



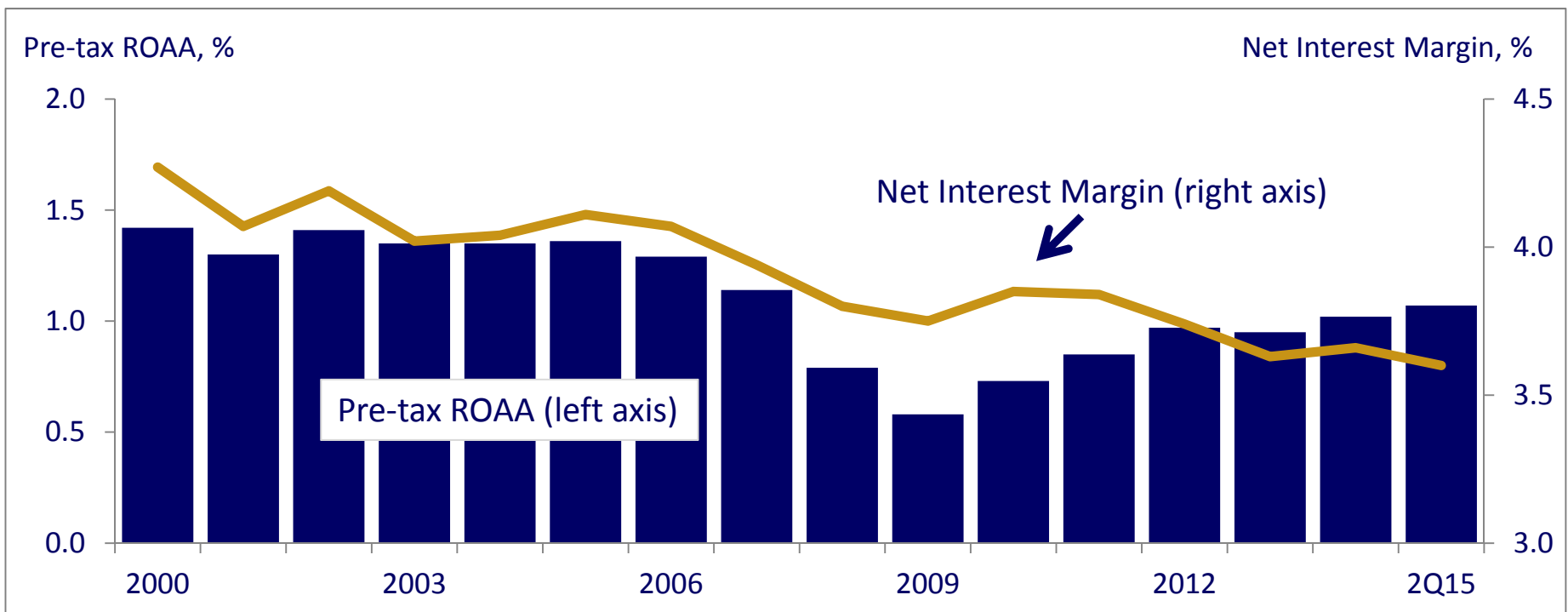
FEDERAL DEPOSIT INSURANCE CORPORATION

Managing Interest Rate Risk

Scope of Discussion

- **Industry Trends**
- **Board Responsibilities**
- **Types of IRR**
- **Measurement Systems**
- **Critical Assumptions**
- **Internal Control and Review**
- **Resources**

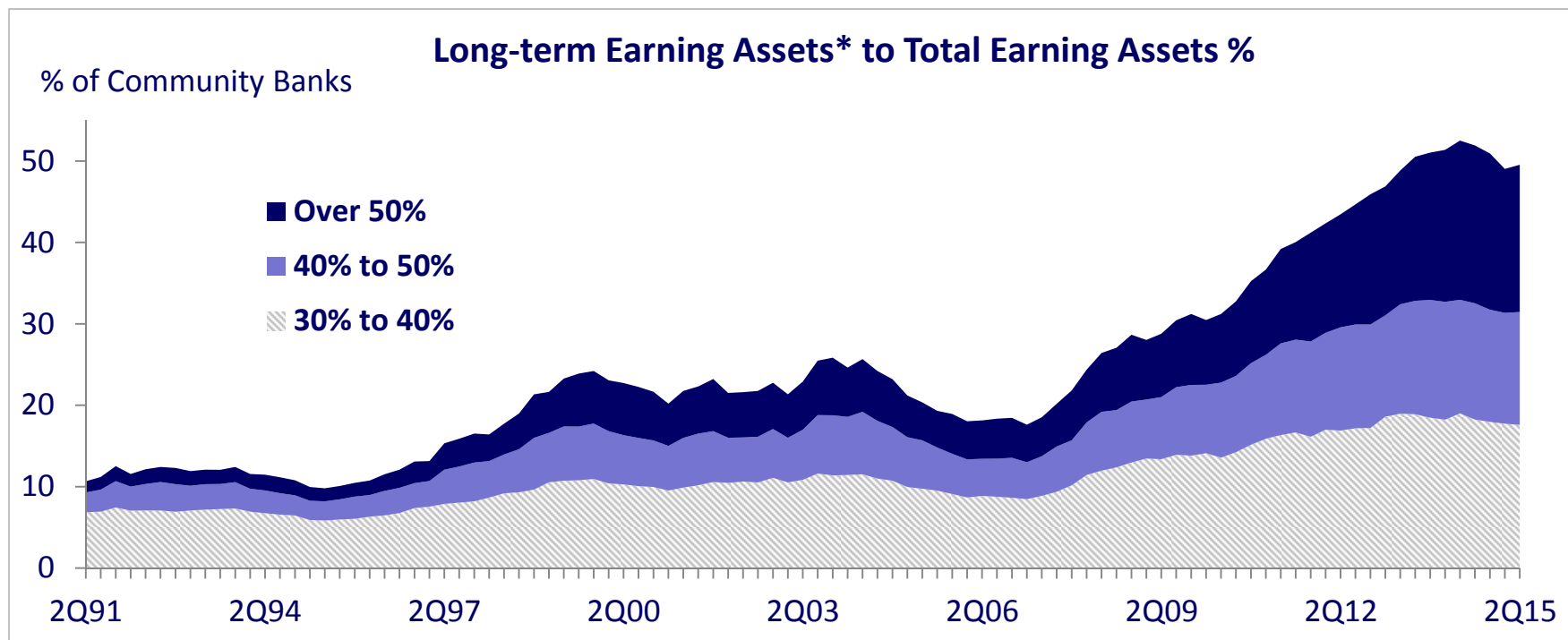
Earnings Have Begun to Recover, but Lower Margins Continue to Hamper Performance



Source: Call / TFR Reports. Insured institutions under \$1B in total assets only. Unless otherwise noted, figures illustrated represent year-end figures.

