



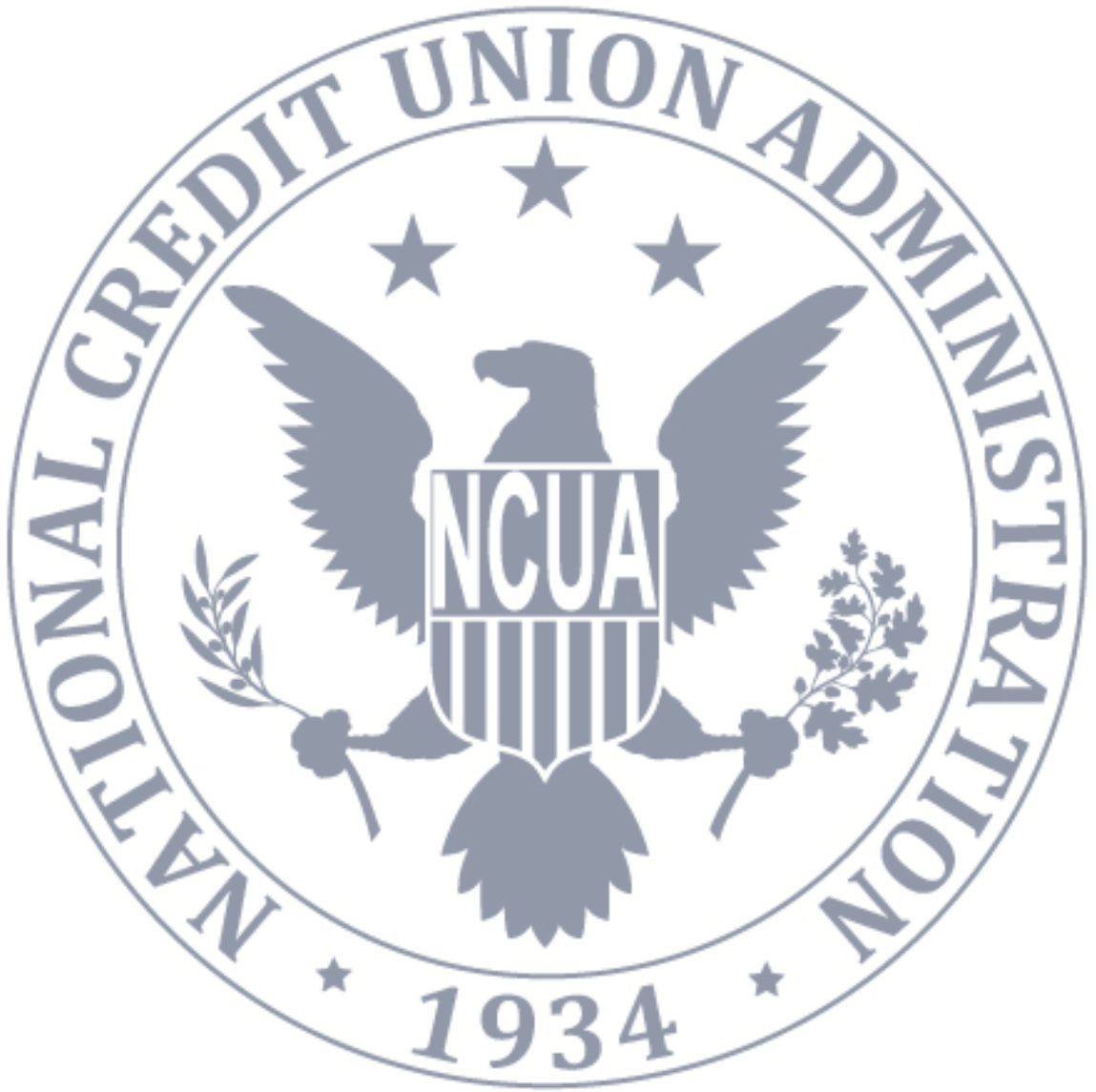
NCUA
National Credit Union Administration

