

The logo for the Office of Federal Housing Enterprise Oversight (OFHEO) is a large, stylized letter 'F' in a yellow-orange color. The top-left corner of the 'F' is rounded. The text 'Office of Federal Housing Enterprise Oversight' is written in a bold, black, sans-serif font across the top of the 'F'.

# Office of Federal Housing Enterprise Oversight

## Risk-Based Capital

A solid blue horizontal bar with rounded ends, positioned below the 'Risk-Based Capital' text.

June 27, 2002

Note: Notes for slides in this presentation appear in this section.

## OFHEO: Safety & Soundness

- OFHEO evaluates Enterprise safety and soundness using:
  - Examination program
  - Capital Standards
    - Minimum Capital
    - **Risk-Based Capital (RBC)**
  - Other supervisory analysis

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The primary purpose of OFHEO is to ensure the safety and soundness of Fannie Mae and Freddie Mac, the Enterprises.

First step is to evaluate their current condition.

In general, there are 3 ways we do this:

1. Exams
2. Capital standards
3. Research and analysis into:
  - Factors internal to the GSEs, for example earnings.
  - External factors such as market conditions, for example low interest rates and high level of refinancings.
  - How the Enterprises interact with the housing and financial markets, and the general economy.
  - Other stress test scenarios, such as alternative interest rates or house price assumptions.

## Oversight & Compliance

- Capital standards part of overall Enterprise oversight
  - Examinations & Supervision
    - Prompt Supervisory Response
  - Enforcement
  - Prompt Corrective Action

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When analysis reveals a possible safety & soundness problem, OFHEO has these tools to help prevent or remedy it.

These are similar enforcement authorities to any other financial institution regulators.

- Informal enforcement through examination and supervisory process
  - Includes Prompt Supervisory Response as explained in the recent regulation.
  - For example: meeting with management, meeting with board of directors, supervisory letters, notice to show cause.
- Formal enforcement proceedings
  - When informal measures fail or for emergencies.
  - For example: cease & desist order, civil money penalties.
- Prompt corrective action
  - Supervisory responses based upon capital levels.
  - Come into play automatically by statute.
  - For example: requirement to file capital restoration plan for approval, or restrictions on dividends.

## Capital Classifications & RBC

- Quarterly classification based on adequacy of capital
- Enterprises must hold the higher of Risk-Based or Minimum Capital requirement
  - Enterprises risk management affects the level of their risk-based capital requirement
  - Enterprises *must always* meet minimum capital level

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Now you've had the general overview of the regulatory structure, we can discuss how the capital requirements fit in. Capital classifications are made quarterly for each Enterprise.

Minimum capital is driven by size: 2.5% of balance sheet assets and .45% of off-balance sheet obligations.

However, it's not enough to look at the amount of capital relative to the size of a financial institution at a point in time.

It is important to evaluate what could happen to that capital if certain external economic events occur.

Therefore, Congress created a risk-based capital standard which OFHEO implemented.

Risk-based capital is driven by risk, so that Enterprises can influence the level of their RBC requirement:

- Better risk management may mean that the RBC requirement is lower than the minimum.
- Good economic times may also mean that the RBC requirement is lower than the minimum.
- In difficult economic times or if an Enterprise chooses to hedge less of its risk, the RBC requirement will be higher than minimum.

The Enterprises must meet both requirements so that they must, in effect, hold enough capital for the higher of the two requirements.

## Risk-Based Capital Stress Test

- RBC standard based on a stress test
- Projects an Enterprise's performance through prolonged, adverse economic conditions
  - Early warning system
  - Measures the amount of risk embedded in the Enterprise's business

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The stress test simulates the Enterprises' performance under economic stress.

Using a stress test model it's possible to project what might happened to a company in bad times.

It provides early warning of problems by detecting potential losses before they occur.

It also provides an objective measure of the net risk in the company's business.

## Features of OFHEO's Stress Test

- 10 years of prolonged, severe economic stress
- 2 Interest rate environments
- 3 Types of risk
  - Credit risk
  - Interest rate risk
  - Management & operations risk
- Tailored to the Enterprises

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Highlights of a few key features of OFHEO's stress test:

- 10 years of stress is imposed on the existing book of business of each Enterprise.
- The test compares losses in 2 different interest rate environments and bases the capital requirement on the scenario which requires more capital.
- The test takes into consideration 3 types of risk: credit, interest rate and management & operations.
- Because Fannie and Freddie are focused on one type of business and face similar risks, it's possible to tailor a stress test specifically to these 2 institutions.