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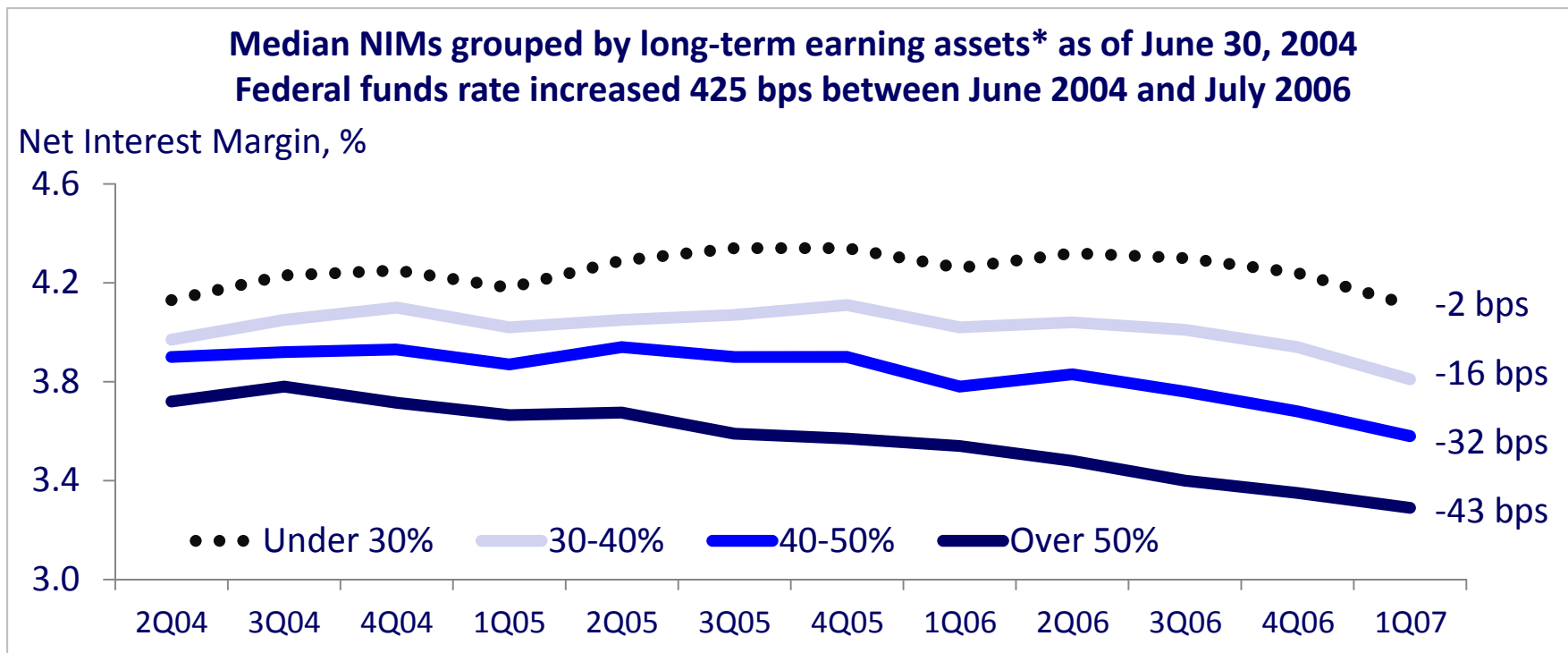
Long-Term Asset Exposures Have Risen



Source: Call Reports. Quarterly data. Banks with assets under \$1B, excludes former TFR filers.
*Assets maturing / repricing > 5 years.

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Long-term Concentrations Led to Lower Margins During the Last Rate Cycle

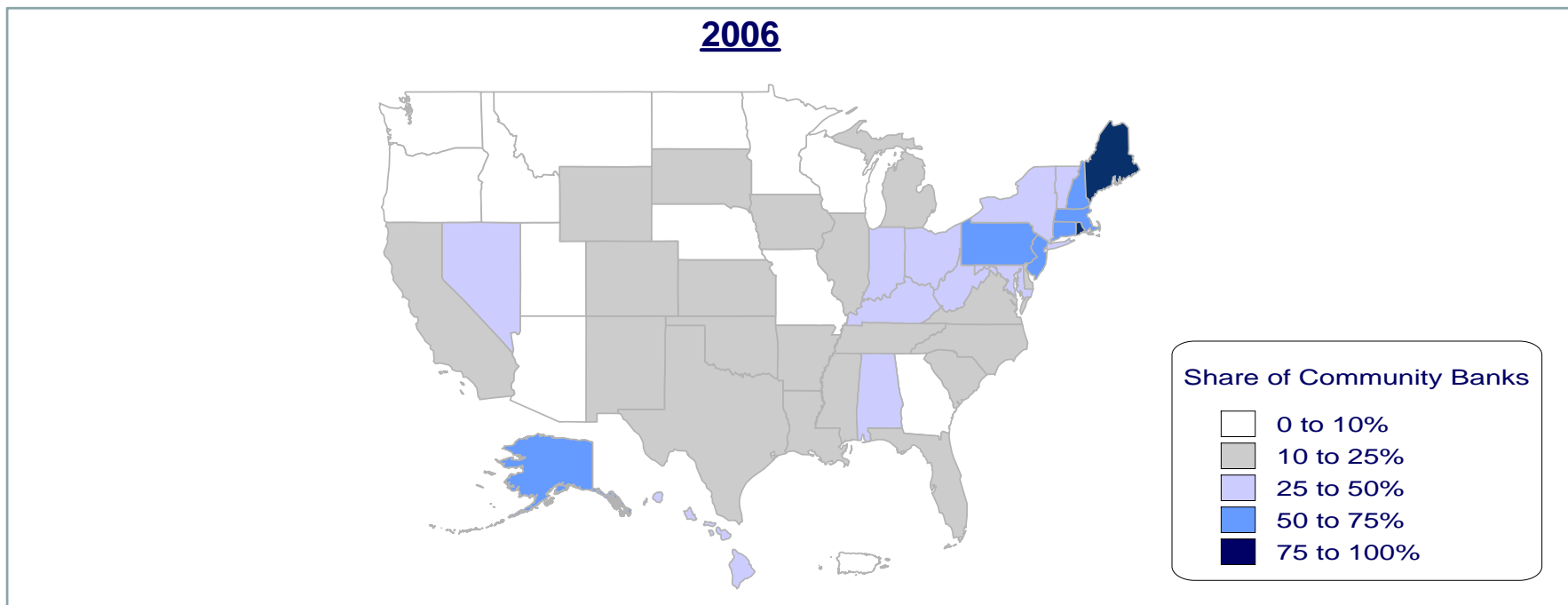


Source: Call Reports, based on median figures. *Earning assets maturing / repricing > 5 years.
 Consistent sample of Call Report filers under \$1B in assets as of 2Q04 only.

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Increased Exposure to Long-term Assets

Share of Banks with Long-term Assets Representing 30% or More of Earning Assets

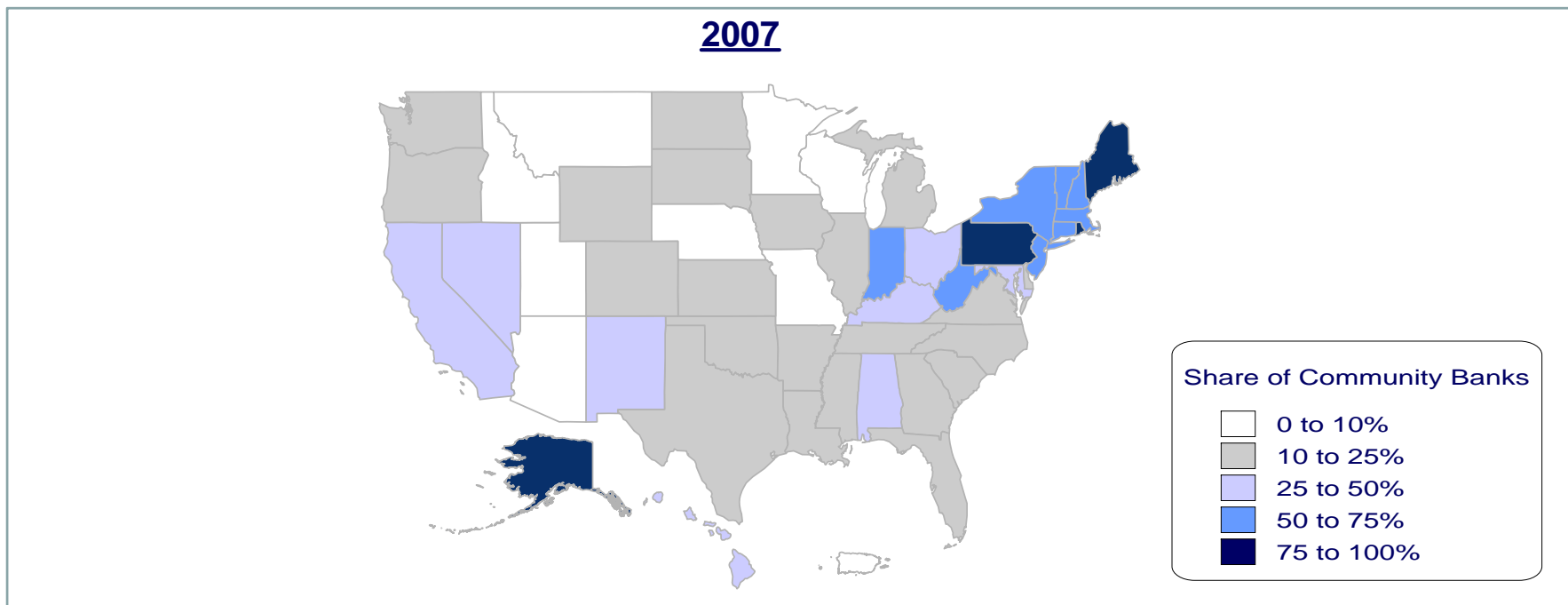


Source: Call Reports. Based on consistent sample of active Call Report filers as of 2Q15 with assets <\$1B.
Excludes any former TFR filers.

