Office of Examination and Insurance

Share Insurance Fund Equity Ratio and Premium Projections

November 17, 2016

NCUA Board Briefing

Equity Ratio Components

Equity Ratio =

Retained Earnings are driven by:
Income (Yield on Investments)
Operating Expenses
Insurance Loss Expense
($2.8 B)

+

Contributed Capital = 1% of Insured Shares
($10 B)

Insured share growth drives ratio inversely:
Disproportionate increase in insured shares (compared to increase in retained earnings) decreases the equity ratio
($999.9 B)

Retained earnings as of August 2016.
Contributed capital based of 1 percent of June 30, 2016 Insured Shares.
Insured Shares as of June 30, 2016.

Equity Ratio Driver Sensitivities

To change the equity ratio by 1 basis point:

- **$100 million change in numerator (direct)**
- **$30 billion change in denominator (inverse)**

A one basis point decline in the Equity Ratio would be equal to:

- An increase of 3 percent in annual insured share growth. Average annual insured share growth averaged 4.93% in the past 5 years.
- A drop in portfolio yield of 83 basis points. The 10-year Treasury yield declined 169 basis points since June 2011.
- A $100 million increase in the annual expenses paid by the fund. The increase in the NCUA operating budget contributed an average over the past 5 years of $27 million annually in additional expenses charged to the NCUSIF.*

*The increase in the OTR contributed an average of $29 million to NCUSIF expense since the OTR regulatory mapping change in 2014. It is important to remember, a change in the OTR doesn't change the cost to the credit union system; it merely changes which credit unions pay for the cost (FCUs only through the operating fee or all FICUs through charges to the insurance fund).

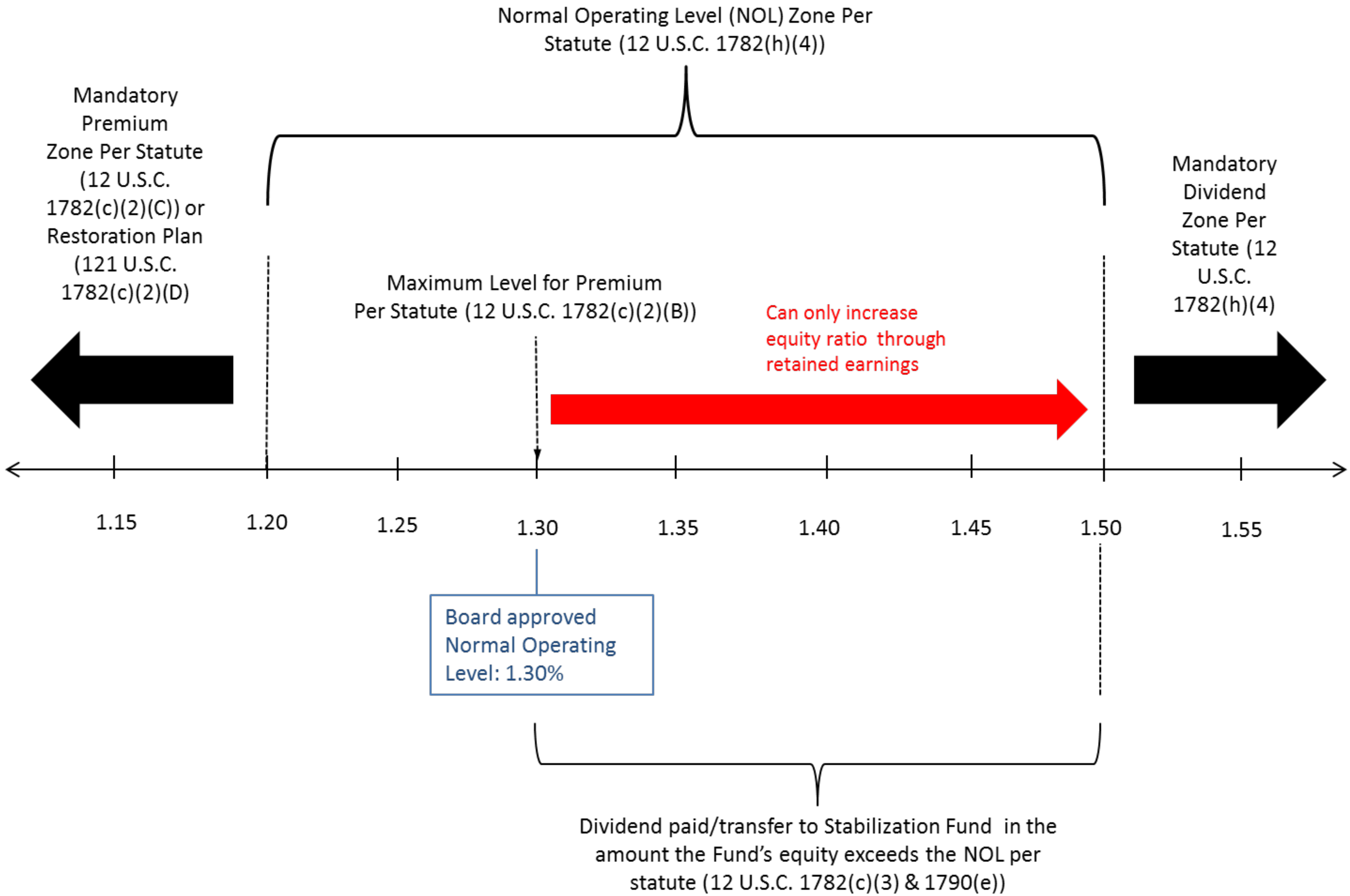
Insurance Loss Expense History

	Reserves Balance (millions)	Insurance Loss Expense (millions)	Equity Ratio
2008	$278.3	$290.4	1.26%
2009	$785.7	$625.1	1.23%*
2010	$1,225.3	$735.6	1.28%*
2011	$606.6	($532.4)	1.32%**
2012	$412.5	($77.8)	1.31%**
2013	$220.7	($48.6)	1.31%**
2014	$178.3	($41.8)	1.29%
2015	$164.9	($35.4)	1.29%
2016q2	$178.9	$11.2	1.27%

*NCUA charged premiums during these years.

