FHLBBoston

# Federal Home Loan Bank of Boston
# 2014 Annual Stress Testing Disclosure

## *Results of the Federal Housing Finance Agency Supervisory Severely Adverse Scenario*

## July 17, 2014

## As Required by the Dodd-Frank Wall Street Reform and Consumer Protection Act

# Safe Harbor Statement Under the Private Securities Litigation Reform Act of 1995

This disclosure of the results of the Federal Home Loan Bank of Boston's 2014 Annual Stress Testing uses forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995 and are based on the Bank's expectations as of the date hereof. For example, the scenario, its results, and inputs into the scenario, including statements about possible future Bank actions, including declarations of dividends and future excess stock repurchases, and projections for advances balances and investments, among others, are forward-looking statements. The results, as disclosed here or elsewhere, should not be viewed as forecasts of expected or likely outcomes of future results or Bank actions. Accordingly, the Bank cautions that actual results could differ materially from those expressed or implied in these forward-looking statements or could impact the extent to which a particular projection, estimate or prediction is realized. You should not to place undue reliance on such statements. The Bank does not undertake to update any forward-looking statement herein or that may be made from time to time on behalf of the Bank.

# Executive Summary

## Stress Test Overview

- The Dodd-Frank Wall Street Reform and Consumer Protection Act requires certain financial companies with total consolidated assets of more than $10 billion, that are regulated by a primary Federal financial regulatory agency, to conduct annual stress tests to determine whether the companies have the capital necessary to absorb losses under adverse economic conditions.

- In September 2013, the Federal Housing Finance Agency, regulator of the Federal Home Loan Banks, implemented annual stress testing rules for the FHLBanks as required by the Dodd-Frank Act. In accordance with these rules, the Federal Home Loan Bank of Boston is publicly disclosing the results of its stress testing in this document. This is the first such annual disclosure.

- The severely adverse scenario incorporates inputs and key modeling assumptions provided by the FHFA, along with management assumptions.

- Results are projected over the nine-quarter period from the fourth quarter of 2013 to the fourth quarter of 2015, starting with actual balances as of September 30, 2013.

- The stress test results under the FHFA severely adverse scenario, as disclosed in this document or otherwise, should not be viewed as forecasts of expected or likely outcomes of future results. Rather, these modeled projections are based solely on the FHFA's severely adverse scenario and other specific required assumptions.

- The Bank's financial information, prepared under accounting principles generally accepted in the United States of America, is available in reports filed with the Securities and Exchange Commission, including the Bank's Annual Report on Form 10-K for the year ended December 31, 2013.

# Executive Summary (cont.)

## Stress Test Results

- Our stress test results demonstrate capital adequacy under the FHFA's severely adverse economic conditions as of December 31, 2015, and the Bank remains in compliance with all regulatory capital requirements under the severely adverse scenario throughout all nine quarters covered by the stress test.
  - The Bank's regulatory capital ratio (which is permanent capital divided by total assets) at December 31, 2015, is 6.62 percent, exceeding the minimum requirement of 4.00 percent.
  - The Bank's regulatory leverage capital ratio (which is permanent capital multiplied by 1.5 divided by total assets) at December 31, 2015, is 9.93 percent, exceeding the minimum requirement of 5.00 percent.
  - Total GAAP capital at December 31, 2015, is $1.57 billion.
  - Included within the severely adverse scenario results are the continuing payment of dividends and repurchases of excess capital stock during the nine quarter period, consistent with our current business plan. These capital actions are unrelated to the severely adverse modeling assumptions specified by the FHFA. Payments of dividends and repurchases of excess capital stock represent a decline of regulatory capital totaling $1.7 billion over the nine quarter period.

## Stress Test Use/Governance

- Stress testing has evolved as an important analytical tool for evaluating capital adequacy under adverse economic conditions. The Bank regularly uses such stress tests, including those annual stress tests required by the Dodd-Frank Act, in its capital planning to measure exposure to material risks and evaluate the adequacy of capital resources available to absorb potential losses arising from those risks.
- We take the stress test results into account when making changes to our capital structure; when assessing our exposures, concentrations, and risk positions; and in improving our overall risk management.