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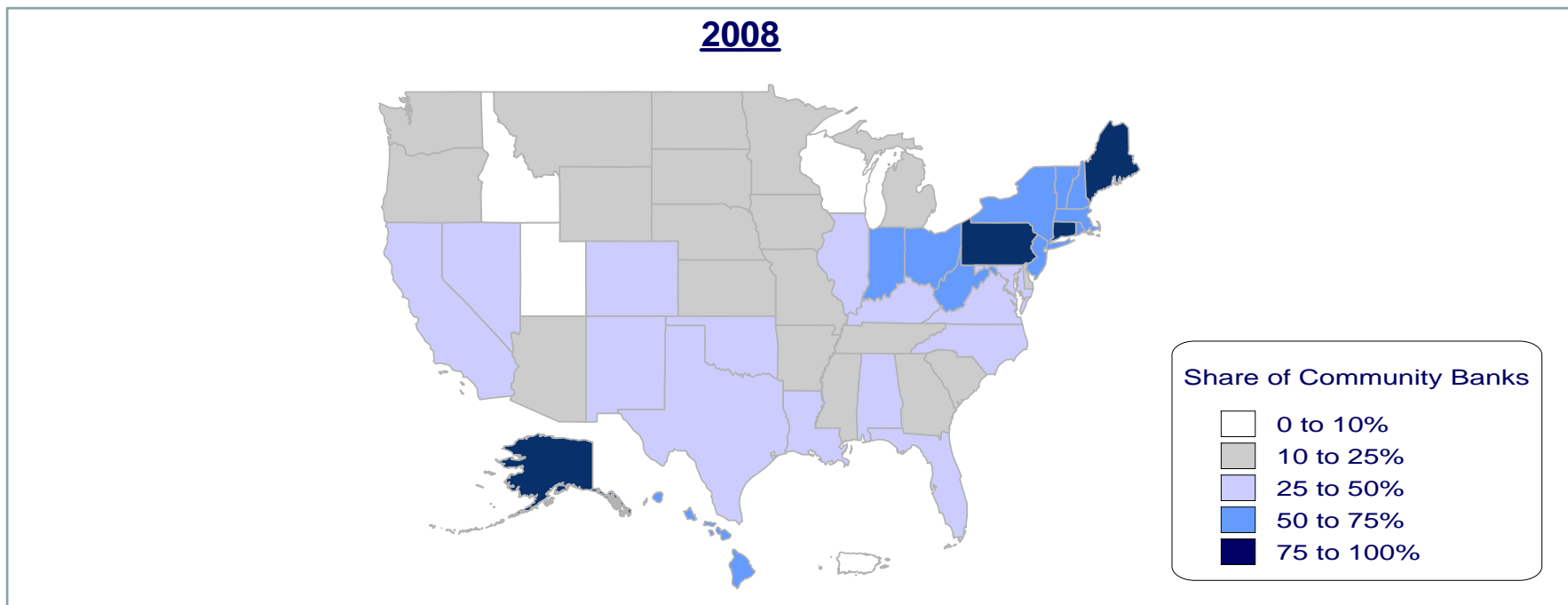


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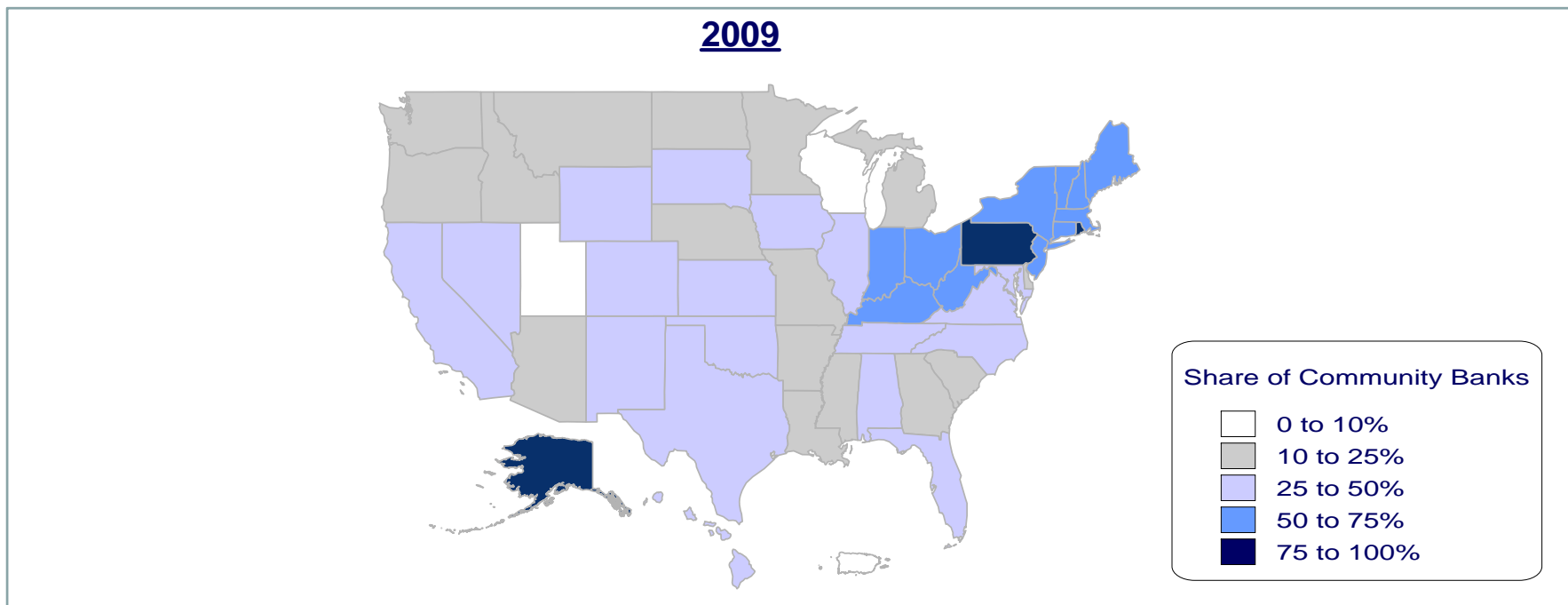


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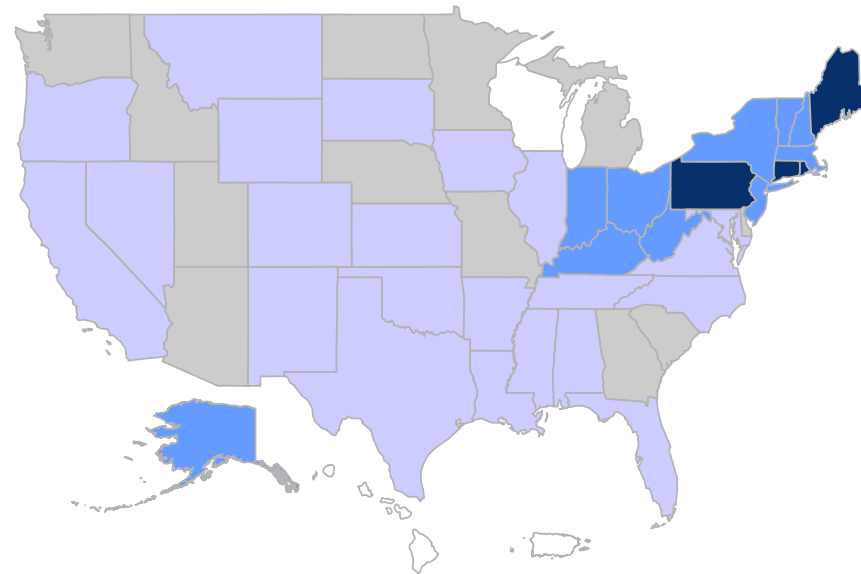
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Excludes any former TFR filers.

