraudulent or suspicious activities. Should an employee identify a trigger or breach of a limit or threshold, immediate action should be taken. Before a digital asset is seized, appropriate due diligence and investigation monitoring should be conducted. After a thorough investigation, the NIC should appropriately determine whether to release the digital asset offering(s) or to seize the digital asset offering(s).

Financial Crime & Fraud Prevention

On-chain and off-chain activities should be continually monitored for suspicious transactions such as fraud or illicit activities. Due diligence should be conducted for any monitoring that may be outsourced, and duty segregation should be in place for any internal monitoring. Forensic tools should be considered for monitoring the blockchain as well as for wallet monitoring. Both the blockchain and wallets should be continually monitored for compliance with AML/CFT and KYC in addition to state and federal regulatory guidance.

Evaluating Tokenization

Examiners should ensure smart contract viability and risk mitigation associated with such contracts. Examiners should verify appropriate audit policies and procedures are in place. Examiners should ensure operational risks are addressed and that such risks are appropriately mitigated. Special attention should be given to minting, burning, freezing, and seizing activities. Further, examiners should verify that on-chain and off-chain transactions are continually monitored for suspicious activities, verify that due diligence is conducted for outsourced activities, and verify that duty segregation is in place. Examiners should also ensure wallets are appropriately monitored and comply with AML/CFT, KYC, and OFAC requirements.

Ratings

A rating of 1 indicates strong operational performance, cybersecurity protections, and risk management processes. Weaknesses are minor and management quickly identifies and corrects such weaknesses. The overall performance of the NIC is strong and shows no cause for supervisory concern.

A rating of 2 indicates satisfactory operational performance, cybersecurity protections, and risk management processes. Modest weaknesses are present. Management normally identifies weaknesses and takes corrective action to resolve such weaknesses. Performance is satisfactory and while weaknesses may exist, there are no significant supervisory concerns.

A rating of 3 indicates operational performance, cybersecurity protections, and risk management processes that are less than satisfactory. Weaknesses are elevated and if they persist may cause deterioration in the performance of the NIC. Repeat concerns may be present showing a lack of ability or willingness to resolve such concerns. Operational failure is unlikely but increased supervision is necessary.

A rating of 4 indicates deficient operational performance, cybersecurity protections, and risk management processes. Serious weaknesses are noted, and management is not taking proper actions to correct such weaknesses. Failure is likely unless weaknesses are remedied. Close supervision is necessary.

A rating of 5 indicates critically deficient operational performance, cybersecurity protections, and risk management processes. Critical weaknesses are present, and management is incapable or unwilling to correct regulatory concerns. Failure is highly probable due to poor operational performance. Ongoing supervisory attention is necessary.

INFORMATION TECHNOLOGY

Introduction

The IT examination will be conducted concurrently with the CAMELS, GNAT, and AML/CFT examinations. The IT examination will involve a more comprehensive analysis of the NIC's technological operations. Such analysis will focus on cybersecurity protection measures, third party vendor relationships, operational resilience, employee training, strategic planning, audit, and the safety and soundness of all technological activities.

IT & Governance

The board of directors sets the tone and direction for a NIC's use of IT. The board must be involved in approving the IT strategic plan, information security program, and other IT-related policies. It is essential for the board of directors to provide clear guidance on acceptable risk exposure levels and to ensure that appropriate policies, procedures, and practices are well-established and adhered to. Regular and timely corrective actions should be taken for any identified IT problems to maintain compliance with regulatory standards and to safeguard the interests of the NIC.

Management's effectiveness in monitoring and measuring the organization's progress toward identified goals is crucial for maintaining a compliant and efficient operational environment. The NIC should also have a written compliance program, approved by the board of directors. The compliance program should include a system of internal controls, independent testing for compliance, and training for appropriate personnel. The board of directors should also approve and review the information security program annually, ensuring it addresses risk assessment, risk management, and control decisions.

The board of directors should establish a committee focused on IT, normally identified as an IT steering committee. This committee generally comprises senior management and staff from the IT department and other business units. Members should understand IT policies, standards, and procedures. The IT steering committee is responsible for reporting to the board on the status of IT activities and thus should receive appropriate information from various IT lines of business and external sources. As mentioned in the Governance section, formal minutes should be maintained, and the IT steering committee should meet on a frequent basis commensurate with the risk profile of the NIC.