2017 Capital Planning – Observed and Leading Practices

Office of National Examinations and Supervision

NCUA WHITE PAPER January 2018

[This page intentionally left blank]





2017 Range of Capital Planning Practices • January 2018

Table of Contents

Introduction	2
Effective Capital Policies and Governance Framework.....	4
Governance and Effective Challenge	4
Governing Framework Over Risk Management and Capital Planning and Analysis	4
Capital Analysis Roles	5
Capital Policy - Goals and Limits.....	6
Capital Policy – Capital Contingency Plans.....	7
Internal Audit and Capital Planning Controls	8
Enterprise Risk Management Fundamentals.....	10
Risk Culture.....	10
Risk Identification and Assessment.....	10
Model Risk Management	10
Risk Data	12
Operational Risk.....	12
Integration with Strategic Business Planning and Operations.....	12
Capital Analysis	13
Scenario Design.....	13
Modeling Practices	13
Sensitivity Analysis	16
Reverse Stress Testing.....	17
Conclusion.....	18



Introduction

NCUA places a high level of importance on capital planning at its largest credit unions. Capital planning requires each covered credit union¹ to consider its own risk exposures and establish capital adequacy goals to support these risks, and develop a capital contingency plan. The National Credit Union Administration's (NCUA) review of capital plans assesses each credit union's capital adequacy analysis, risk management, and governance practices.

While heightened expectations in these areas apply to all covered credit unions, it is understood that not all credit unions will adopt the same methods and approaches when developing their capital plans. It is expected that each credit union will clearly demonstrate that internal capital adequacy assessment processes (ICAAP) meet the regulatory requirements and the accompanying guidance², and are commensurate with the credit union's size, risk, and financial condition.

This white paper is intended to highlight observations across NCUA's review of all capital plans such that a credit union can better benchmark its own unique practices, with expectations that it leads to continued enhancement of capital planning practices. Specifically, this white paper summarizes capital planning and analysis practices as observed in capital plans provided to NCUA through the May 31, 2017, submission. Observations in this document are intended to alert covered credit unions to a range of practices from leading to lagging that will assist them in enhancing their capital plans where appropriate. Practices identified as leading or sound represent views at the time of this publication. NCUA anticipates that leading practices will continue to evolve as new data becomes available, economic conditions change, new products and businesses introduce new risks, and estimation techniques advance.

NCUA has also communicated that capital planning is an iterative process. In similar fashion, NCUA designed its review of the capital plans in an iterative manner. In the rule's inaugural year, 2015, NCUA focused on the governance of the capital planning process. NCUA's 2016 review increased the scope of its capital planning reviews with additional emphasis on management of capital analysis. During 2017 additional emphasis was placed upon NCUA's review of capital adequacy analysis, and the

¹ Credit unions with \$10 billion or more in assets as of their March 31 Call Report (of a given calendar year) are covered by NCUA Rules and Regulations Part 702 Subpart E – Capital Planning and Stress Testing in the following calendar year.

² NCUA routinely issues guidance and white papers with respect to capital planning and analysis expectations. Previously issued NCUA guidance on the subject matter can be found at: <https://www.ncua.gov/regulation-supervision/Pages/large-credit-unions/capital-planning-resources.aspx>.



manner in which capital planning and analysis was being used to inform strategic planning and risk management policies, tolerances and limits.

The iterative approach to assess the maturity of capital planning will continue as new credit unions are subject to the capital planning rule. Beyond the iterative implementation period, NCUA expects that credit unions will continue to refine and enhance their capital analysis, and the risk management and corporate governance activities supporting the analysis. Additionally, ONES' overall supervisory assessment, risk ratings, and CAMEL ratings can incorporate the results of capital plan reviews. The guidance provided in this white paper will assist covered credit unions in understanding NCUA's expectations with respect to capital adequacy analysis and the supporting enterprise activities.