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2010



Share of Community Banks

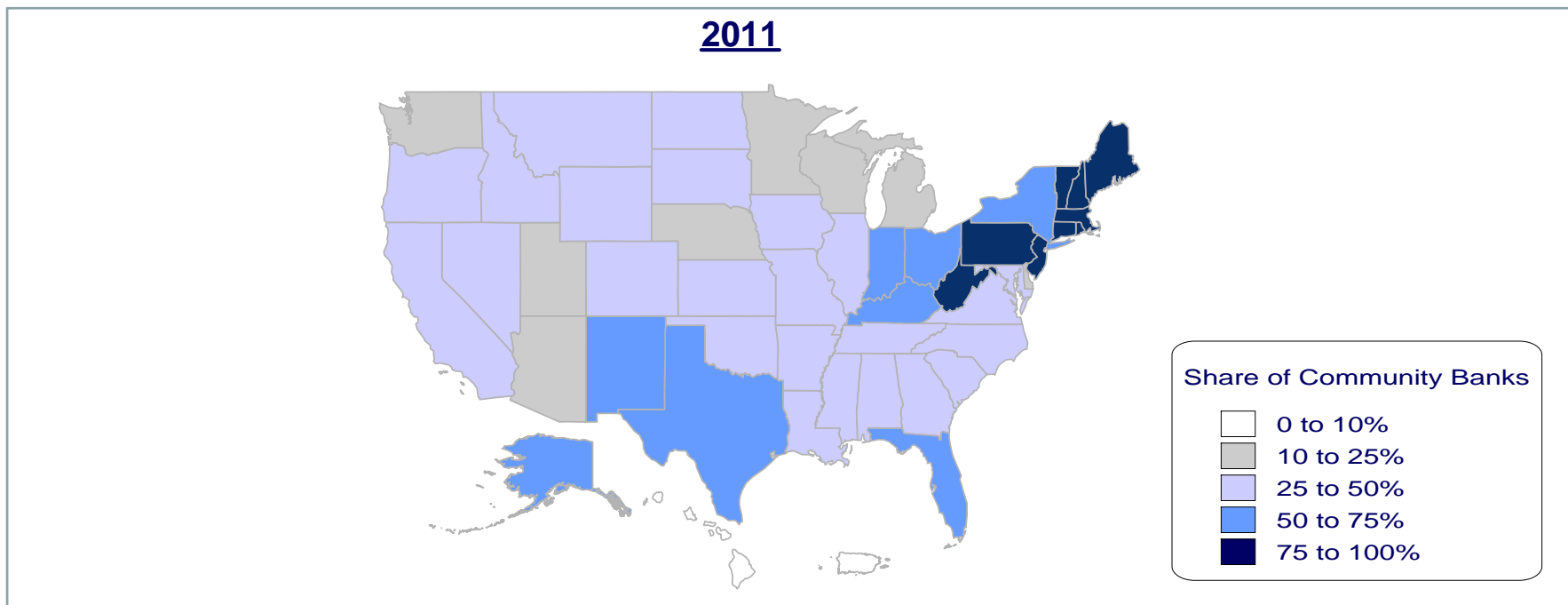
- 0 to 10%
- 10 to 25%
- 25 to 50%
- 50 to 75%
- 75 to 100%

Source: Call Reports. Based on consistent sample of active Call Report filers as of 2Q15 with assets <\$1B.
Excludes any former TFR filers.

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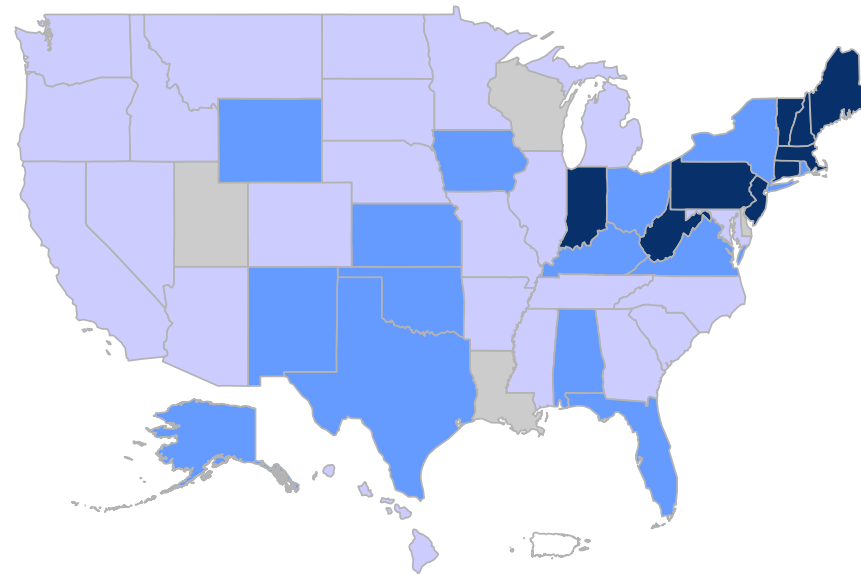
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Excludes any former TFR filers.

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Increased Exposure to Long-term Assets

Share of Banks with Long-term Assets Representing 30% or More of Earning Assets

2012



Share of Community Banks

- 0 to 10%
- 10 to 25%
- 25 to 50%
- 50 to 75%
- 75 to 100%

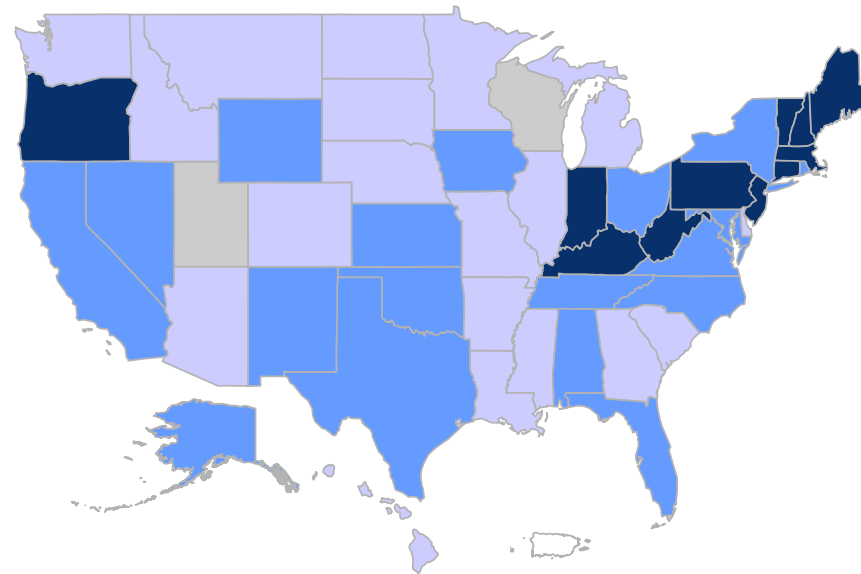
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Increased Exposure to Long-term Assets