## Credit Risk

- Applies worst regional loss experience for mortgages on a national basis
- Captures risk from mortgages, securities & counterparties

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Looking at the first of these major risk categories: credit risk.

This is a statutory requirement for mortgage losses.

OFHEO identified the worst mortgage losses in:

- An area containing 5% or more of the U.S. population.
- A period of 2 or more years.
- This is referred to as the Benchmark Loss Experience.

The test measures and accounts for the risks from mortgages, securities and counterparties.

## Interest Rate Risk

- Severe & sustained increase in rates
- Severe & sustained decrease in rates
- Captures the risk when assets & liabilities are mismatched

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A statutory requirement also governs the 2<sup>nd</sup> element of risk in the stress test: interest rate risk.

- Rates go up at least 75% in the up-rate scenario.
- Rates go down at least 50% in the down-rate scenario.

To put this in context, the average 10-year CMT for the 9-months before March 31<sup>st</sup>, 2002 was 4.94%.

In the stress test for the first quarter, 2002, after one year the 10-year CMT increased to 8.65% (a 3.71% change over the 9-month average) in the up-rate and decreased to 2.47% (a -2.47% change over the 9-month average) in the down-rate scenario.



## Management & Operations Risk

- 30% additional capital for these qualitative risks

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The 3<sup>rd</sup> element of risk, management and operations risk, is also based on a statutory requirement.

Congress recognized that there are always some risks which are difficult to measure. OFHEO refers to them as management & operations risk.

OFHEO is therefore required to add 30% to the capital needed to survive the stress test to take into account this hard-to-quantify risk.

## RBC Ties Capital to Risk

- Sufficient capital based on risk exposure
- Enterprises' risk exposure:
  - External variables (interest rates, house prices)
  - Portfolio composition
  - Risk management activities

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How does RBC help ensure safety and soundness? Adequate capital.

OFHEO's stress test effectively ties capital to risk:

- The capital requirement is a measure of an Enterprise's net risk exposure at a point in time.
- Portfolio includes assets and off-balance sheet guarantees and derivatives.
- It is a sophisticated model incorporates both economic conditions, risk-taking and risk-management activities.

## RBC Standard Allows Flexibility

- Allows Enterprises flexibility in business decisions to comply with RBC standard
- Provides for both product & risk management innovation

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Because it ties capital to risk, the RBC standard is flexible – what does this mean?

Enterprises have choices to comply with RBC standard.

- Adjust interest rate risk.
- Adjust credit risk.
- Increase capital.
- Some combination of above.

Another flexible feature is the treatment of business innovation.

New activities are given appropriate treatments and incorporated immediately:

- new mortgage products.
- new risk management techniques or instruments.

## Sophisticated Measure

- Stress test is state-of-the-art
  - Model-based
  - Comprehensive
  - Dynamic measure of risk
  - Tailored to 2 institutions

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OFHEO believes that the RBC rule is a sophisticated, state-of-the-art regulatory capital measure.

Most other capital requirements, such as OFHEO's minimum capital standard, are based on a simple, size-based approach.

By comparison, OFHEO's RBC stress test is:

- Based entirely on its own models, based on historical data
- Comprehensive – covers all aspects of the Enterprises' operations
- Dynamic – changes over time based on changes in economic conditions. For instance, the same book of business could be more or less risky depending on changes in house prices or interest rates.
- And, as mentioned before, tailored to 2 specific institutions with homogenous lines of business.

## RBC Standard is Transparent

- Transparent to the public & the Enterprises
  - Details published
- Consistent across Enterprises
  - Quarterly test
  - Same model for both Enterprises

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Another advanced feature is transparency.

OFHEO's stress test is both transparent to all and consistent between institutions.

OFHEO is publishing the details of the calculation (the regulation), the computer model and the data standards.

- A new version of the computer code will be released in the future.
- Although it will take substantial resources for another organization to use the code, OFHEO believes that it should be made publicly available.