NICs should place special emphasis on hiring and maintaining competent and motivated IT staff. Due to the ever-changing nature of technology, training and compensation are of utmost importance. The NIC's board should oversee the management and compensation of the IT program to adequately balance risks and rewards. The board should also develop professional development programs to aid in skilled IT personnel retention. Such retention can save a NIC energy and resources that can be put towards the security of its IT operations. The board should review reports on the NIC's risk management program regularly, including its third-party management program.

A NIC should develop a cybersecurity risk management program into its overall information security program. This program should include, at a minimum, the establishment of cybersecurity controls, incident management strategies, and management of external dependencies. A NIC may find the National Institute of Standards and Technology (NIST) Cybersecurity Framework 2.0 and the Cybersecurity and Infrastructure Security Agency's (CISA) Cybersecurity Performance goals helpful. These resources were developed and designed to help organizations of all sizes and sectors manage and reduce cybersecurity risk.

The NIC should ensure compliance with all state and federal laws and regulations. NICs must ensure that customer data and information remain secure and confidential at all times. Compliance with such laws and regulations extends to the NIC's third-party relationships when IT services may be outsourced.

Business Continuity Management

The NIC board and senior management should establish a business continuity management program for its IT operations. This program should be regularly tested and perform realistic exercises to validate the effectiveness of the program. Such tests and exercises should include but are not limited to critical system recovery, transaction processing, and critical service restoration within acceptable recovery time objectives (RTOs) and recovery point objectives (RPOs). All tests and exercises should be documented, reviewed, and reported to the board or respective IT committee(s). Adjustments should be made as necessary.

Resources should be appropriately allocated to business continuity management activities including but not limited to financial, human, and technological resources. Business Impact Analysis (BIA) should be regularly performed to identify the NIC's critical business functions and the impact of potential disruptions.

IT and Network

Robust risk management and effective internal control systems to safeguard the integrity and security of the NIC's operations are critical to the safety and soundness of the NIC. The NIC's heavy reliance on technology makes the security of the network crucial. A strong IT risk management program can help mitigate the risk of data breaches, operational failures, and recovery and restitution in the event of a network failure.

Architecture, Infrastructure, and Operations

NICs should have a well-defined IT architecture and infrastructure, emphasizing the need for a strategic architecture plan, design objectives, and IT architecture design. It should cover enterprise architecture, highlighting the need for alignment with the NIC's strategic goals. Detailed insights should be provided on hardware, network and telecommunications, software, and environmental controls. The specifics of network design, telecommunications, software types, and the importance of environmental controls like HVAC, smoke, and fire systems should be addressed.

NICs should further address the management of IT operations, the importance of resilience, and the specifics of remote access and use of personally owned devices. Policies and procedures regarding file exchange and the management of physical access controls should be updated as necessary.

The NIC should establish and implement comprehensive policies, standards, and procedures for the disposal and transfer of media and equipment. These policies should be risk-based and consider the sensitivity of the information, the data classification, and the media type. The NIC should design service management functions to prevent issues and ensure continuous reliability and resilience. This should include considerations of service offerings, service level agreements (SLAs), and operational level agreements (OLAs), as well as the management of third-party service providers.

The NIC should implement robust security controls for both internal and external APIs, including appropriate logging, monitoring, and validation mechanisms. Ensure the security of APIs used by third-party service providers through adequate testing and security reviews.

Payment Systems

Management should include mobile and electronic payment systems in their strategic planning processes, ensuring that these initiatives align with the NIC's overall risk management framework. NICs should monitor customer enrollment, authentication, and the security of mobile payment applications. NICs should implement robust authentication methods, secure application development, and the management of application security to protect against fraud and ensure the security of customer information.

NICs should provide clear, comprehensive information to customers regarding the risks and protections associated with various payment methods. Education on the security aspects of mobile and electronic payments, including the safekeeping of personal and financial information, should be provided to customers. NICs should conduct continuous monitoring of payment systems and transactions to detect, prevent, and respond to fraudulent activities and other irregularities.

The NIC should conduct regular performance monitoring and evaluation to ensure that the payment systems meet operational expectations and strategic objectives. There should be coordination among different oversight activities to avoid duplication of efforts and to ensure a comprehensive understanding of the NIC's control environment. Additionally, control measures should be established to mitigate identified risks. These control measures should include but are not limited to setting transaction and position limits, monitoring and controlling intraday credit exposure, and ensuring compliance with legal and regulatory requirements.