**NCUA made transfers from SIF to the Stabilization Fund during these years.

NCUSIF Equity Ratio Statutory Parameters



FDIC Reserve Ratio

Min. DRR = 1.35%
(By 9/30/2020)

1.50%

Board established
DRR = 2.0%

*No cap on DRR

Must develop restoration plan if actual or 6-mo projection falls below 1.35% per statute (12 USC 1817(b)(3)(E))

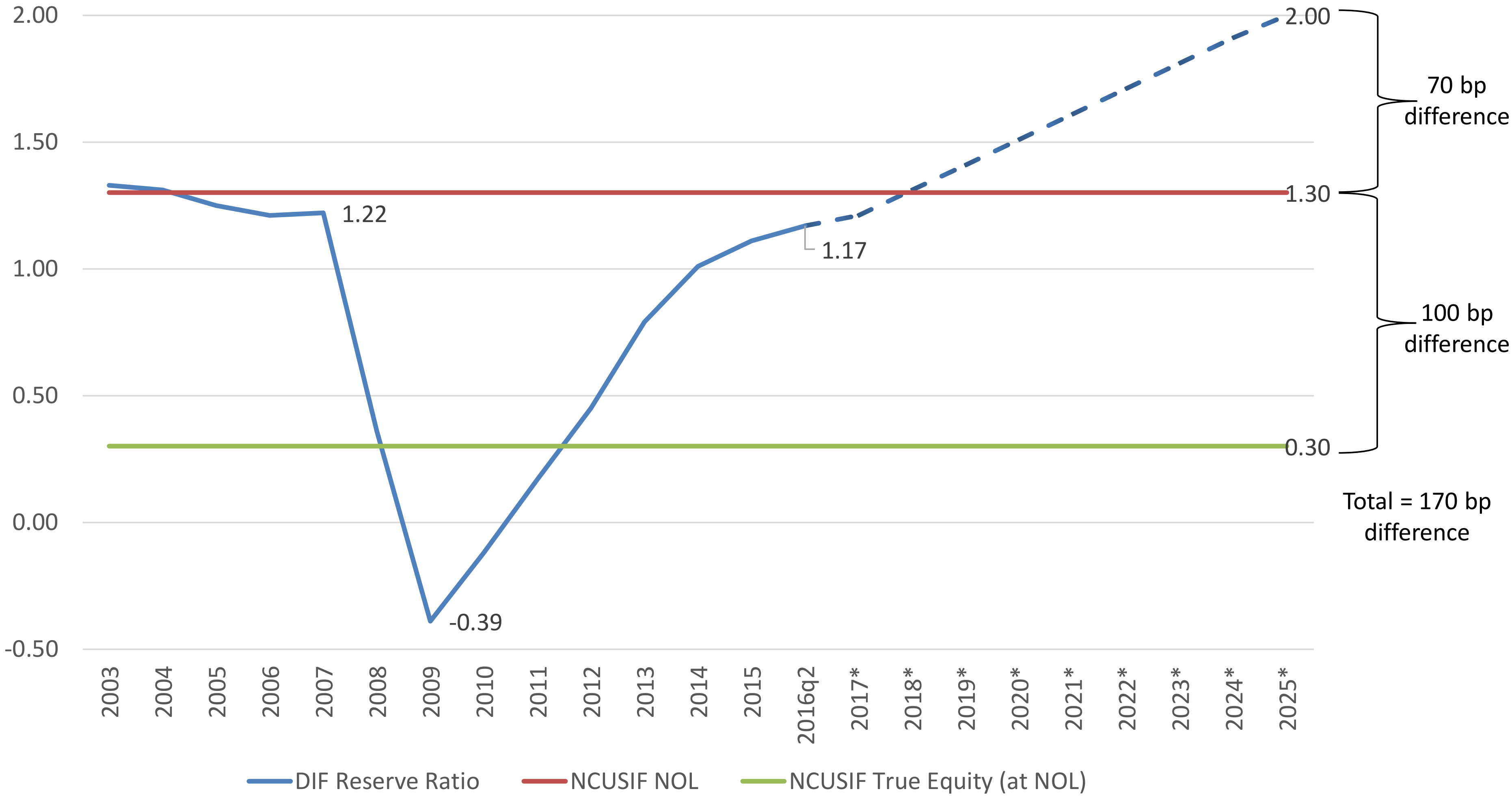
Pay dividend if DRR is greater than 1.50% per statute (12 USC 1817(e)(A)) **but** Board has discretion to limit or suspend dividend payments after notice and comment period (12 USC 1817(e)(B)&(C))

In December 2010, the FDIC Board voted to approved establishing the DRR at 2.00 percent.