Lastly, in order to make this annual guidance useful to all covered credit unions some of the guidance is purposefully redundant with prior year observations. Accordingly, each year's guidance builds upon the previous year by revisiting and identifying enhancements in observed practices in overall corporate governance and risk management activities supporting sound capital analysis as well as the strength and reasonableness of the capital adequacy analysis itself.



Effective Capital Policies and Governance Framework

Governance and Effective Challenge

Sound corporate governance in support of ICAAP establishes independence between risk taking and risk oversight and reporting functions, and fosters a culture supporting this bifurcation. Leading institutions demonstrated business line risk management activities overseen by an independent enterprise function with sufficient skills and stature to understand and challenge the processes, analysis, and interpretation of capital analysis results. This risk oversight function's stature was sufficient to compel a conservative representation of business line risk in capital analysis and report matters of difference with respect to capital adequacy directly to board level attention.

Most credit unions have not instituted a truly independent risk oversight function within the organizational staffing chart, but have instead attempted to foster internal challenge and diversification of perspective regarding risk assessment by establishing independent committees at the management and board levels. Albeit not a leading practice, this was seen as an enhancement over assigning capital planning and analysis activities to the finance/treasury division. The added benefits of distributing board and management level responsibilities into various committees allows for bifurcation of responsibilities which lead to greater transparency and perspective relative to risks facing the institution, while also reducing strain on volunteer board members taxed with multiple responsibilities. Leading institutions clearly modified existing corporate governance arrangements to incorporate new processes and organizational positions for the governance, execution, reporting and review of capital analysis results.

Sound capital policies are a key element to effective corporate governance over the credit union's ICAAP. Stronger practices formulated distinct policies that addressed the key elements of the credit union's capital planning process, and defined the roles and responsibilities for capital governance decisions. Additionally, stated capital targets were clear and specific, and a risk awareness culture was evident in all aspects of governing policies and practices associated with the capital analysis. Capital contingency actions were also observed as both credible and actionable.

Governing Framework Over Risk Management and Capital Planning and Analysis

Review and assessment of 2017 capital plan submissions indicated no demonstrable year-over-year improvement for covered credit unions in defining the governing



framework over capital planning and analysis practices. An observed leading practice identified in prior years' assessment of covered credit union capital planning practices included the adoption of a corporate governance framework that allowed for formalized and defined segregation of senior management responsibilities for risk assessment and oversight from those responsible for risk taking activities. Credit unions that instituted clear lines of authority between risk taking and risk oversight are more transparent in their communication of material risks, demonstrate effective challenge of capital analysis, and exhibit stronger alignment of capital goals with stated risk tolerance levels. Credit unions following lagging practices do not effectively align corporate governance structures in a manner that allows for necessary independence of oversight, and perspective, relative to risk management activities essential to supporting sound capital planning.³

Capital Analysis Roles

Review of credit union capital planning activities indicate that the tactical job of capital analysis remained primarily a function of the finance department, with a corresponding committee structure reviewing the finance function's capital planning and analysis activities. Review and approval at the board and management committee levels does provide some degree of effective challenge to the line of business production of capital analysis; however, leading observed practices included independent risk management functions overseeing risk assessment through effective model risk management practices, and conducting independent risk analysis to challenge the business line results and assessment. Where organizational responsibilities within the capital planning and analysis process were more clearly segregated in both form and function, the more clearly alternative perspectives on risk and capital adequacy were efficiently and effectively brought to the board and senior management to inform ongoing risk and strategic management decision making.

The observed leading practice is to identify the governance and controls specific to capital analysis, and to transparently identify challenge functions and points of effective challenge. This practice was further improved when risk takers were identified and shown to be independent of those preparing capital analysis. Where covered credit unions had well established and resourced enterprise risk management functions the

³ Covered credit unions should have mature, or maturing enterprise level risk management functions that possess the appropriate resources and independence to oversee organizational wide risk assessment, control, and reporting activities. These activities would include, but not be limited to, robust data governance and model risk management functions, as well as a centralized approach to both financial and operational risk assessment, categorization, and aggregation. Risk management activities essential to supporting sound capital analysis are described in additional detail in the Enterprise Risk Management Fundamentals section of this document.



strength of review and challenge of capital analysis activities was increasingly transparent and likely more useful to the board of directors.