NICs should ensure payment and messaging systems are secure, reliable, and resilient. Specifically, NICs should ensure the protection of data integrity and confidentiality during both transmission and storage. Payment systems should also be designed to prevent and detect fraud, unauthorized access, and operational failures. If a customer transaction fails, is pending, or is double booked, a NIC should have processes and procedures to aid in issue resolution. Management should establish limits on customer transactions to manage credit exposure and mitigate potential liquidity risks commensurate with the board's risk appetite.

Consensus Mechanisms

NICs should establish policies and procedures to mitigate the risk of fraud and data breaches relative to the minting, burning, and redemption processes. Employees should be provided with the tools and training necessary to ensure the NIC's systems are protected from risks. Such scenarios include but are not limited to data breaches, loss of network control, and loss of process control(s) related to the minting, burning, and redemption. This should be aligned with the IT business continuity plan. Management should document, maintain, and test the plans and backup systems periodically to ensure processes and procedures are appropriate. The results should be shared with the board, and the plan should be reviewed and approved annually.

Outsourcing

Maintaining stringent security and privacy standards in contracts and agreements with third-party service providers and vendors, especially those handling sensitive customer data or providing critical services, is crucial to the safety and soundness of the NIC. NICs should address security and privacy standards comprehensively, including the handling of data breaches, the encryption of sensitive information, and the responsibilities of third-party vendors in maintaining the confidentiality and integrity of customer information. Third-party service providers should be transparent regarding testing parameters and results. Management should review test results and related analyses.

The NIC should assess risks associated with outsourcing, including the financial stability of the service provider, data sensitivity, and the provider's ability to ensure business continuity and data security. Due diligence, the Request for Proposal (RFP) process, and proposal evaluation should be commensurate with the NIC's risk level and appetite. NICs should control and monitor third-party service provider access for maintenance and administrative purposes to ensure security and compliance.

Contracts should clearly define the roles and responsibilities of each party, provide for ongoing monitoring and reporting, and include measurable service level agreements. Contracts should also address the use of subcontractors, data security and breach notifications, audit rights, compliance with laws, and termination rights. Legal counsel should be involved in the contract review and negotiation process to ensure compliance with regulatory requirements and the safeguarding of the NIC's interests. Contracts for IT systems should include warranties that address mission-critical and non-critical failures, with clearly defined response times and remedies.

The NIC should ensure it remains in compliance with all state and federal laws and regulations. It should also ensure that service providers implement appropriate security measures to maintain compliance with all laws and regulations. The NIC should establish a robust framework for the ongoing monitoring of the service provider's performance and compliance with the contract terms and conditions. Additionally, contractors and third-party service providers should be subject to the same security measures and screening processes as employees.

If the NIC utilizes cloud computing services, the service model and deployment model should be considered in addition to the service provider's ability to meet the needs of the NIC regarding scalability, security, and cost efficiencies. Risks related to foreign and/or affiliated service providers should be considered including compliance with foreign laws and ensuring that the relationship is maintained at an arm's length.

Development, Acquisition, and Management

Effective planning, due diligence, and management of third-party relationships are crucial, especially for high-risk and complex activities. Managing risks in the supply chain, which involves monitoring and protecting communications and implementing Supply Chain Risk Management (SCRM) policies and procedures is critical.

NICs should implement formal policies and procedures for managing system maintenance and ensuring the operability and availability of IT systems and components. This includes maintaining an inventory of systems and components, scheduling regular maintenance, and assessing risks associated with changes. Third-party maintenance of source code and incorporating comprehensive provisions in escrow agreements to ensure access to and integrity of the source code should be validated.

NICs should integrate IT planning with their strategic and operational planning. This includes assessing current and future IT needs and aligning them with the NIC's strategic goals. Before engaging with third-party service providers, NICs should perform due diligence to assess the third-party's ability to meet contractual obligations and comply with relevant laws and regulations. NICs should also adhere to established data security standards, such as those outlined in the FTC's Standards for Safeguarding Customer Information (16 CFR 314). This includes implementing measures to protect against unauthorized access, data breaches, and other security threats.