The Dodd-Frank Act of 2010 resulted in the following changes to the Deposit Insurance Fund:

- Increased minimum DRR from 1.15% to 1.35%
- Removed upper limit on the DRR
- Added requirement for DRR to reach 1.35% by 09/30/2020
- Eliminated requirement to pay dividend if the fund is between 1.35% and 1.50%
- Allows Board to suspend or restrict dividend payments when DRR is greater than 1.50%

NCUSIF and DIF Target Reserve Comparison



*These dates represent the projected reserve ratio based on straight-line growth of 10 bps per year, which was the lowest annual increase in the reserve ratio over the last five years. While the FDIC has set a target reserve ratio of 2.00 percent, there is no pre-determined timeframe for when the DIF will reach this target level.

NCUSIF EQUITY RATIO MODELING

Key Drivers of the Equity Ratio

- **There are four key drivers of the equity ratio:**
  - Investment returns
  - Insurance losses
  - Insured share growth
  - Expense growth

NCUSIF Equity Ratio Projections

- **There are three approaches used for modeling the equity ratio**

Approach	Description
1. Standard Projection	Produces an expected range of outcomes using three scenarios: base, base-plus and base-minus. The results represent the most likely range of outcomes given current conditions and trends.
2. Board Policy Stressed Equity Ratio	Produces an analysis of the stress on the equity ratio based on defined model inputs.
3. Economic Stress Analysis	Stresses the equity ratio by running the credit union system through a simulation based on the Federal Reserve's latest stress test scenarios.

Equity Ratio Projection Objectives

Objectives	Projection Approach	Time Horizon
A. Comply with The Act (1782(c)(2)(D))	1. Standard Projection	6 months
B. Projection for Credit Union Budgeting	1. Standard Projection	12-18 months
C. Projection for Fund Management over Strategic Plan Time Horizon	1. Standard Projection	5 years
D. Comply with Board Policy and inform NOL decisions	2. Board Policy Stressed Equity Ratio	24 months
E. Stress NCUSIF to inform NOL decisions	3. Economic Stress Analysis	5 years