Additionally, leading practices provide well documented process flow and organizational charts. These charts clearly identify specific responsibilities over the risk assessment, measurement, internal control, and forecasting aspects of ICAAP. Additionally, challenge points are clearly identified in the process.

As noted in the introduction section of this paper, ONES will continue to align the review and assessment of capital planning and analysis activities with the broader supervisory assessment and ratings of the covered credit unions. Accordingly, expectations relative to the involvement and independence of enterprise level risk management functions supporting and challenging capital planning and analysis activities conducted by other business units within the institution will be increasingly evaluated as factors when assigning supervisory risk and CAMEL ratings.

Capital analysis, enterprise level risk management activities, and corporate governance will be elevated aspects of supervisory attention for all covered institutions as part of both review of submitted plans, the supervisory examination process, and the assignment of Risk and CAMEL ratings.

Capital Policy – Goals and Limits

Assessment of 2017 capital plan submissions indicated that covered credit unions continue to use “reactive” approaches to capital adequacy analysis. Static capital goals or limits are established, scenario analysis is conducted, and the residual remaining capital is compared to the static goals and limits. In some cases, capital limits were expressed in a graduated way to denote the corresponding level of concern and actions that would occur as risk to capital is elevated. These graduated limits with escalation triggers are considered an incremental improvement over capital analysis focused on compliance with a singular breach limit relative to various static net worth ratio goals.

Weaker practices in this area included establishing limits based primarily on regulatory capital minimums or without consideration of the credit union’s capital needs as implied by its risk profile, business strategy, stress test analysis and/or sensitivity to changing market conditions.

Proactive approaches assess capital adequacy with respect to material risks, assess capital adequacy with respect to current aggregate risk exposure, and better attribute capital at risk to both individual material risks and stated board risk appetites relative to these material risks.

Some credit unions established capital limits or targets based on the scenario being tested. For example, a capital limit is established for a baseline scenario and a lower limit is set for adverse scenarios. This practice does not set a clear capital adequacy



standard for the credit union and is not consistent with establishing capital contingency triggers.

Credit unions, in general, have not implemented a “proactive” approach to capital analysis. Proactive approaches assess capital adequacy with respect to material risks, assess capital adequacy with respect to current aggregate risk exposure, and better attribute capital at risk to both individual material risks and stated board risk appetites relative to these material risks.

Capital Policy – Capital Contingency Plans

A capital policy should describe the credit union’s capital adequacy decision-making process, which includes the process for invoking capital contingency plans when established goals and targets are at risk of being breached. The policy, and capital plan, should incorporate actionable protocols, including governance and escalation, in the event a post-stress capital goal, real-time targeted capital level, or other early warning metric is breached.

The range of contingency plans proposed by credit unions to deal with shortfalls in their capital continues to improve. Strong contingency plans demonstrate that a credit union has considered a slate of actions to bolster capital under stress, and also assess the efficacy of these actions under various conditions. Unlike business plans, sound capital plans acknowledge that severely unfavorable events can occur and may erode capital or disrupt markets which materially threaten the credit union financial health. As a leading practice NCUA observed credit unions adopting contingency plans that provided:

- An extensive series of actions to be considered;
- Provided context of feasibility;
- Spoke to the timing and impact to capital of each action; and
- Each action was tied to triggers rendered in policy.

An additional leading practice is to incorporate the capital contingency plan under an unfavorable scenario and present contingency actions taken and present the potential results on capital.

Lagging practices ignored breaches of capital policy limits within scenario analysis. We observed some instances where breaches did not lead to the development, discussion and execution of capital contingency actions. This was considered a significant weakness in overall board and management governance as well as policy effectiveness which will be an elevated areas of focus during future supervisory assessments of governance over capital planning activities.