# Stress Test Components

| | |
|---|---|
| Net Interest Income + Other Non-interest Income | Net interest income, operating expenses, and other non-interest income (expense). |
| (Provision) Benefit for Credit Losses on Mortgage Loans | Provision for credit losses related to mortgage loans held for portfolio. |
| OTTI Credit Losses | Other-than-temporary impairment credit losses for held-to-maturity investment securities. |
| Mark-to-Market Gains (Losses) | Mark-to-market gains (losses) related to changes in fair value of derivatives, trading securities, and other gains (losses) on assets held at fair value. |
| Global Market Shock Impact on Fair Value Assets | Instantaneous global shocks of interest rates, volatility, and agency Mortgage-backed securities option-adjusted spreads. Also includes prices for non-agency MBS applied to trading securities and available-for-sale securities, and applied to those held-to-maturity securities that are deemed to have OTTI losses in the stress test scenario. |

# Severely Adverse Scenario Results

| Cumulative Projected Financial Metrics<br>Over the nine quarter period from Q4-2013 to Q4-2015<br>($ amounts in thousands) | | |
|---|---|---|
| 1 | Net interest income plus other non-interest income and expense | $132,818 |
| 2 | Provision for credit losses on mortgage loans | (4,351) |
| 3 | OTTI credit losses on held-to-maturity securities | (133,040) |
| 4 | Mark-to-market gains (losses) [1] | (6,364) |
| | | |
| 5 | Global market shock impact [2] | $(323,721) |
| | | |
| 6 | Net Income (loss) before assessments [3] | $(10,937) |
| | | |
| 7 | Total GAAP Capital – starting (9/30/2013) | $2,664,688 |
| 8 | Total GAAP Capital – ending (12/31/2015) | 1,566,074 |
| | | |
| 9 | Regulatory capital ratio – starting (9/30/2013) | 10.38% |
| 10 | Regulatory capital ratio – ending (12/31/2015) | 6.62% |

[1] Amount includes the global market shock impact on trading securities, in the amount of ($6.0) million, recorded in earnings.

[2] Amount represents the global market shock impact on AFS securities and the non-credit component of OTTI on HTM securities, recorded in accumulated other comprehensive income.

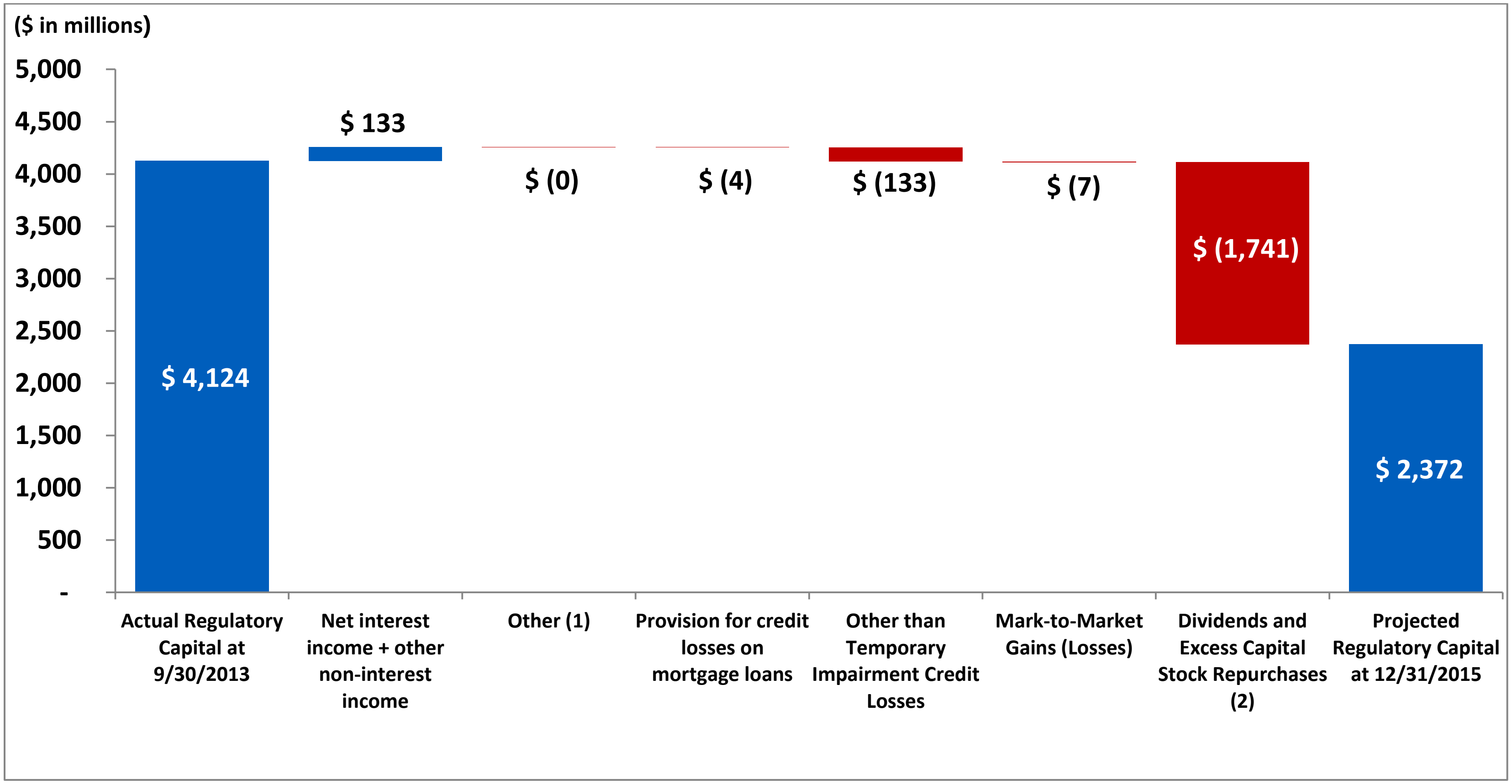
[3] Net Income before assessments represents the sum of lines 1 through 4.