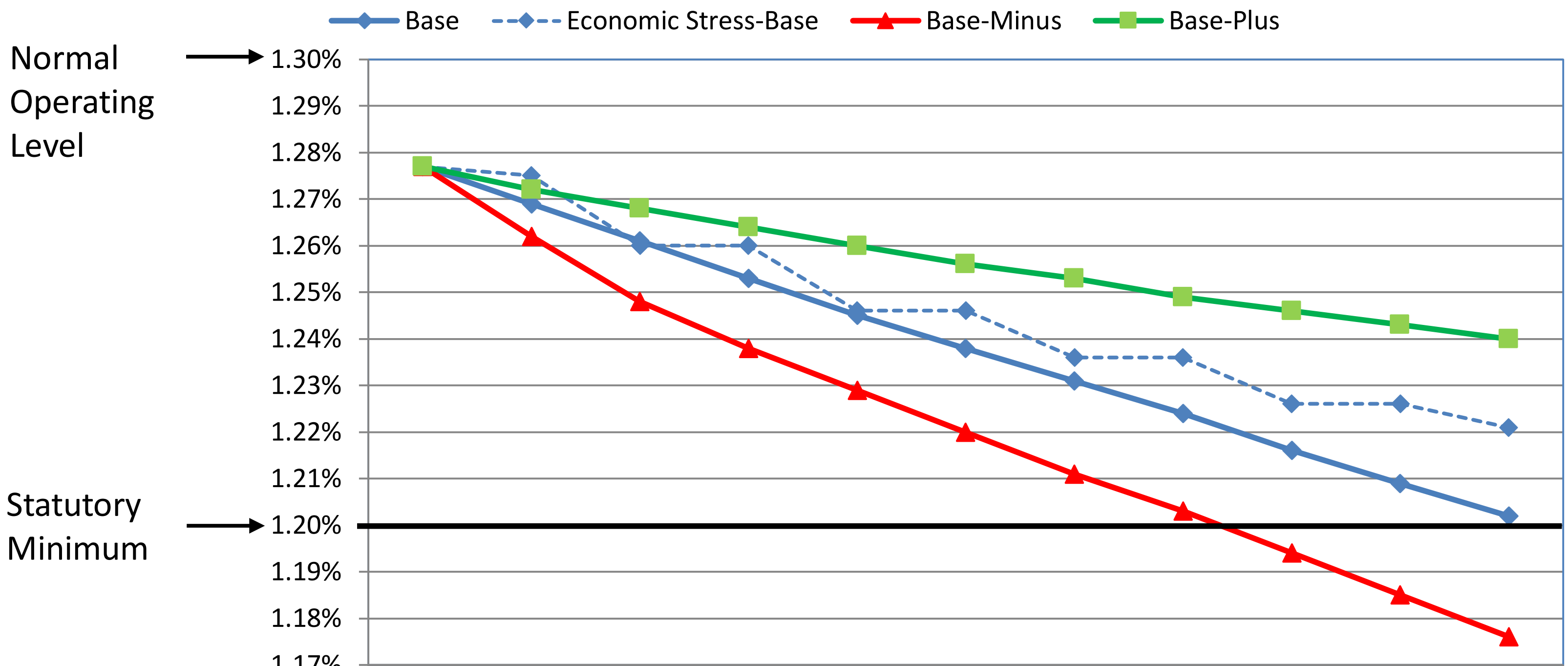
1. STANDARD PROJECTION

Standard Projection Inputs

	Input Summary			
1. Standard Projection (5-years)	**Drivers**	**Base**	**Base – Minus**	**Base - Plus**
	Investment Returns	Flat Rates (6/30/16 yields) for 5-years: **2-Yr. Yield: 0.58%** **10-Yr. Yield: 1.47%**	Rates decline from base for next 5-years: **2-Yr. Yield: 0.28%** **10-Yr. Yield: 0.97%**	Rates increase using the forward yield curve for the next 5 years. Rate increase to: **2-Yr. Yield: 2.01%** **10-Yr. Yield: 2.08%**
	Insurance Losses (Proxy for projected expense)	5-year average loss: **$62.8 million annually**	Highest annual loss in last 5 years and then 5-year avg.: **$155 million year 1, then $62.8 million**	Average of lowest 3-year losses in last 5-years: **$32.7 million annually**
	Insured Share Growth	Average insured share growth in last 3-years: **4.69% annually**	Base plus standard deviation: **6.33% annually**	Base minus standard deviation: **3.05% annually**
	Expense Growth (actual expense charged to the insurance fund)	Current budget growth: **4.1% annually**	Current budget growth + 2% (rounded): **6.0% annually**	Current budget growth - 2% (rounded): **2.0% annually**

5 - Year Equity Ratio Projections

Standard Projection Approach



	2016q2	6 month	12 month	18 month	24 month	30 month	36 month	42 month	48 month	54 month	60 month
Base	1.277%	1.269%	1.261%	1.253%	1.245%	1.238%	1.231%	1.224%	1.216%	1.209%	1.202%
Economic Stress-Base	1.277%	1.275%	1.260%	1.260%	1.246%	1.246%	1.236%	1.236%	1.226%	1.226%	1.221%
Base-Minus	1.277%	1.262%	1.248%	1.238%	1.229%	1.220%	1.211%	1.203%	1.194%	1.185%	1.176%
Base-Plus	1.277%	1.272%	1.268%	1.264%	1.260%	1.256%	1.253%	1.249%	1.246%	1.243%	1.240%

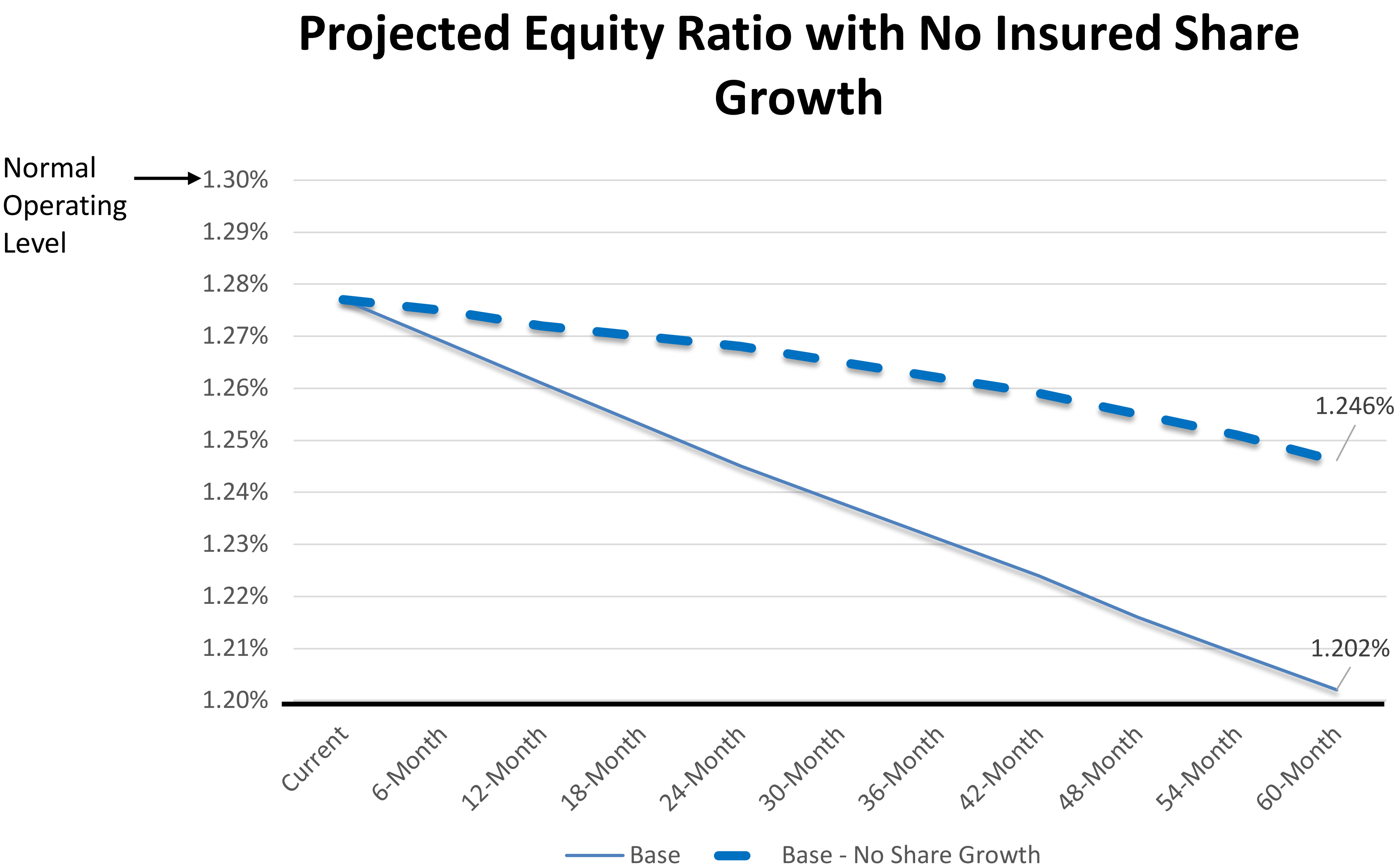
*Current data is March 2016 share data and June 2016 retained earnings data