Capital limits and contingency plans should be set based upon the observations gleaned in the risk assessment and capital planning processes themselves. Further, the scenario development and analysis process utilized in the capital planning process itself should not be looked at as a “desktop exercise”. Capital limits and scenario design should be approached with clear alignment with the boards’ strategic objectives, and, where capital inadequacy is identified in the scenario analysis, immediate and appropriate capital or de-risking decisions should be made and documented in the capital plan and/or supporting documentation.

Capital limits and scenario design should be approached with clear alignment with the boards’ strategic objectives, and where capital inadequacy is identified in the scenario analysis, immediate and appropriate capital or de-risking decisions should be made and documented in the capital plan and/or supporting documentation.

Internal Audit and Capital Planning Controls

Third year capital plan submissions demonstrated that capital planning activities have been incorporated into all six covered credit unions’ internal auditing plans, although the approaches to planning and conducting activities continues to vary. In all cases auditing procedures continue to apply a heavy focus on regulatory compliance with both NCUA Rules and Regulations and supervisory guidance issued in September of 2014.

Reviews of future audits work will focus on the manner in which credit union audit departments evaluate material aspects of the capital planning and analysis process.

Leading practices included expanding audit scope and review procedures to evaluate specific governance, risk management, internal control and modeling processes that support the credit union’s capital analysis. While “periodic” full “end to end” audits of each credit union’s full range of capital planning practices are an expectation set forth in NCUA’s September 2014 supervisory guidance, a leading practice is for a risk-focused process with specific audit procedures to be applied annually as various aspects of each credit unions’ capital planning programs are implemented and mature. The majority of auditing activity observed for 2016/17 capital planning activities are now completed by in-house internal auditing staff. In some cases audit activities over capital planning are co-sourced with outside auditing professionals where internal audit resources

needed guidance to develop and assess audit plans involving higher level risk management and analysis concepts. Leading practices included credit unions bolstering their audit team through direct hires or contracting with subject matter expertise in various risk management related functions supporting the capital analysis.



Weaker auditing practices continue to focus heavily on compliance with regulatory requirements. Similarly, weaknesses are noted where auditing plans and procedures lack depth of review regarding the effectiveness of the policies, processes and internal controls in place over capital analysis and those processes supporting capital analysis. Moving forward NCUA will continue to focus on credit union audit plans for scoping and assessing material aspects of the capital planning and analysis process, and the depth and effectiveness of audits completed.



Enterprise Risk Management Fundamentals

Risk Culture

Supporting, sustaining and leveraging a strong risk culture at all levels of the organization is essential to supporting and executing sound capital planning and analysis. Leading risk cultures support independent risk oversight as an enterprise function with stature equal to both the lines of business and internal audit. These cultures do a better job applying effective challenge to incorporate conservatism into capital analysis and produce a more well-rounded view of the company's capital adequacy. Lagging risk cultures do not support strong and independent risk oversight and use a system of committees in a perfunctory attempt at effective challenge, and produce capital analysis results that are heavily weighted toward representation of the line of business and financial reporting views of risk.

Risk Identification and Assessment

In order to effectively assess capital adequacy, a covered credit union must first have a sound process in place to effectively identify and assess material risks in its balance sheet and business practices. To this end, several credit unions have implemented risk assessment processes as part of their risk oversight programs. Leading risk assessment processes provide meaningful analytical input and context to the capital adequacy assessment process. These processes leverage an enterprise risk register, and identify where within the line's business activities these risks are taken. The processes review and opine on the evaluation of inherent risk, risk management, and residual risk determinations. Lagging risk assessment practices apply a compliance review to risk controls. At best, such processes determine if policies and procedures are being followed, but provide little useful information regarding the credit union's risk with respect to capital adequacy.