Each Enterprise is tested quarterly on the same model.

Each Enterprise – and other parties who wish to – can replicate the model.

## Implementation Period

- OFHEO's Risk-Based Capital standard was published and effective September 13, 2001
- Congress provided for a one-year implementation period after the rule became effective

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By statute, the RBC requirement is phased in during a one-year implementation period during which the Enterprises can be considered adequately capitalized even if they don't meet the RBC requirement.

This implementation period began September 13<sup>th</sup> of last year.

During the implementation year, OFHEO has been working with the Enterprises to resolve operational issues and document procedures.

The risk-based capital rule will be used to classify the Enterprises' capital adequacy for the third quarter 2002.

Failure to meet the standard at that time would trigger enforcement actions.

## Initial RBC Results

- First time Enterprises evaluated against a regulatory risk-based capital standard
  - First public results: based on first quarter 2002
  - First classification based on fully enforceable risk-based capital requirements by year-end: based on third quarter 2002

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As part of the phase-in, OFHEO will publish results for the first and second quarter, 2002, but not use them to classify the Enterprises. First classification using RBC will be for 3<sup>rd</sup> quarter, 2002.

## Stress Test Results

Results for 1Q02		Fannie Mae	Freddie Mac
Actual Total Capital		\$26.290 B	\$21.360 B
RBC	Down-rate Scenario Requirement	<b>\$20.228 B</b>	\$1.481 B
	Up-rate Scenario Requirement	\$18.475 B	<b>\$5.680 B</b>

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To determine the risk-based capital requirement, OFHEO takes the higher of the two interest rate scenarios' results. This is compared to the statutory total capital for each Enterprise, which is core capital plus reserves, to determine whether the Enterprises are adequately capitalized.

In this case, both Enterprises "pass" the stress test, having \$6.062 billion and \$15.680 billion more capital than was necessary to survive the stress test. However, Fannie Mae's risk-based capital requirement was higher in the down-rate scenario and Freddie Mac's in the up-rate scenario.

For both Enterprises and both interest rate scenarios, the results reflect:

- Good economic climate, especially with regard to recent interest rate changes and rapid house price growth in recent years.
- Substantial hedging transactions to hedge interest rate risk.
- Well-managed credit risk, including the use of the third-party credit enhancements.

The differences between the Enterprises are due to the extent to which each Enterprise hedges interest rate risk.



## Capital Results

Results for 1Q02	Fannie Mae	Freddie Mac
Actual Total Capital	\$26.290 B	\$21.360 B
RBC Requirement	<b>\$20.228 B</b>	<b>\$5.680 B</b>
RBC: Surplus Capital	\$6.062 B	\$15.680 B
Actual Core Capital	\$25.500 B	\$20.558 B
Minimum Capital Req.	<b>\$24.571 B</b>	<b>\$19.390 B</b>
Minimum: Surplus Capital	\$929 M	\$1.169 B

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Although both Enterprises exceed the risk-based capital requirement, the entire regulatory capital picture is not complete until RBC is viewed in context with minimum capital.

For the first quarter, 2002, the RBC requirement is lower than the minimum capital requirement, so that the minimum capital requirement would have been “binding.” The minimum capital requirement is based on “core” capital, while the risk-based capital requirement is based on “total” capital, or core capital plus reserves. The Enterprises’ surplus capital based on the minimum requirement was \$929 million and \$1.169 billion.

Because of the relatively good economic conditions, specifically the low interest rates and recent house price growth, it isn’t surprising that currently the minimum capital requirement is higher than the risk-based. As economic conditions get tougher, or as the Enterprises are exposed to more risk based on their holdings, they may be required to hold more capital, potentially surpassing the minimum requirement. Because it is more sensitive to economic factors as well as the Enterprises’ risk management, the risk-based capital standard is likely more variable than the minimum standard.

## Conclusions

- RBC standard is a key measure of Enterprise financial safety & soundness
- Contributes to OFHEO's ability to:
  - Support the availability of affordable housing
  - Protect the nation's housing markets

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In conclusion, OFHEO's RBC rule is an important tool in maintaining the safety and soundness of Fannie and Freddie, and ultimately, the nation's housing markets.