Standard Projection Driver Breakeven

Key Drivers Needed to Maintain Current Equity Ratio (other variables kept constant)		
Driver	**Scenario**	**Output**
Investment Portfolio Yield*	Base	3.02%
	Base-Minus	3.47%
	Base-Plus	2.47%
Insured Share Growth	Base	-2.45%
	Base-Minus	-3.90%
	Base-Plus	-0.36%
Insurance Losses	Base	$116 million annual negative insurance expense
	Base-Minus	$178 million annual negative insurance expense
	Base-Plus	$50 million annual negative insurance expense
Operating Expenses	Base	Expenses charged to the fund equal $52 million
	Base-Minus	$18 million annual negative expense
	Base-Plus	Expenses charged to the fund equal $138 million

*The NCUSIF is yielding 1.82 percent as of June 30, 2016. The FDIC fund was yielding 0.94 percent as of March 31, 2016.

5 - Year Equity Ratio Projections



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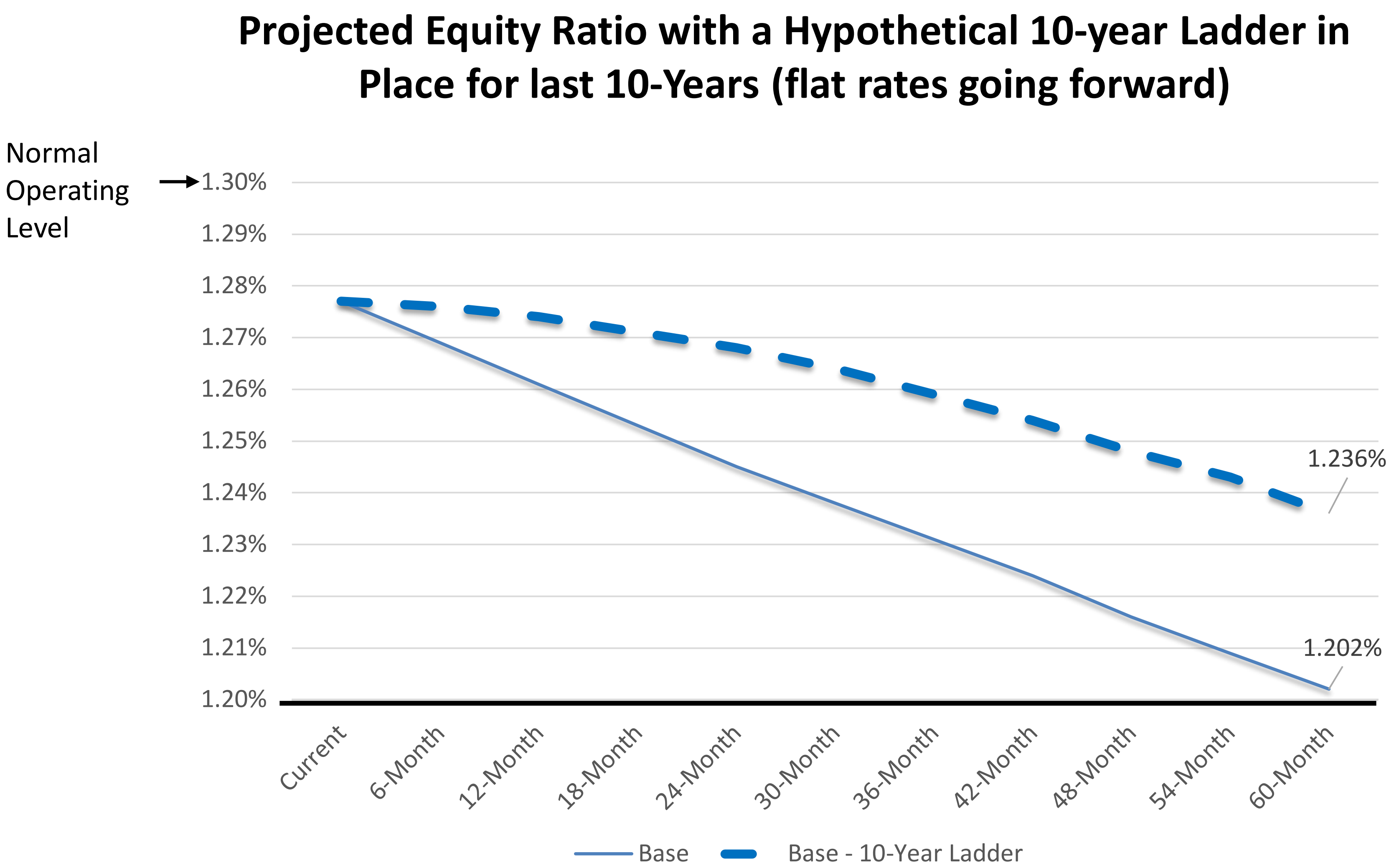
5 - Year Equity Ratio Projections