Note: the severely adverse scenario is not an expected forecast, but a hypothetical stress scenario using internal projections by applying the rules and conditions set forth by the FHFA.

# Severely Adverse Results – Regulatory Capital Analysis

- Regulatory capital, which is defined as the sum of capital stock, retained earnings and mandatorily redeemable capital stock, decreases from $4.12 billion at September 30, 2013, to $2.37 billion at December 31, 2015.

- All results shown below are modeled projections, except for actual regulatory capital at September 30, 2013.



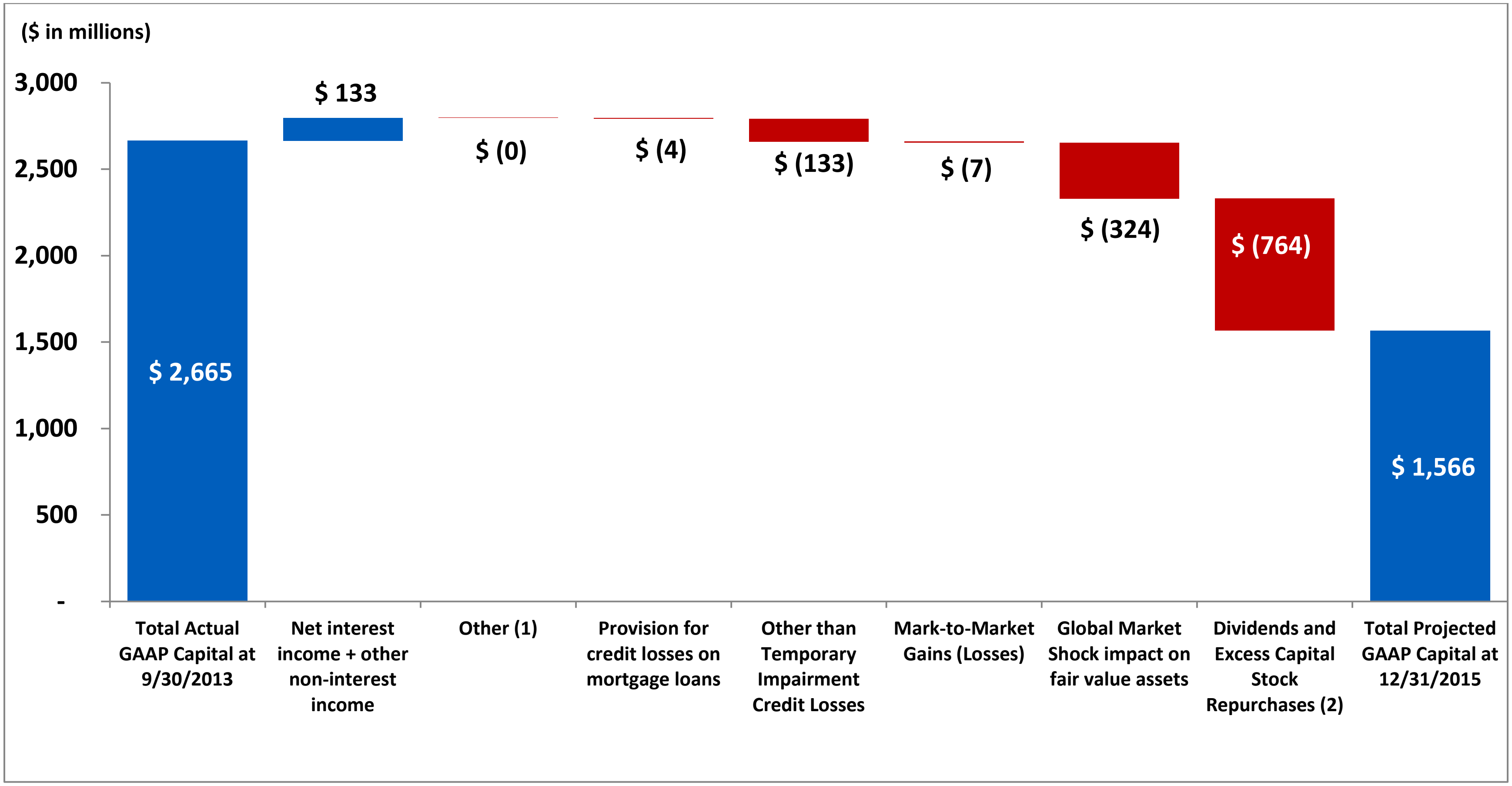

1 "Other" includes Affordable Housing Program assessments totaling $477 thousand.

2 Includes dividends in the amount of $28.7 million, the repurchase of excess capital stock classified as equity in the amount of $734.8 million, and the repurchase of excess capital stock classified as mandatorily redeemable in the amount of $977.4 million.

Note: the severely adverse scenario is not an expected forecast, but a hypothetical stress scenario using internal projections by applying the rules and conditions set forth by the FHFA.

# Severely Adverse Results – Total GAAP Capital Analysis

- Total GAAP capital, which is defined as the sum of capital stock, retained earnings and accumulated other comprehensive income (loss), decreases from $2.66 billion at September 30, 2013, to $1.57 billion at December 31, 2015.
- All results shown below are modeled projections, except for actual Total Actual GAAP Capital at September 30, 2013.




1 "Other" includes Affordable Housing Program assessments totaling $477 thousand.

2 Includes dividends in the amount of $28.7 million and the repurchase of excess capital stock classified as equity in the amount of $734.8 million.

Note: the severely adverse scenario is not an expected forecast, but a hypothetical stress scenario using internal projections by applying the rules and conditions set forth by the FHFA.

# Severely Adverse Scenario
# Key Assumptions Provided by FHFA

| Macroeconomic Variables | |