Information Security

NICs should identify and assess threats, use tools for vulnerability analysis, and use threat information to drive their risk assessments and responses. Management should have effective threat monitoring and incident identification, assessment, and response processes in place. Access to networks should be secured through multiple layers of control and system configurations managed to prevent unauthorized access and ensure system integrity. Therefore, NICs should have a comprehensive information security program that addresses all technology and information assets and complies with the Information Security Standards. Testing of the controls identified in the information security program should be delegated to an independent auditor. The information security program should be coordinated across the NIC. At a minimum, in association with the information security program, NIC management should perform the following:

- Develop and implement processes to identify and protect against security events and incidents
- Periodically test incident response procedures, which should address escalation, remediation, and reporting of incidents
- Consider information and operation security risks when updating products or services
- Perform penetration testing before launching or making significant changes to critical systems
- Conduct due diligence and ongoing monitoring to understand the types of connections and mitigation controls in place between the NIC and third party providers. Furthermore, the NIC should require by contract that the third party providers notify the NIC of the use of any subcontractors or changes to subcontractor relationships.
- Develop a policy for escalating and reporting security incidents to the Board, government, law enforcement, and the NIC's primary regulators based on legal requirements and thresholds.

NICs must identify and assess the risks to their information systems and implement security measures to mitigate these risks. This includes the protection of the creation, collection, storage, use, transmission, and disposal of sensitive information. Security measures should also address the risks of unauthorized disclosure, modification, destruction of systems or information, and misappropriation or theft of information or services.

Robust access control measures should be implemented to ensure that only authorized personnel have access to sensitive information. This includes employing the principle of least privilege, where users are granted the minimum level of access necessary for their job functions. Permissions should be reviewed and access updated regularly to ensure that changes in employee roles correspond to changes in access rights. Management processes for the secure configuration, maintenance, and operation of all information systems should be implemented. This includes the management of hardware, software, and network resources.

Audit

The NIC should implement a well-structured audit program for identifying and monitoring risks associated with the network and IT operations as a whole.

Effective audit programs act as a critical defense against fraud and are instrumental in providing the board of directors with essential information about the effectiveness of internal control systems.

Key elements of this program should include but are not limited to an audit charter and mission statement, a risk assessment, an audit plan, the audit cycle and frequency, an audit work program, audit reports, appropriate documentation and work paper retention, and a follow-up process.

The charter and mission statement should outline the purpose, objectives, and responsibilities of the internal audit function, the audit staff, and audit committee(s). The risk assessment should be updated regularly to reflect changes in the internal control environment and NIC business operations. The NIC's audit plan and cycle should detail the scope and objectives of the audit as well as how often audits take place with special emphasis placed on high-risk areas. Work papers, reports, and documentation should accurately communicate the audit findings, procedures, the extent of testing, and be retained according to the established policy. Actions to correct any identified deficiencies should be tracked and resolved.

AML & CFT

Introduction

The AML/CFT* examination will be conducted concurrently with the CAMELS, GNAT, and IT examinations.

The AML/CFT examination will focus on the NIC's AML/CFT program, adherence to AML/CFT requirements, Financial Crimes Enforcement Network (FinCEN) requirements, Office of Foreign Assets Controls (OFAC) requirements, and industry standards. In addition, the AML/CFT program must include a customer identification program (CIP) with risk-based procedures that enable the NIC to form a reasonable belief that it knows the true identify of its customers.

Money laundering and terrorist financing pose significant threats to the integrity and stability of the financial system. Effective risk management practices help in identifying, assessing, and mitigating the risks associated with illegal financial activities, thereby safeguarding the financial system from being exploited for criminal purposes. NICs are required to comply with various laws and regulations designed to prevent money laundering and terrorist financing, such as the Bank Secrecy Act (BSA) and regulations enforced by the Office of Foreign Assets Control (OFAC).

The board and management should develop policies, procedures, and processes that help in the efficient detection and reporting of suspicious activities. This ensures compliance with regulatory requirements and enhances the overall operational efficiency of the NIC.

Risks associated with money laundering and terrorist financing are significant. Such risks include but are not limited to economic instability, loss of control of economic policy, a threat to security, undermining of the legal economy, and reputational damage.

**The Anti-Money Laundering Act of 2020 (AML Act) amended subchapter II of Chapter 53 of Title 31 United States Code (the legislative code commonly referred to as the "Bank Secrecy Act" or "BSA". For purposes consistent with the AML Act, the Department will now use the term "AML/CFT program" rather than "BSA/AML compliance program." The use of "AML/CFT" has the same meaning as the previously used "BSA/AML".*

Anti-Money Laundering/Countering the Financing of Terrorism

An effective AML/CFT program is essential for operating a safe and sound NIC. Therefore, the AML/CFT section of the manual's purpose is to provide examiners, and the industry, aid on identifying, measuring, and monitoring risks associated with AML/CFT. Pursuant to Neb. Rev. Stat. §8-3005 and §8-3010, a NIC shall establish and maintain programs for compliance with the federal BSA Act, in accordance with 12 C.F.R. 208.63, all state and federal laws, including but not limited to those relating to AML/CFT, customer identification, and beneficial ownership.