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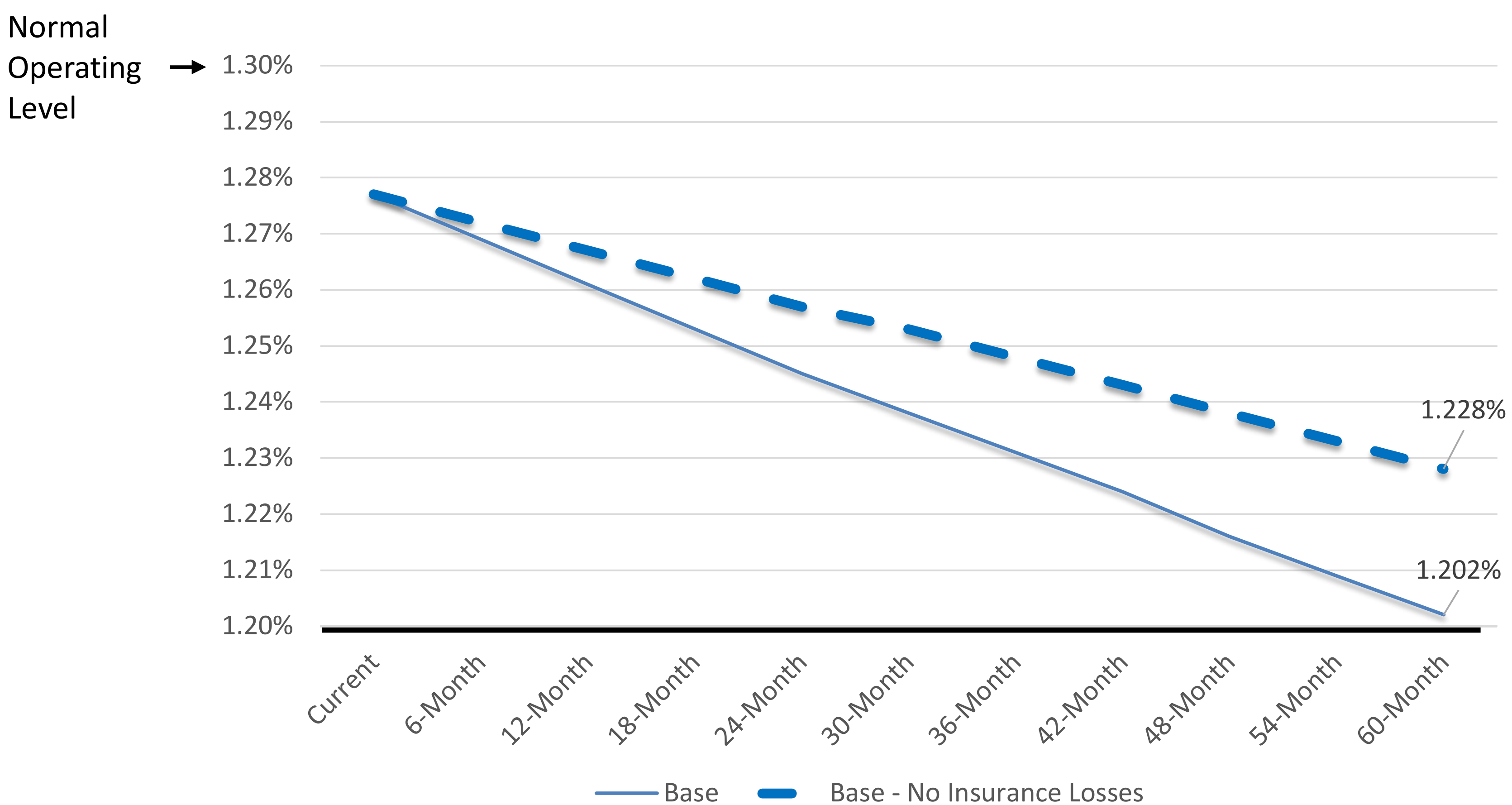
5 - Year Equity Ratio Projections