Model Risk Management

Model risk management practices supporting capital analysis continue to evolve at covered credit unions. A leading practice is for this enterprise function to be owned and operated by an independent risk management function. In most cases the evolution of model risk management has been limited to models utilized in the capital analysis process and have not expanded the function to include all models in use at the credit union. Most credit unions cite this as a future area of improvement in their capital plan.

At most covered credit unions, model risk management activities are conducted within the finance function with some oversight by a management level committee. This



practice can present conflicts depending on credit union implementation. For example, the model owner and model users are often involved in the execution or engagement of validation of models used in capital analysis. If these validations are used as part of the risk oversight model risk management process, this is a conflict that must be mitigated. Several credit unions use a committee to review validation results, others partner with an external risk oversight resource with the users and owners. These practices should be considered transitional and the credit union should evolve toward a sounder model risk management program. In most cases, model developers, owners and users seem to have significant influence in decision making with respect to model risk management and validation activities. This is a lagging practice which would require a higher degree of review and oversight by both the covered credit unions' boards and the NCUA.

Well thought-out model risk management at credit unions ensures that risks represented in capital analysis are consistent with the risk within the credit union's book of business and the credit union's strategic direction. These MRM programs include:

- Model risk management policies and standards;
- Model documentation that describes processes as such model development, model risk rating, model validation, and ongoing model monitoring and model change control;
- Standard reporting on model inventory, model revisions, model risk ratings, model validation schedules, model performance tracking, model issues and remediation status;
- Model risk management staff with appropriate experience and resources commensurate with the complexity and materiality of the asset types and business lines; and,
- Requirements to ensure models undergo a conceptual review and are validated for all intended purposes.

Assessing the rationale and conservatism of management overlays fall under the scope of model risk management. Model overlays may be necessary for sound capital analysis. It is a sound practice to use model overlays to compensate for insufficient data, methodology weaknesses, or other matters that call for a degree of conservatism. Leading practices include a thorough explanation of the reason for the overlay, description of the overlay used, and additional sensitivity and outcomes analysis clearly comparing the overall results of the analysis both pre- and post-overlay application.

Specific lagging practices observed in model risk management and validation activities were noted where evaluation of model's conceptual soundness omitted the impact that management actions had on historical asset performance. Additionally, most credit unions demonstrated lagging practices by not having sufficient skill within the in-house model risk management function to effectively challenge vendor model methodologies, documentation, and third party validation engagements.



Risk Data

The discipline of sound capital adequacy assessments requires data aggregation and reporting that can produce timely and accurate positions and portfolio details observed during varying economic cycles, especially during times of stress. Risk data systems need to aggregate and report on credit, market, and some operational risks from both internal and external sources. Leading practices take a strategic approach to enterprise data and accommodate the unique needs of risk data. This strengthens the ability of credit union management and boards to make sound risk driven decisions.

All covered credit unions have begun, at a minimum, to develop policies, positions and workgroups focused on enhancing data governance activities as part of their capital planning and stress testing buildouts. This is a topic of increasing importance and will be more thoroughly considered in future capital plan and supervisory review.

Operational Risk

Capital exposure to operational and other “non-financial” risks has proven difficult to assess and quantify. Techniques used by credit unions ranged from the use of overlapping qualitative assessments, and the use of Basel II approaches, to designing scenarios with operational risk components and adding an operational risk charge, or performing standalone analysis of potential exposures arising from non-financial and operational risks. Lagging practices omitted depth of discussion or analysis on operational risks, impressing that little effort was taken to include them in the in capital adequacy analysis.

Integration with Strategic Business Planning and Operations

A credit union’s capital adequacy assessment process should not be conducted nor should its results be kept in isolation from, the company’s strategic planning and other enterprise endeavors. Integration of key strategic initiatives planned by the credit union’s board is crucial to ongoing capital analysis in informing key business and risk management decisions.