The AML/CFT program should be commensurate with the risk profile of the NIC. This program should include but is not limited to the development, implementation, and maintenance of policies, procedures, risk assessment, and processes for the effective identification, prevention, and reporting of suspicious activities. Examiners will be conducting a risk-focused approach for planning and performing AML/CFT examinations, and expanding their scope based upon the products and services offered by the NIC. To understand the risk profile of the NIC, examiners should consider available information, but not limited to the following:

- AML/CFT risk assessment
- Independent testing or audits
- Analysis and conclusions from prior examination or audits
- Offsite and ongoing monitoring
- Information received from bank in response to the request letter
- AML/CFT reporting from Financial Crimes Enforcement Network (FinCEN).

Risk Assessment

In order to have an effective AML/CFT program, the board must develop a thorough risk assessment that identifies, measures, and monitors the AML/CFT risks the NIC faces. These areas include but are not limited to money laundering, terrorist financing, and other illicit financial activities, which can occur through various methods or channels. The board and senior management must understand the risk profile of the NIC to better apply an appropriate risk management process in developing and applying the AML/CFT risk assessment.

Based on the risk assessment, the board should develop a AML/CFT policy framework with policies on customer identification, customer due diligence (CDD), enhanced due diligence (EDD) for higher risk customers, and monitoring and reporting of suspicious activities. Additionally, policies and procedures should be established to identify risks with activities involving the network, digital asset transactions, and the tokenization mechanisms.

The AML/CFT risk assessment should be updated on a regular basis to include any changes in the NIC's products, services, customers, and geographic locations. For example, if a NIC introduces staking to its customers, the AML/CFT risk assessment should be updated to reflect risks associated with staking.

Training Program

NICs must provide or outsource training for appropriate personnel, which includes the board, senior management, and those whose duties require knowledge or involve some aspect of AML/CFT compliance. Employee training should be tailored to the specific roles and responsibilities of the employee(s) and should be conducted regularly to keep pace with regulatory changes and emerging risks. The training program should be comprehensive, detailed, and cover aspects of AML/CFT that are applicable to the NIC and its risk profile.

The NIC should document its training programs in a training/tracking log sorted by the date the training sessions took place. Training records and material should be available for auditor or examiner review. Additionally, the training documentation should keep a list of attendance.

Internal Controls

Internal controls are policies, procedures, and processes put in place to ensure compliance with and mitigate risks related to AML/CFT. The board of directors, acting through senior management, is ultimately responsible for ensuring the NIC maintains a system of internal controls to ensure ongoing compliance with AML/CFT requirements. AML/CFT policies and procedures should be reviewed and updated regularly to ensure they remain effective and compliant with current laws and regulations.

Senior management should be actively involved in implementing the AML/CFT internal controls. Moreover, internal controls should be commensurate with the risk profile of the NIC and are part of the overall AML/CFT program. Further, the NIC should have thresholds and indicators set up for what constitutes suspicious behavior, based on the risk level of the customer and the nature of the transaction(s).

Dual Controls

NICs should maintain accurate and secure records of employee and customer authorizations for funds transfers. Dual controls and other security measures should be implemented to prevent unauthorized access and ensure the integrity of the payment system(s).

Dual controls are of particular importance for private key access through the customer's digital wallet. NICs should ensure that customers understand that digital wallets do not hold cryptocurrency. Rather, digital wallets hold private keys which provide the wallet owner with access to the cryptocurrency held with those private keys. Policies and procedures should be established that explicitly state who has control over and ownership of the private keys.

Policies and procedures should be established for fraud and the potential loss of the private keys. Policies and procedures associated with the potential loss of the private keys should vary depending upon whether the customer is safeguarding the private keys versus if the NIC is safeguarding the private keys. The policies and procedures must be clear, concise, and identify which party has control of the private keys.

Compliance and Monitoring

The effective detection, reporting, and use of law enforcement strategies are crucial in combating illicit activities. NICs play a key role in these efforts through rigorous compliance and monitoring systems. Enhanced due diligence procedures are crucial for customers and entities that pose a higher risk, such as politically exposed persons (PEPs), high-net-worth individuals, and customers involved in higher-risk geographic locations.

Certain products and services a NIC may offer could pose higher risks, such as online banking, payment services, digital asset trading, and digital asset redemption services. Higher risk products and services will require specific procedures to address and mitigate these risks. Transaction monitoring systems tailored to the specific risks associated with digital asset products and business services, and training for staff to recognize potential red flags associated with these activities can help further mitigate risks.