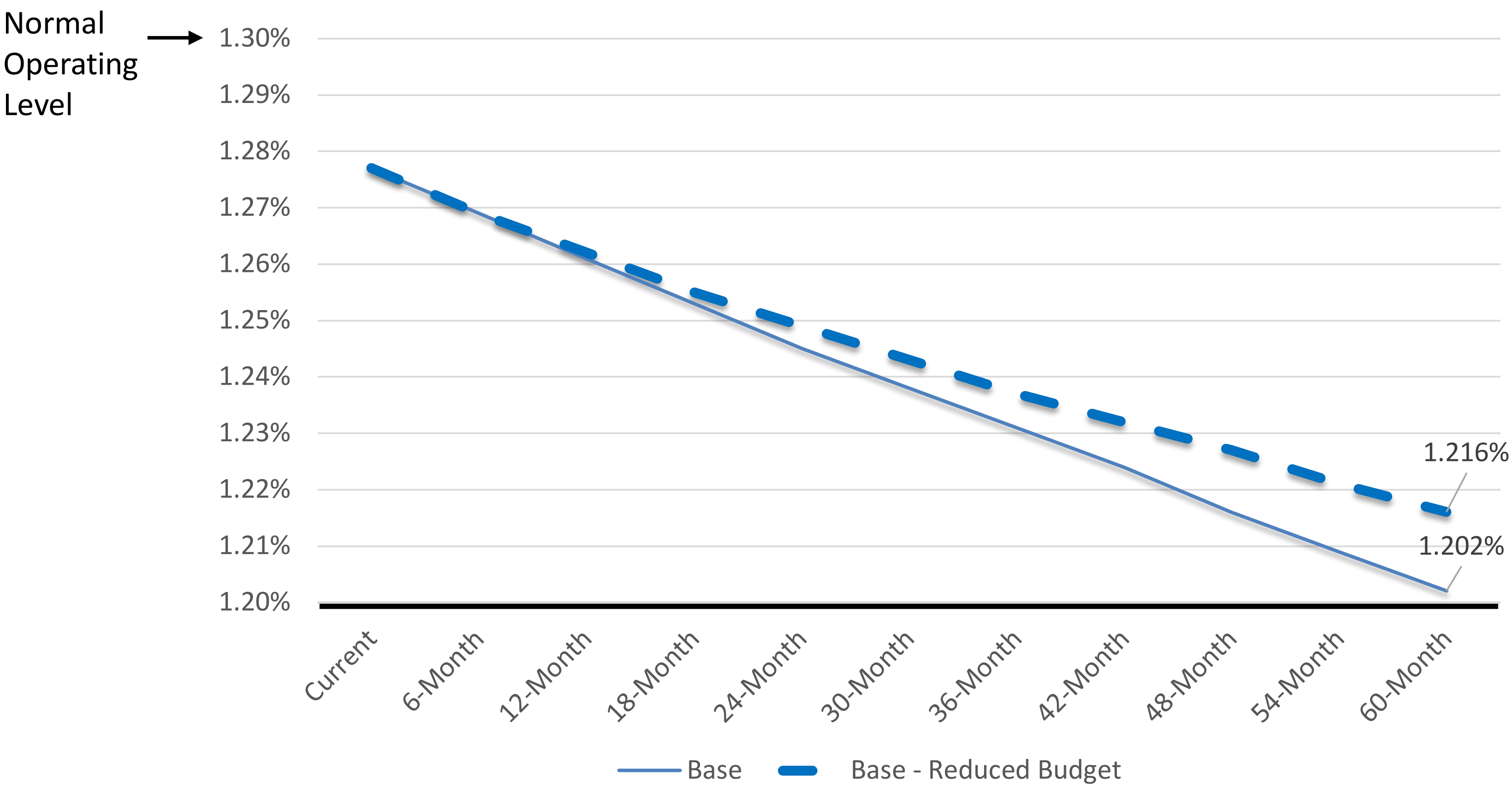
Projected Equity Ratio with No Insurance Losses



*Current data is March 2016 share data and June 2016 retained earnings data

5 - Year Equity Ratio Projections

Projected Equity Ratio with Year 1 Budget Decline of 6.5% and then No Budget Growth



*Current data is March 2016 share data and June 2016 retained earnings data

2. BOARD POLICY STRESSED EQUITY RATIO

Board Policy Projection Inputs

	Input Summary		
2. Board Policy Stressed Equity Ratio	**Driver**	**Description**	**Input**
	Insured Share Growth:	Highest insured share growth in last 10 years. Minimum of 5%.	8.81%
	Insurance Loss as a percentage of Equity:	Highest level of insurance losses in last 10 years as a percentage of fund's equity. Minimum of $100 million indexed to a measure of concentration risk.	2.98%
	Portfolio Yield:	A 300 basis point downward shock in interest rates applied to the NCUSIF investment portfolio with a floor of historical interest rates.	Year 1 - 1.78% and Year 2 - 1.75%
	Operating Expense Growth:	Highest level of growth in NCUSIF operating expenses in last 10 years. Minimum of 5%.	37.03% (17.04% in alternate scenario)

Stress Policy Outputs

	Designated Premium Point	Normal Operating Level
Board Policy (2 years)	1.30% *1.32% uncapped*	1.45% *1.48% uncapped*
Alternate Scenario* (2 years)	1.30% *1.32% uncapped*	1.45% *1.47% uncapped*
Economic Severe Stress Scenario (5 years)	N/A	1.44% (1.20% floor) 1.27% (1.00% floor)

*Alternate scenario reduced budget growth assumption to 17.04 percent from 37.04 percent. The 17.04 percent reflects the second-highest expense growth in last 10-years.

3. ECONOMIC STRESS ANALYSIS

Model Scenarios

	Input Summary
3. Economic Stress Analysis	Fed stress test scenarios provide an outlook from 2016 through 2018. From 2019 through 2025, we used the March Blue Chip long-term consensus forecasts (latest available). Assumed that all scenarios would gradually return to Blue Chip values for 2025 starting from their ending point in 2018.

- Added equations to standard projection model of the NCUSIF income and balance sheet to provide capacity for simulating how macroeconomic shocks impact NCUSIF solvency.

- Use the augmented framework with three scenarios based on the Federal Reserve's latest stress test scenarios.

Overview

- Scenarios span a wide variety of macroeconomic outcomes.