Share of Banks with Long-term Assets Representing 30% or More of Earning Assets

2013



Share of Community Banks

- 0 to 10%
- 10 to 25%
- 25 to 50%
- 50 to 75%
- 75 to 100%

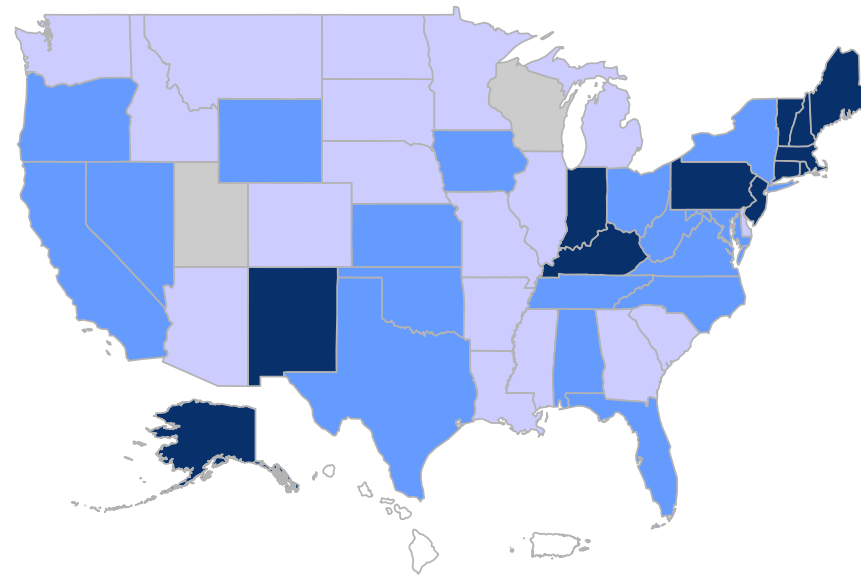
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Share of Banks with Long-term Assets Representing 30% or More of Earning Assets

2014



Share of Community Banks

- 0 to 10%
- 10 to 25%
- 25 to 50%
- 50 to 75%
- 75 to 100%

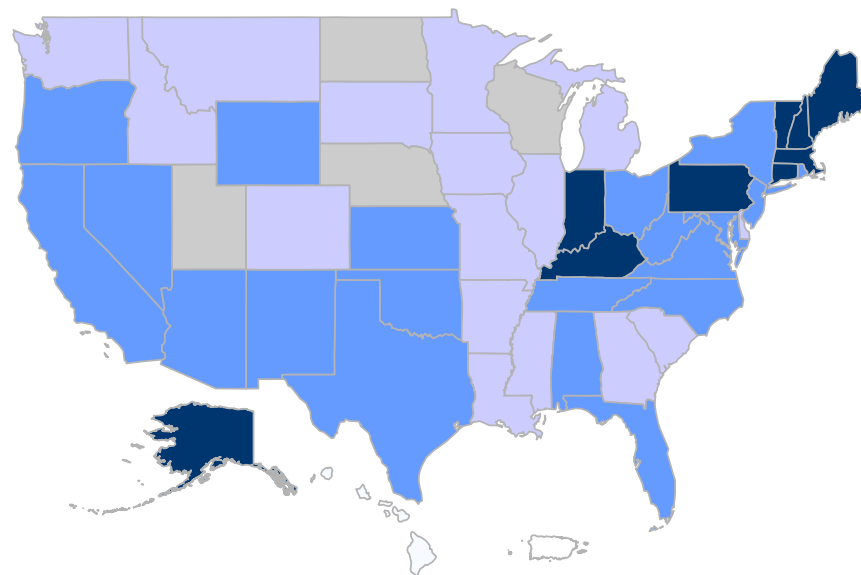
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Share of Banks with Long-term Assets Representing 30% or More of Earning Assets

2Q15



Share of Community Banks

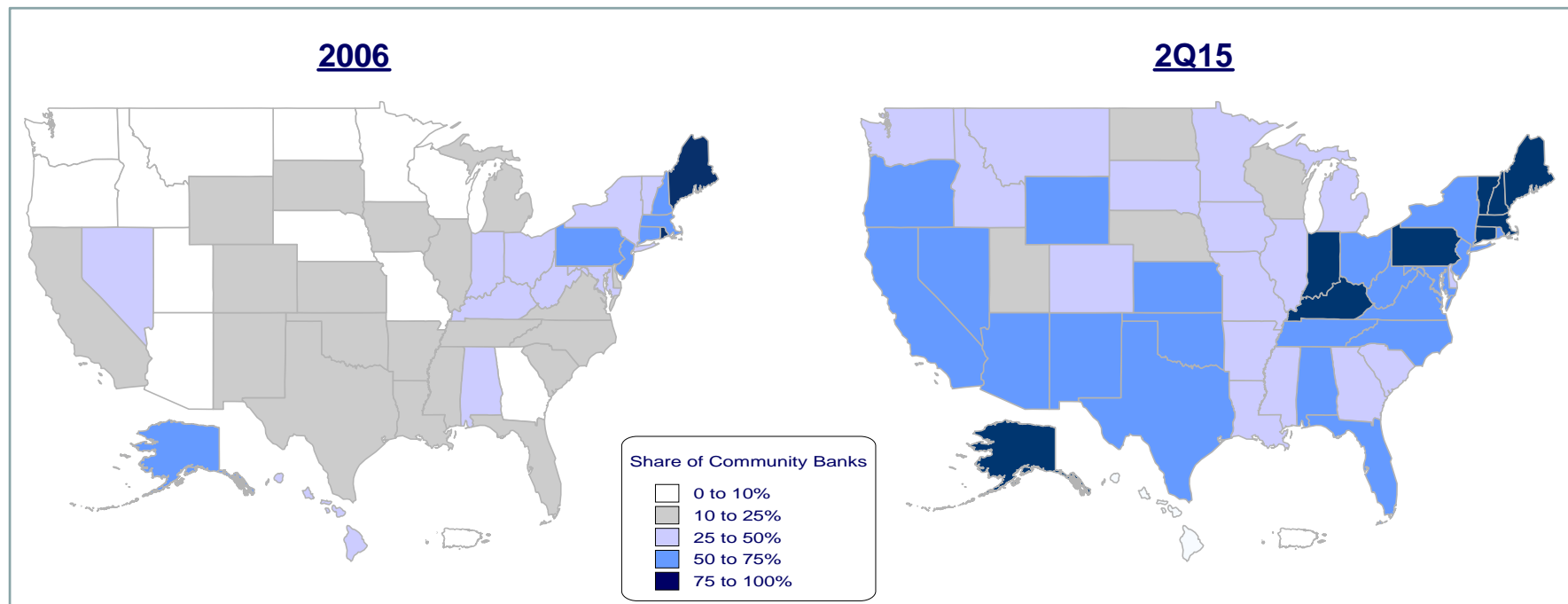
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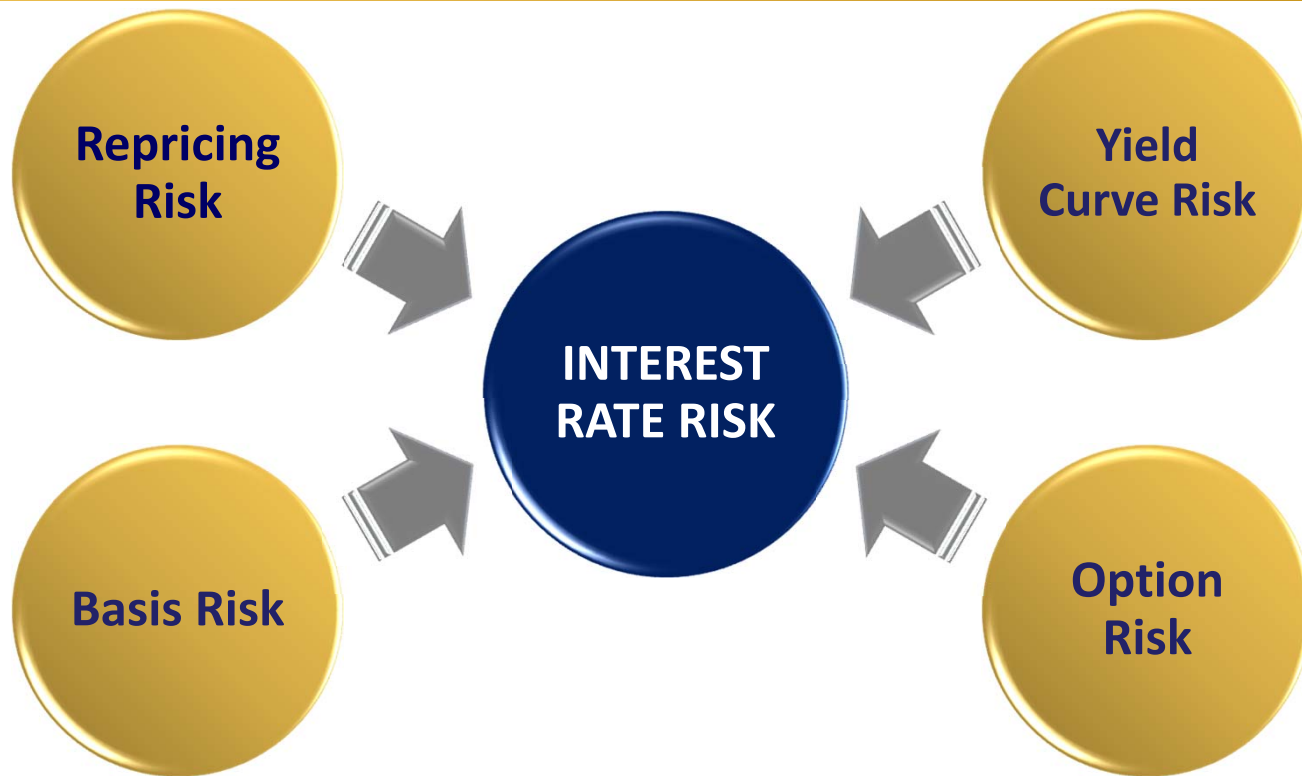
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Types of Interest Rate Risk