Capital plan submissions show evolving practices in this area. In most cases, baseline capital analysis uses the same modeling platforms, balance sheet growth assumptions and pricing forecasts as those used in the credit unions’ strategic planning and budgeting endeavors. Leading practices in capital planning include a detailed synopsis of planned strategic endeavors and transparent discussion as to how the anticipated

Integration of key strategic initiatives planned by the credit unions board of directors is crucial to the effectiveness of ongoing capital analysis in informing key business and risk management decisions.



risks, costs, and planned benefits of these endeavors would be encapsulated in the various scenario analysis presented in the plan.

In most capital plans, it is not clear how capital adequacy analysis was used to inform strategic planning, and board policy outside of scenario testing. As noted previously, in some cases, the planning and analysis seemed to be treated more as a desk top exercise completely separate and distinct of the credit unions strategic planning and decision making. Moving forward, more transparent analysis and discussion as to how capital planning and analysis is integrated and informs ongoing strategic planning, board policy, and business operations will be an area of focus during NCUA's review of credit union capital planning activities.



Capital Analysis

Review and assessment of the capital analysis conducted became one of NCUA's primary areas of focus during this year capital plan review cycle. We found credit unions had displayed a wide range of practices in many of aspects of capital analysis such as scenario design, origination balance forecast, PPNR⁴ modeling, and provision expense modeling.

Scenario Design

When using scenario testing to analyze capital under unfavorable conditions, the choice and design of the scenarios is a critical activity. At a high level, scenarios should be a byproduct of identifying and assessing material risks to capital. Scenario design should leverage risk assessments and target vulnerabilities that are unique to the credit union's balance sheet and business model and consider potential adverse events for the asset or liability class beyond the credit union's own experience. Scenarios should be designed with conservatism in mind, and be specifically relevant to the credit union's size, complexity, risk profile and business practices. Lagging practices observed in scenario design were the use of NCUA's prescribed supervisory stress test scenarios or other "off the shelf" scenarios which may not have been sufficiently conservative and/or not necessarily reflected the credit union's idiosyncratic risk profile and/or business practices.

Scenario design should leverage risk assessments and target vulnerabilities that are unique to the credit union's balance sheet and business model and consider potential adverse events for the asset or liability class beyond the credit union's own experience

Modeling Practices

Various approaches were observed with respect to forecasting asset and share growth and origination. Leading practice for origination forecasts used relevant economic and business drivers to project future balances and ensure consistency across various scenarios. Where deemed necessary, some credit unions used conservative model overlays to account for large variances in modeled outcomes and historical trends or dynamics which were difficult to model such as historical changes in business strategy. The combined use of statistical models and well-supported and conservative model overlays provided more consistency, control, and auditability as opposed to relying solely on management judgment and extrapolating historical trends.

⁴ Pre-provision net revenue.



The combined use of statistical models and well-supported and conservative model overlays provided more consistency, control, and auditability as opposed to relying solely on management judgment and extrapolating

Similarly, the combined use of statistical models and well-supported and conservative model overlays used in forecasting major components of non-interest income and expense, was observed as leading practice over the use of management judgment or using constant forecasts across scenarios. The incorporation of the management judgment approach is further weakened whereas it was observed that more aggressive management actions were embedded within the analysis over the forecast horizon as opposed to analysis where the use of a statistical model served as the basis of the forecast.

NCUA understands that the development and implementation of statistical models can be a time and resource intensive process. That being the case a leading practice observed was to use explicit and well-supported materiality thresholds to determine whether a statistical model is required for a balance sheet or an income statement line item. By instituting a reasonable materiality threshold time and resources can be used more efficiently while still ensuring a conservative, well supported and consistent approach to balance forecasting.

Leading practices for modeling PPNR and provision expense include explicit forecasts for loans entering into non-accrual status and the joint modeling of prepayment and default. The direct modeling of non-accrual loans increases transparency of asset quality changes and permits a direct means to calculate lost interest income. This practice is performed by modeling non-accrual entrants as a stand-alone item, or as a distinct state in a credit transition matrix. An additional leading practice observed was the joint modeling of prepayments and default in a single model. This provided for greater consistency in the response of material asset classes to economic factors.