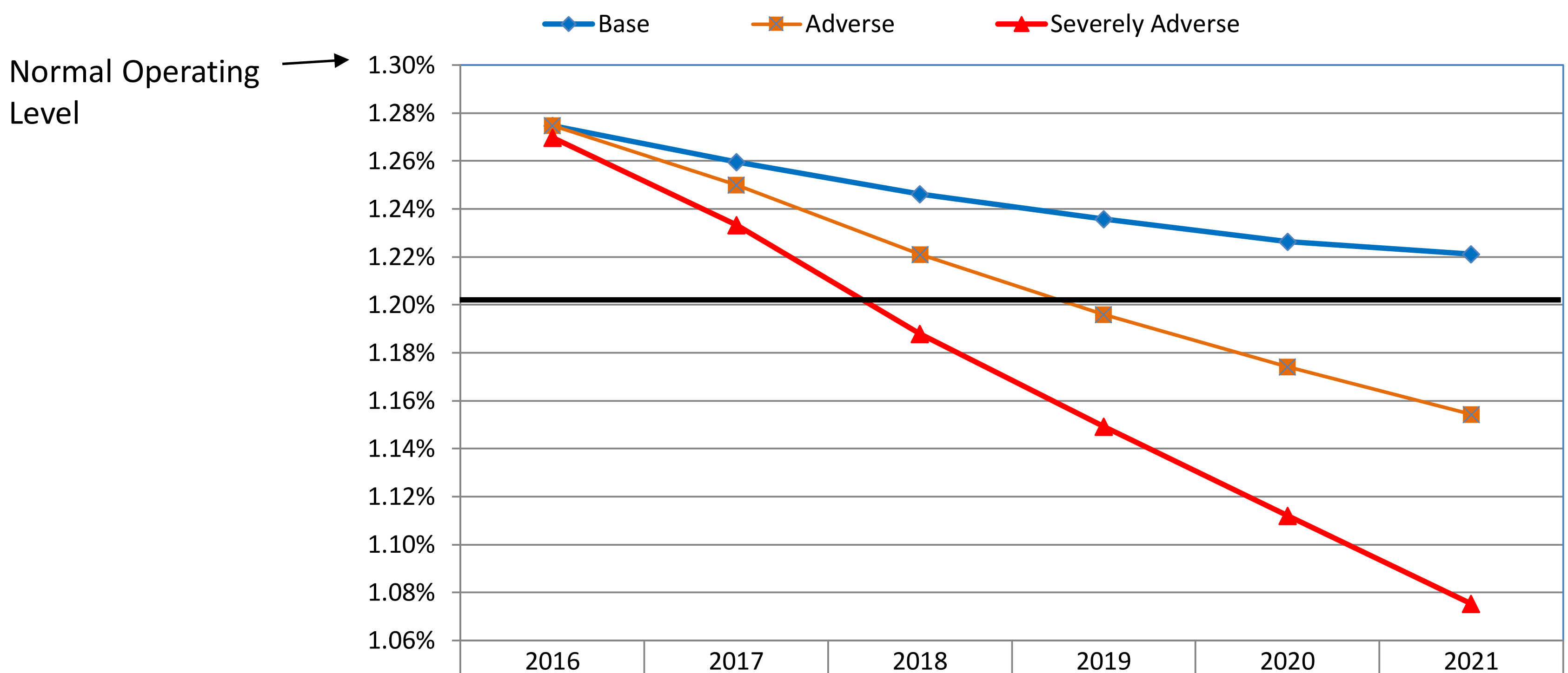
- Baseline Scenario: Low unemployment rate, rising interest rates, rising house prices, higher inflation rates.

- Adverse scenario: Moderate recession, unemployment rate rises, interest rates stay roughly flat, house prices flat, inflation little changed.

- Severely adverse scenario: Deep recession, unemployment rate spikes, interest rates fall (short rates are negative), house prices collapse, inflation down.

5 - Year Equity Ratio Projections

Economic Stress Analysis



	2016	2017	2018	2019	2020	2021
Base	1.275%	1.260%	1.246%	1.236%	1.226%	1.221%
Adverse	1.275%	1.250%	1.221%	1.196%	1.174%	1.154%
Severely Adverse	1.270%	1.233%	1.188%	1.149%	1.112%	1.075%

In the Base, equity ratio falls over several years; investment income falls behind combination of share growth, budget growth, and insurance losses. Ratio recovers as returns move higher. Equity ratio continues to move lower in both the Adverse and Severely Adverse scenarios.

2017 NCUSIF PREMIUM ANALYSIS

NCUSIF Premium Budget Guidance by Year

Year	Share Insurance Fund Premium		Normal Operating Level*	Year end Equity Ratio (Using a fully-funded 1% contributed capital deposit)
	Estimated	Actual		
2013	0 – 5 bps	0 bps	1.30%	1.30% (after transfer to the stabilization fund)
2014	0 – 5 bps	0 bps	1.30%	1.29%
2015	0 – 5 bps	0 bps	1.30%	1.29%
2016	0 – 6 bps	0 bps	1.30%	1.27% (as of Q3 2016)
2017 (projected)	3 – 6 bps	TBD**	1.30%	1.24% to 1.27% (before any premium)

*Approved by the NCUA Board at the December 13, 2007 Board Meeting.
**Any actual premium charged in 2017 would require future action by the NCUA Board prior to credit unions being billed.

Impact to Credit Unions

Premium	Amount Collected (Baseline)	Decline in Aggregate Net Worth Ratio	Decline in Aggregate Return on Average Assets	Additional Credit Unions with Negative Net Income after Premium
3 bps	$299.6 million	2 bps	3 bps	110
4 bps	$399.5 million	3 bps	3 bps	145
5 bps	$499.3 million	4 bps	4 bps	180
6 bps	$599.2 million	4 bps	5 bps	219

As of June 30, 2016:

- Aggregate Net Worth Ratio is 10.86%
- Aggregate ROAA is 0.78%

Questions?