Board Responsibilities

**Oversee Policy
Establishment**

**Establish Risk
Tolerances**

**Establish Lines of
Authority and
Responsibilities**

**Monitor IRR
Position**

**Ensure Prudent IRR
Levels**

**Understand Impact
of IRR Strategies**

**Internal Control &
Review**

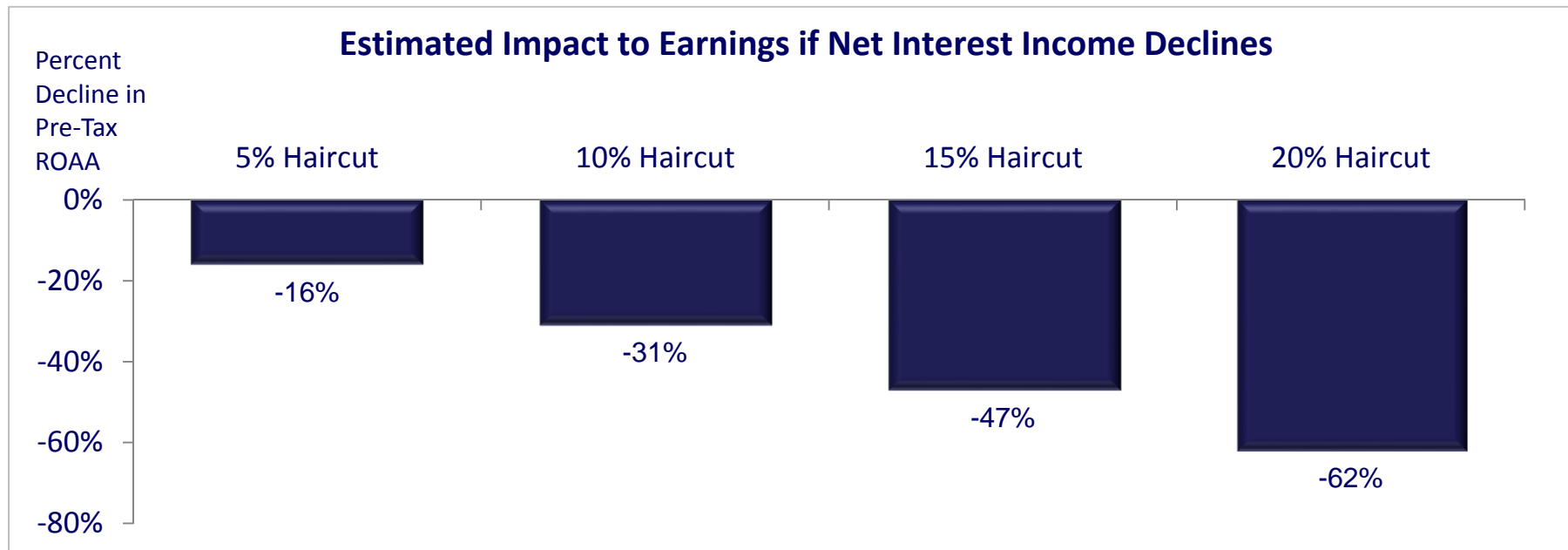
Policies Should Govern the IRR Process & Translate the Board's Goals

- **Risk Limits on Earnings and Economic Value of Equity**
- **Lines of Authority and Responsibilities**
- **Reporting Standards**
- **Independent Review Process**
- **Types of Instruments and Activities that may be used to Manage IRR**

How to Establish Appropriate Risk Limits

- **Reflect the Board's Risk Tolerance**
- **Consider Earnings and Capital, and Complexity**
- **Change with Risk Profile**
- **Trigger Appropriate Action**

Evaluation of Risk Limits



- **Consider impact of net interest income declines on net income**
- **Consider impact of non-interest income on net income and establish net income limits**

Hypothetical impact to 2Q15 median pre-tax ROAA (1.07%) for insured institutions under \$1B in assets.
Based on applying simple haircut to net interest income, holding all other income drivers constant.

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Board Oversight of the IRR Process



Types of Measurement Systems

Short-term Models



Gap Analysis



Income Simulation

Long-term Models



**Extended
Income Simulation**



**Economic Value
of Equity (EVE)**

Income Simulation: Measures Income if Rates Change

| Product Type | Balance | Base Case | | +300 bps Scenario | |
|----------------------------|---------|-----------|-------------|-------------------|-------------|
| | | Rate | Income | Rate | Income |
| Fixed Rate Loans | \$1,000 | 4% | \$40 | 4% | \$40 |
| 15 Year Muni Bonds | \$1,000 | 4% | \$40 | 4% | \$40 |
| Non-maturity Deposit | \$1,500 | 1% | \$15 | 2% | \$30 |
| Net Interest Income | | | \$65 | | \$50 |

Percent Change in Net Interest Income

- 23%

- Assess Reports to Monitor IRR Levels
- Ensure Levels Comply with Policy Limits

What is Economic Value of Equity?

- **Present Value (Assets) – Present Value (Liabilities) = EVE**
- **Considers the difference between book yield and the market yield**

Loan
Rate 5%

Time Deposit
Rate 1%



Compare Base EVE to Shocked EVE

| | Rate Scenarios | | |
|--|----------------|-----------|----------|
| | -100 bps | Base Case | +300 bps |
| PV (Assets), \$ in millions | \$555 | \$550 | \$525 |
| PV (Liabilities), \$ in millions | \$465 | \$460 | \$450 |
| Economic Value of Equity, \$ in millions | \$90 | \$90 | \$75 |
| % Change from Base | 0% | - | -17% |

Asset values decreased more than liability values, resulting in a net decrease in EVE