|---|---|
| Residential House Prices (Peak to trough decline) | -25% |
| Commercial Real Estate Prices (Peak to trough decline) | -35% |
| Real Gross Domestic Product (Annual GDP growth rate) | -3.7% (2014), +2.1% (2015) |
| Unemployment Rate (Peak) | 11.3% (Q2-2015) |

| Interest Rate Variables | |
|---|---|
| 30-yr Mortgage Rate (Average over the plan horizon) | 4.3% |
| 10-yr Treasury Rate (Average over the plan horizon) | 1.3% |

| Global Market Shock | |
|---|---|
| Instantaneous price shocks on non-agency securities | -14.2% to -91.5% |
| Instantaneous OAS shocks on: | |
| Agency security pass-throughs | MBS OAS +40bps |
| Agency security CMOs and DUS bonds | CMO OAS +50bps |
| Agency security HECMs | HECM OAS +80bps |

# Component Methodologies

## Net Interest Income plus Other Non-interest Income and Expense

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|---|---|
| **Description** | • Reflects projections of net interest income (expense), operating expenses, and other non-interest income (expense) over the nine-quarter period.<br>• Material risks covered include interest rate risk and business risk. |
| **Methodologies** | • Estimates net interest income by projecting portfolio balances, funding mix, and spreads using the macroeconomic variables provided by the FHFA and management assumptions.<br>• Non-interest income and expense estimated by management.<br>• Balance sheet volumes and outstanding balances were generally based on the assumptions used in our 2014 Strategic Business Plan, with the exception of the following:<br>    • Advance balances were tied to Gross Domestic Product and new volume and rollover was generally short-term. Projected outstanding balances were flat to down over the horizon;<br>    • MBS and mortgage loan assets were allowed to runoff with no new asset purchases; and<br>    • Money market assets were increased to two times the levels in our 2014 Strategic Business Plan and were funded with 1 to 3 year debt to reinforce on-balance sheet liquidity. |