Lagging PPNR and provision modeling practices do not properly depict the cost of certain management actions utilized to improve credit performance and reduce losses. As an example, within the historical data set charge-off rates are favorably impacted by loan modification activities. When these data sets are used to develop loss forecasting models for capital plan and stress testing purposes, the cost of these modifications both operationally and in terms of provisioning often times is not appropriately assessed and included. The absence of proper accounting for these costs results in a less conservative understanding of the degree of credit risk inherent within the institutions existing portfolios and origination practices. The direct modeling of charge-off on material asset



types instead of using a more granular approach such as a PD/LGD⁵ framework is observed as a lagging practice.

Finally, a subset of credit unions have started contemplating the potential impact that transitioning to CECL⁶ would have on provision expense in capital planning and stress testing, NCUA consider this a forward looking and leading practice.

Sensitivity Analysis

The techniques used by credit unions to assess sensitivity of variables in their analysis varied considerably. Some credit unions sought to focus on key variables, and increased these in structured ways focusing separately on credit risk variables and interest rate risk variables. In the case of credit risk, changes in charge-off losses and recoveries were adjusted directly, or were attributed based on macro-economic variables such as unemployment or the home price index. Interest rate risk variables were either attributed directly in terms of increased deposit rate sensitivity, or were attributed to shifts in deposit mix. Some credit unions analyzed the impact of sensitivity from changes in multiple variables. These included growth assumptions, changes in probabilities of default, yield curve changes, interest rate shocks, and changes in asset maturities or prepayments.

NCUA recognizes that many different factors may affect each credit union's results, and encourages credit unions to assess, identify, and prioritize the set of variables to which credit union performance is most sensitive and capital may be most at risk. Understanding and documenting a range of potential outcomes provides insight into the inherent uncertainty and imprecision around pro forma results. It is a sound practice to assess the sensitivity of estimates (such as capital ratios, losses, revenues, and assets and liabilities) to key assumptions and uncertainty across the entire credit union's projections under stress. This allows a range of potential outcomes to be assessed for each scenario given the uncertainty associated with assumptions and inputs. This use of sensitivity analysis enables a more complete capital adequacy assessment, especially when applied to all unfavorable scenarios.

A credit union should also evaluate the sensitivity of material models to key assumptions to evaluate model performance, assess the appropriateness of assumptions, and understand uncertainty associated with model output.

A credit union should ensure that the key sensitivities are presented to senior management and the board in advance of decision-making around the credit union's

⁵ Probability of Default/Loss Given Default.

⁶ Current Expected Credit Loss [model].



capital plan and capital actions. Sensitivity analysis should also be used to inform senior management, and, as appropriate, the board of directors about the potential uncertainty associated with models employed of the credit union's projections under stress.

Reverse Stress Testing

The purpose of reverse stress testing is for management and the board to explore the magnitude of shock necessary to breach the credit union's capital limits. The magnitude of shock should be considered with respect to the credit union's weaknesses and threats and consider the sufficiency of capital contingency actions during time of extreme stress. A majority of the credit unions appeared to approach reverse stress testing as an anecdotal exercise by layering loss events onto adverse scenarios.

While anecdotes help executives and directors conceptualize reverse stress testing, the story should make clear and concise links to the credit union's material risks, the amount of exposure necessary to breach limits, and how the material exposures may be related to each other during periods of stress. This story must reasonably depict the magnitude of risk exposure, and an understanding of how risk exposure relationships with each other, that can cause capital depletion that breaches board predefined levels.



Conclusion

NCUA sees capital planning as a prudent practice for covered credit unions. The evaluation of capital at risk is a rigorous and substantive expectation. Through the rule and the companion guidance, NCUA set increased expectations for covered credit unions to elevate the assessment of capital risk to an enterprise-wide level. As they gain more experience with the application of contemporary capital planning practices, NCUA will continue to communicate with credit unions to promote the evolution of the capital planning process.