Combination of Income Simulation and EVE Provides a More Complete Picture of IRR

- **EVE**

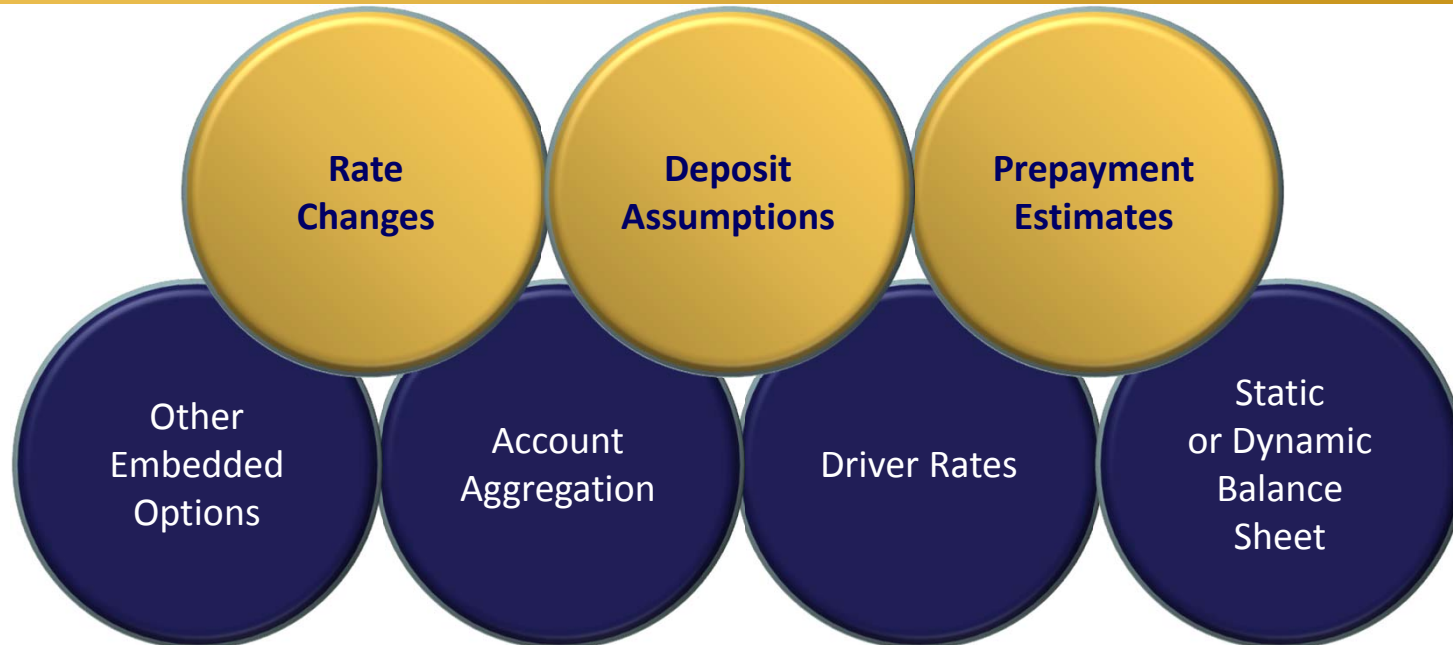
- Captures All Cash Flows and Rate Sensitivity
- Long-term

- **Income Simulation**

- Captures Cash Flows and Rate Sensitivity for Periods Measured
- Can Point to “when” IRR Occurs

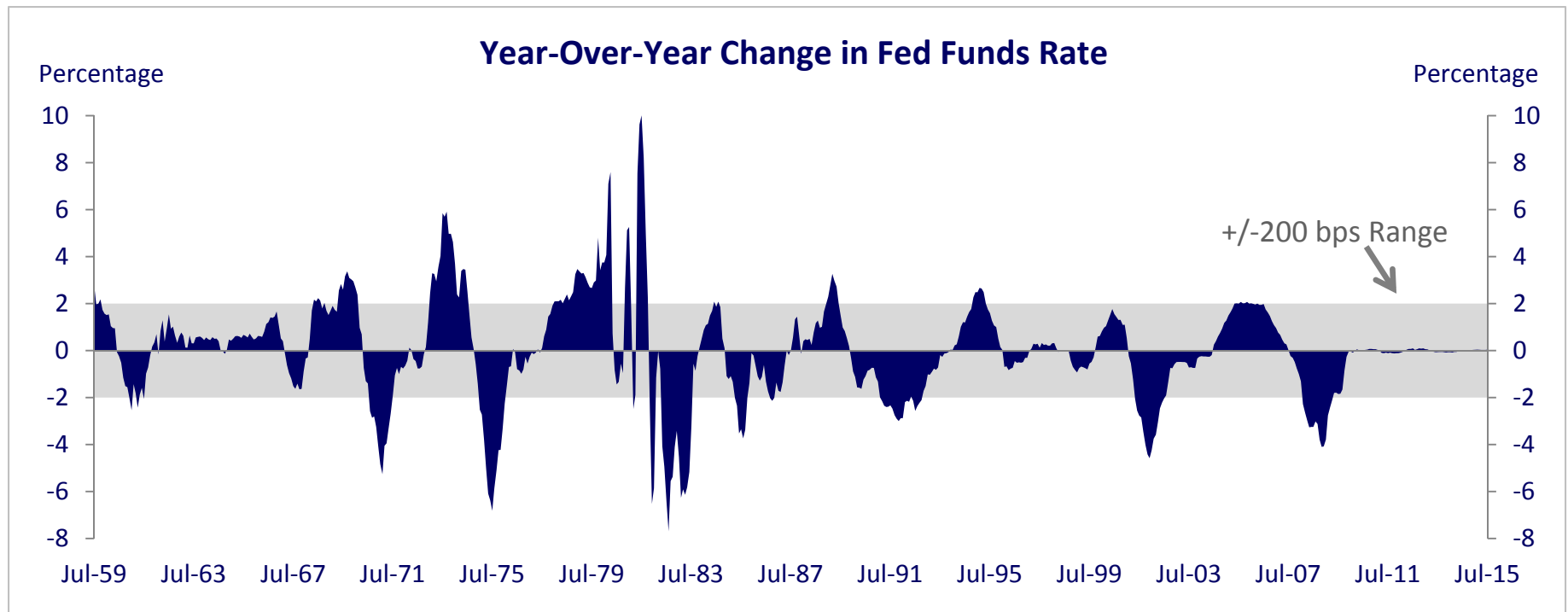
- **Use of Both Models Provides a More Complete Picture of an Institution’s IRR Exposure**

Model Assumptions



- **Written documentation**
- **Review changes**

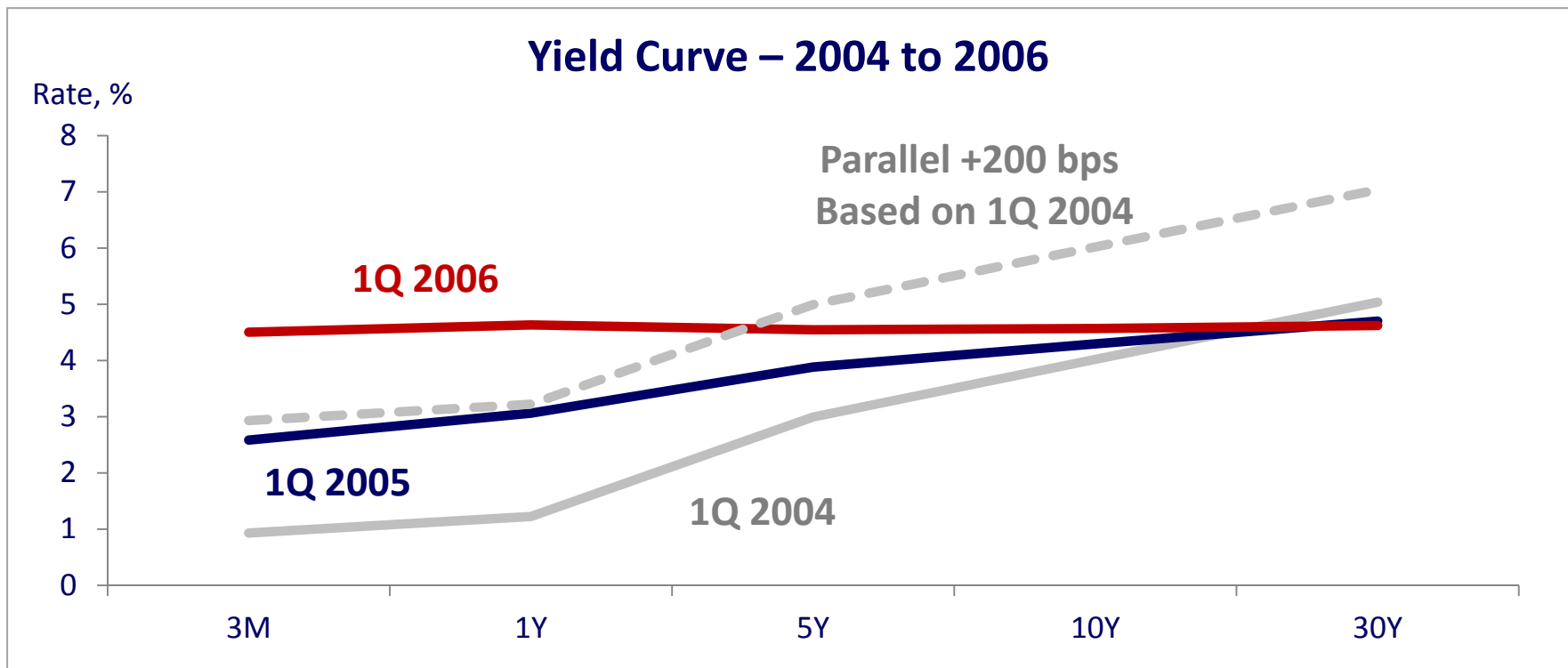
Dramatic Rate Changes are Fairly Common



Source: Federal Reserve Board

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Rate Changes: Yield Curve Shifts can be Non-parallel