## Provision for Credit Losses on Mortgage Loans

| | |
|---|---|
| **Description** | • Reflects credit loss provision related to estimated losses on mortgage loans held for portfolio.<br>• Captures mortgage credit risk. |
| **Methodologies** | Loan loss reserves forecasted by projecting 90+ day delinquency population and corresponding loss severity over the nine-quarter period. Specifically:<br>• Forecasts the cumulative default curve under the FHFA-provided macroeconomic scenario.<br>• Forecasts loss severity by combining the current loan-to-value of the mortgage loan population with stressed house price index curves.<br>• Combined the projected cumulative defaults and loss severities to compute projected losses. |

## OTTI Credit Losses

| | |
|---|---|
| **Description** | • Reflects credit-related other-than temporary impairment losses for held-to-maturity investment securities.<br>• Material risks covered include credit risk associated with the Bank's investment portfolio. |
| **Methodologies** | • Estimates OTTI of non-agency MBS by projecting cash flow shortfalls. Incorporates FHFA-provided and internal assumptions for:<br>  • Housing prices, interest rates, mortgage rates, monoline insurer performance. |

## Mark-to-Market Gains (Losses)

| | |
|---|---|
| **Description** | • Reflects mark-to-market gains (losses) from changes in fair value of derivatives and trading securities resulting from changes in interest rates.<br>• Material risk covered includes interest rate risk. |
| **Methodologies** | • Applies FHFA-specified interest rates and internal interest rate assumptions through the use of valuation models to estimate changes in fair value of derivatives and trading securities. |

## Global Market Shock Impact on Fair Value Assets

| | |
|---|---|
| **Description** | • The Global Market Shock is an instantaneous decline in market value of trading securities, AFS securities, and those HTM securities that are deemed to have OTTI losses. The instantaneous losses and corresponding reduction of capital are taken in the first quarter of the testing horizon without any future recoveries. This shock is treated as an add-on to the macroeconomic and financial market environment specified in the stress test. |
| **Methodologies** | • Applies FHFA-specified shocks, taken in the first quarter of the forecast horizon, to trading securities, AFS securities, and also used to calculate the non-credit component of OTTI associated with HTM securities:<br>  • Non-Agency Securitized Products: Relative Market Value Shock<br>  • Municipals: Spread Widening<br>  • Agencies: OAS Widening |

# Key Risks Considered

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|---|---|
| **Market Risk** | The risk to earnings or capital arising from changes in the market value of mortgage loans, investment securities, or other financial instruments due to changes in the level, volatility, or correlations among financial market rates or prices, including interest rates. Specifically, market risk to the Bank includes the risk that the market value, or estimated fair value, of the Bank's portfolio will decline as a result of changes in interest rates and/or changes in spreads. |
| **Credit Risk** | The risk to earnings or capital arising from the default, inability, or unwillingness of a borrower, obligor, or counterparty to meet the terms of any financial obligation with the Bank or otherwise perform as agreed. Specifically, credit risk to the Bank as it pertains to the stress test includes the risk of loss due to defaults on principal and interest payments on investment securities and mortgage loans. An optional counterparty default scenario on advances, money-market investments, and derivatives was not included in this year's stress test but may be included in future years. |
| **Operational Risk** | The risk of loss resulting from inadequate or failed processes, systems, human factors, or external events. Operational risk is inherent in the Bank's business activities and can manifest itself in various ways, including accounting or operational errors, business interruptions, fraud, and technology failures. This definition includes legal risk, which is the risk of loss arising from defective transactions, litigation or claims made, or the failure to adequately protect company-owned assets. |
| **Business Risk** | The risk of an adverse effect on the Bank's profitability resulting from external factors that may occur in both the short and long term. Business risk includes the impact of regulatory risk. Declines in business may affect the Bank's capital levels by reducing its activity-based capital stock balance and slowing the pace at which the Bank can build retained earnings. In addition, the reduction in capital levels will limit the Bank's ability to purchase additional investments, thereby further limiting potential income and growth. |