Independent Testing

The quality and quantity of independent testing are integral to the effectiveness of the AML/CFT program. Regular independent testing and audits should be conducted based on the risk profile of the NIC. Independent testing ensures the transaction monitoring systems remain secure and the AML/CFT program adheres to regulatory requirements.

Through thorough and frequent testing, independent reviewers can identify gaps or weaknesses in the AML/CFT program that might not be apparent to internal staff. This can include overlooked or under-assessed risks, inadequate policies, or failures in implementing procedures effectively. This is crucial for maintaining the integrity of the financial system and for protecting the NIC from the potential financial, legal, and reputational risks associated with compliance failures.

It is noted that NICs that do not employ external auditors or consultants, or do not have internal audit departments, may adhere to independent testing by utilizing staff that are qualified but not involved in the testing function.

Auditors should document the independent testing scope, procedures performed, sample transactions tested, and any findings or recommendations they may have.

Documentation and supporting documents associated with independent testing should be retained and made available for examiner review. Any exceptions to policy or violations identified by auditors should be appropriately notated, tracked, and reported to the board of directors in a timely manner.

APPENDIX

General Regulatory Links

FDIC Law, Regulations, and Related Acts: FDIC Law, Regulations, Related Acts | FDIC.gov

NDBF Digital Assets: Digital Assets | Nebraska Banking and Finance

Basel Committee on Banking Supervision (BCBS): The Basel Committee - overview

Federal Financial Institutions Examination Council (FFIEC): FFIEC Home Page

Uniform Financial Institutions Rating System (UFIRS): 96-32174.pdf

Federal Deposit Insurance Act (FDI Act): 1000 - Federal Deposit Insurance Act | FDIC.gov

Nebraska Banking Act: Nebraska Legislature - Revised Statutes Chapter 08

FRB: The Fed - Regulations

Federal Reserve Act: Federal Reserve Board - Federal Reserve Act

Introduction

State

NFIA 8-3003: Nebraska Legislature

NFIA 8-3005: Nebraska Legislature

NFIA 8-3006: Nebraska Legislature

NFIA 8-3010: Nebraska Legislature

Federal

No references in this section to any federal rules/guidelines

Capital

State Regulations

SOP #3 – Minimum Capital Requirements: NFIA Statement of Policy #3 - Capital Requirements_0.pdf

SOP #4 – Prompt Corrective Action: NFIA Statement of Policy #4 - Prompt Corrective Action_0.pdf

Federal Regulations

FDIC Prompt Corrective Action (PCA): Chapter 5 – Prompt Corrective Action

FDIC Rules and Regulation – Part 324: eCFR :: 12 CFR Part 324 -- Capital Adequacy of FDIC-Supervised Institutions

FASB – ASC Topic 326: Financial Instruments–Credit Losses (Topic 326): Troubled Debt Restructurings and Vintage Disclosures

Small Business Investment Act – Section 302: STATUTE-72-Pg689.pdf

Basel III: Basel III: international regulatory framework for banks

FDIC Rules and Regulations – Part 327: eCFR :: 12 CFR Part 327 -- Assessments

FDIC Rules and Regulations – Part 362: eCFR :: 12 CFR Part 362 -- Activities of Insured State Banks and Insured Savings Associations

FDIC Rules and Regulations – Part 337: eCFR :: 12 CFR Part 337 -- Unsafe and Unsound Banking Practices

FRB Regulation O – Part 215: eCFR :: 12 CFR Part 215 -- Loans to Executive Officers, Directors, and Principal Shareholders of Member Banks (Regulation O)

FRB Regulations – Part 206: eCFR :: 12 CFR Part 206 -- Limitations on Interbank Liabilities (Regulation F)

Federal Reserve Act – Section 10: Federal Reserve Board - Section 10. Board of Governors of the Federal Reserve System

FDI Act – Section 11: Section 11. Insurance Funds | FDIC.gov

Assets

State Regulations

No references in this section to any state rules/guidelines

Federal Regulations

No references in this section to any federal rules/guidelines

Management

State Regulations

NDBF Financial Institution Directors – Duties & Responsibilities: Directors Duties_Responsibilities 2017 with disclosure language_0.pdf

Nebraska Banking Act 8-103: Nebraska Legislature

Nebraska Banking Act 8-107: Nebraska Legislature

Nebraska Banking Act 8-108: Nebraska Legislature

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