Source: Federal Reserve Board / Haver Analytics

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Deposit Assumptions

Price Sensitivity (Beta)

Measures deposit rate changes relative to market rate changes

Example: $\frac{100}{300} = 33\%$

Decay Rates

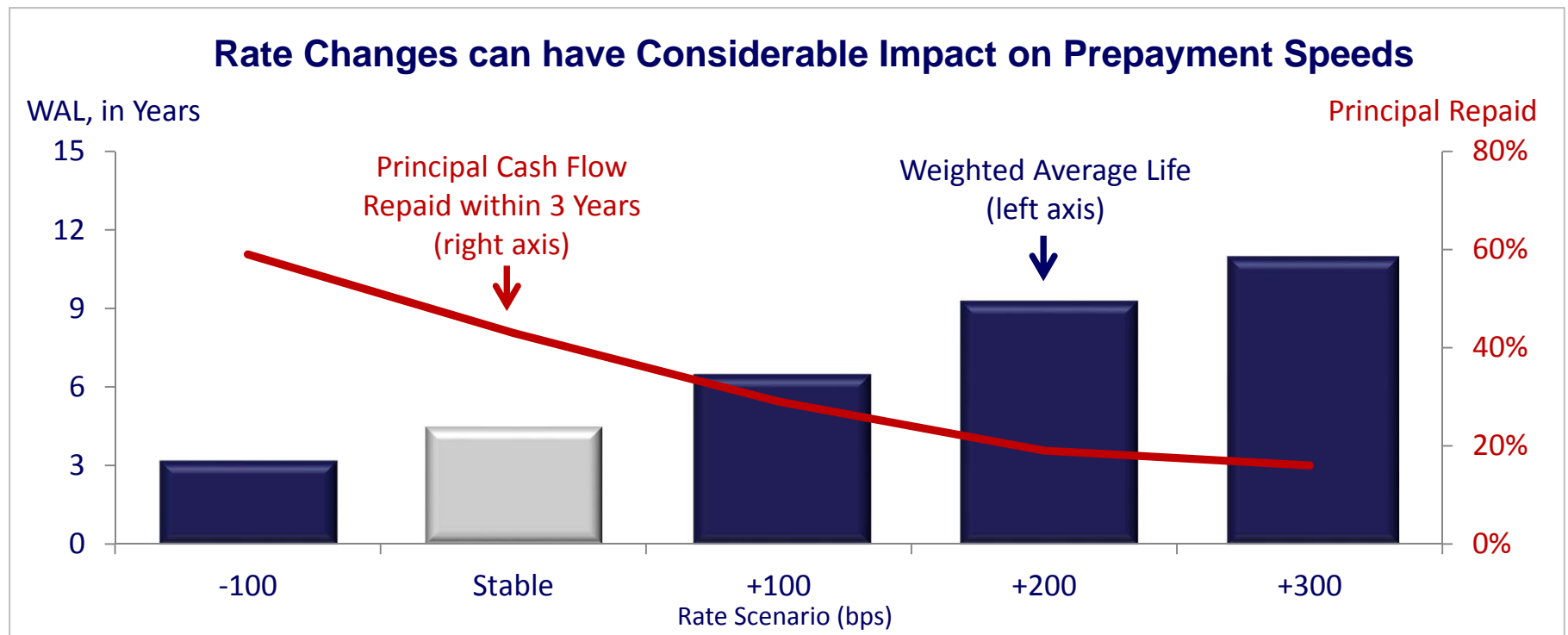
Annual percentage of deposit run-off

Average Life

Weighted average time (in years) until deposits are withdrawn

Track historical information and adjust for qualitative factors

Prepayment Speeds



Sensitivity Testing



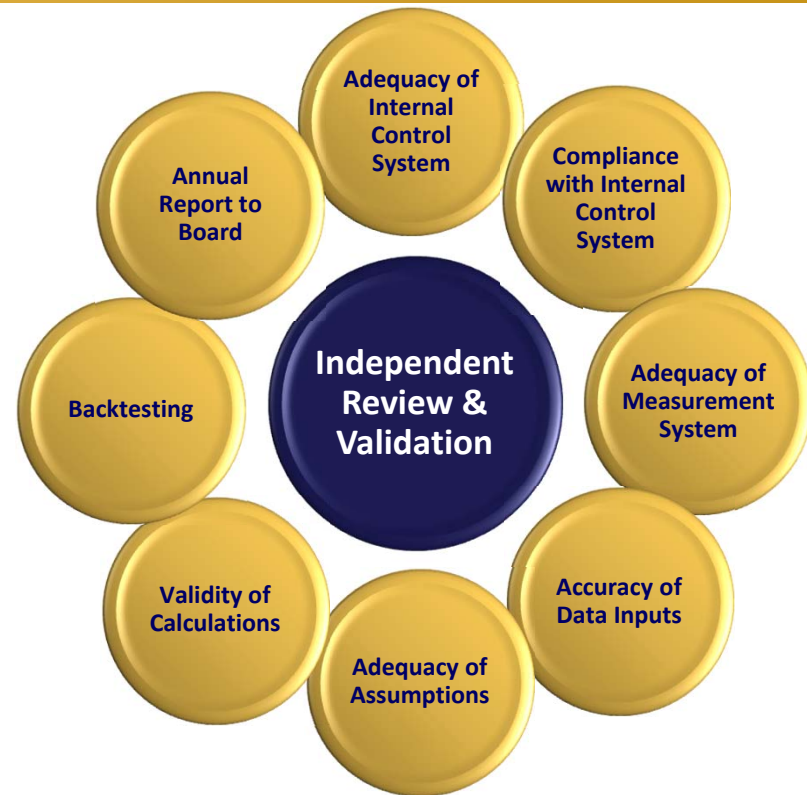
Impact of beta assumption changes on model results

| Beta Assumption | Net Interest Income | Risk Limit |
|-----------------|---------------------|------------|
| 20% | -5% | -10% |
| 25% | -10% | -10% |
| 30% | -15% | -10% |

Internal Control and Review

Internal Control System:

- Roles, Responsibilities, and Lines of Authority
- Separation of Duties
- Adequacy of System Inputs and Measurement Systems
- Policy Compliance
- Corrective Action Procedures



Questions to Ask Management

- **Problematic rate scenarios**
- **Key assumptions / sensitivity analysis**
- **New products / initiatives**
- **Mitigation strategies**
- **Model reliability**
- **Independent Review**

Resources

- **Joint Agency Policy Statement on Interest Rate Risk (FIL-52-96)**
- **Advisory on Interest Rate Risk Management (FIL-2-2010)**
- **Interagency Advisory on IRR Management: Frequently Asked Questions (FIL-2-2012)**
- **Managing Sensitivity to Market Risk in a Challenging Interest Rate Environment (FIL-46-2013)**
- **Winter 2014 Supervisory Insights (FIL-61-2014)**

Resources

- www.fdic.gov
- **Technical Assistance Video Program:**
www.fdic.gov/regulations/resources/director/video.html
- **Directors' Resource Center:**
www.fdic.gov/resourcecenter
- **Regional Senior Capital Markets and Securities Specialists**
- **Mailbox: supervision@fdic.gov**