



Risk and Opportunity in an Uncertain Interest Rate Environment

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2016 Fall Leadership Development Conference

McQueen
Financial Advisors

McQueen Financial Advisors

SEC Registered

Investment Advisor

- \$4 Billion + under management
- Municipal & Corporate Credit Reviews
- Comprehensive Reporting

Valuations

- Credit Union + Bank Mergers
- Mortgage Servicing Rights
- Complex Investments
- Branch Sales

Consulting

- Strategic Planning
- Branch Analysis
- Board Training
- Policy Development
- Exam Preparation

Risk Analysis

- Asset Liability Management
- Liquidity Stress Testing
- Core Deposit Studies
- Assumption Sensitivity Analysis
- Prepay Speed Analysis
- ALM Validations
- Back Testing Analysis

Today's Agenda

Risk and Opportunity in an Uncertain Interest Rate Environment

Industry Update

Historical Interest Rates

Economic Indicators

Risk

Opportunities



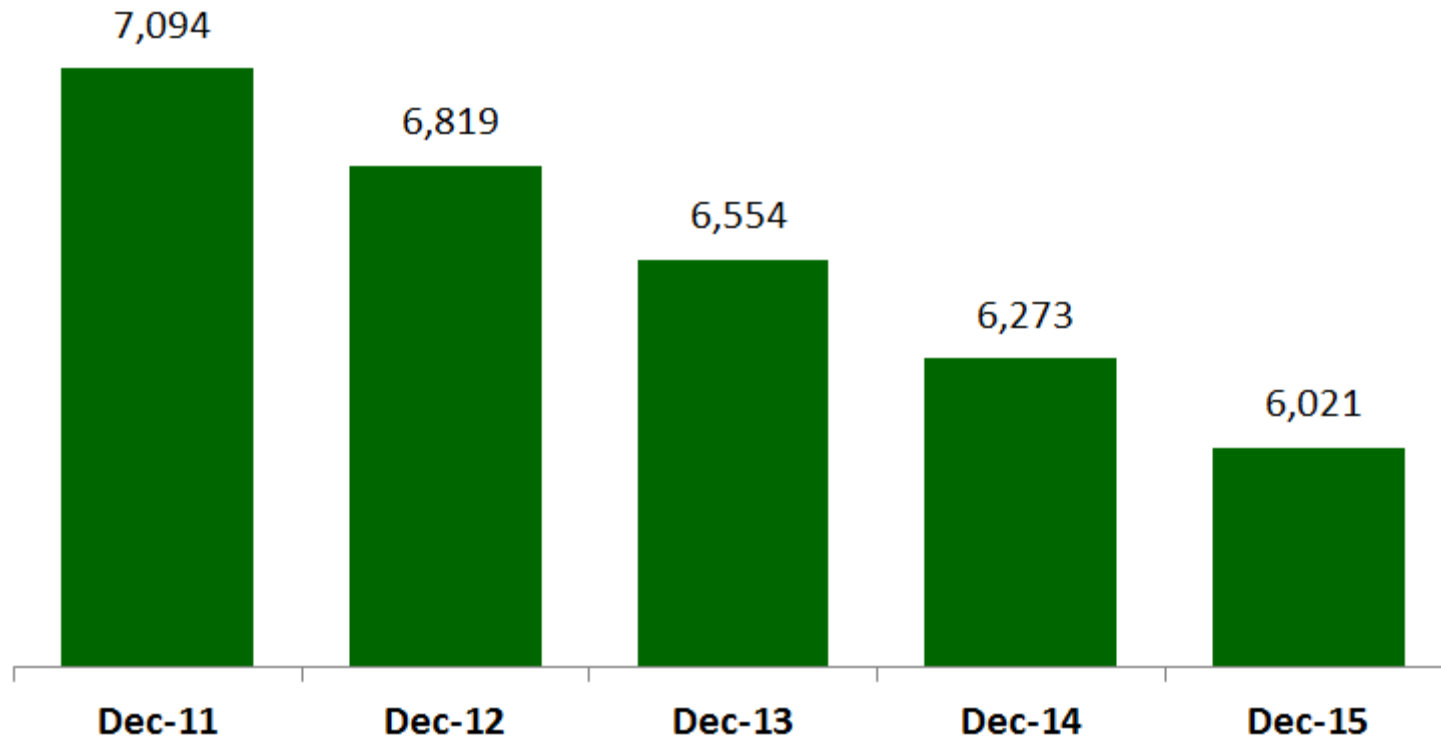
Pop
Quiz

Industry Update

Industry Update

Trends

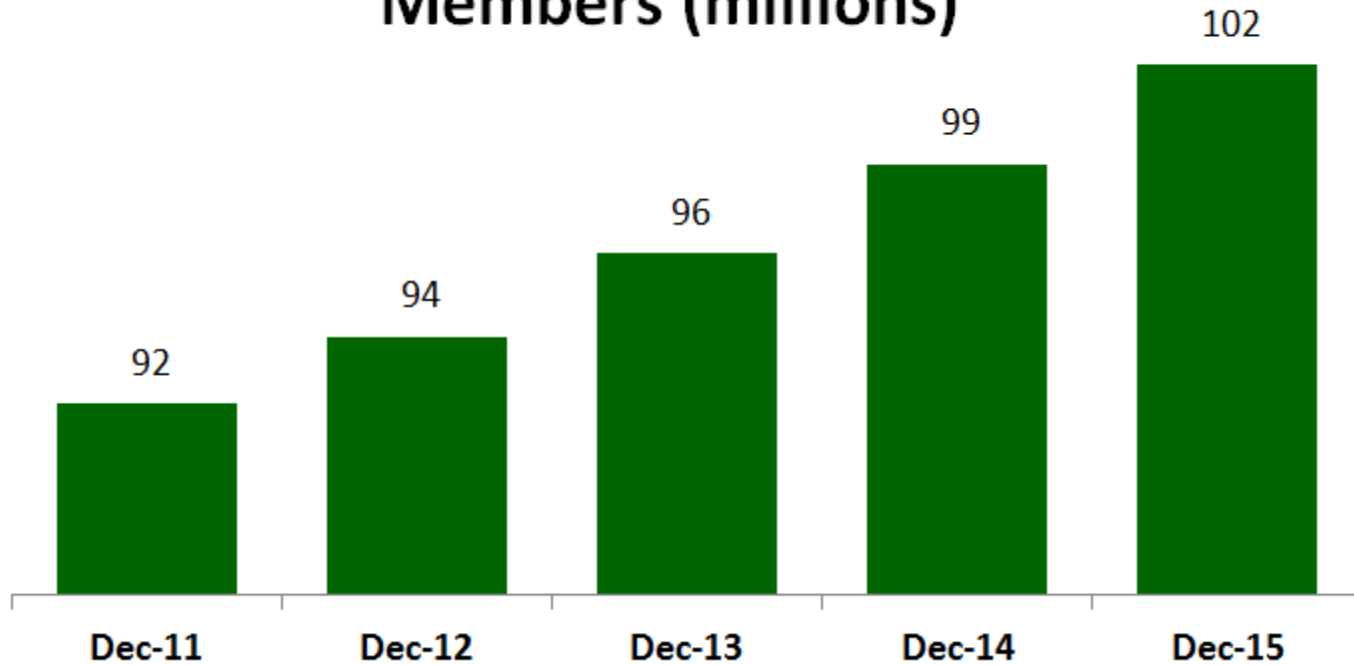
Federally Insured Credit Unions



Industry Update

Trends

Members (millions)

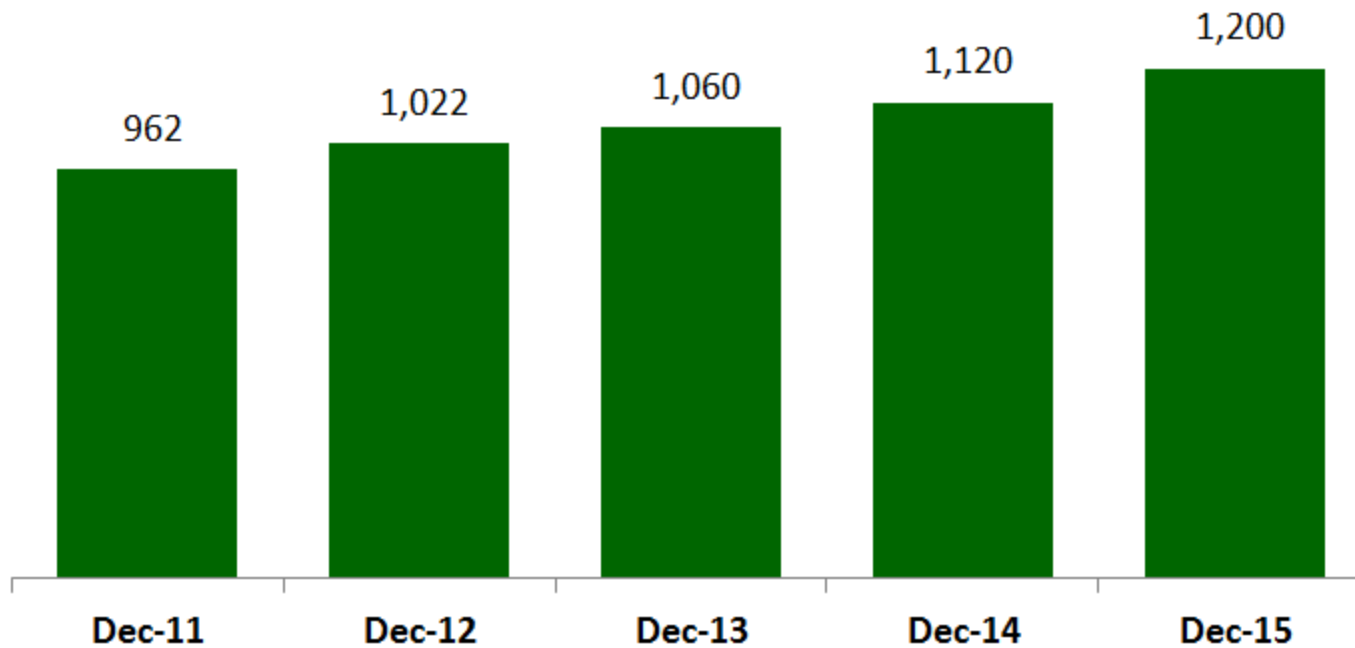


2.6% Annual Growth

Industry Update

Trends

Total Assets (billions)

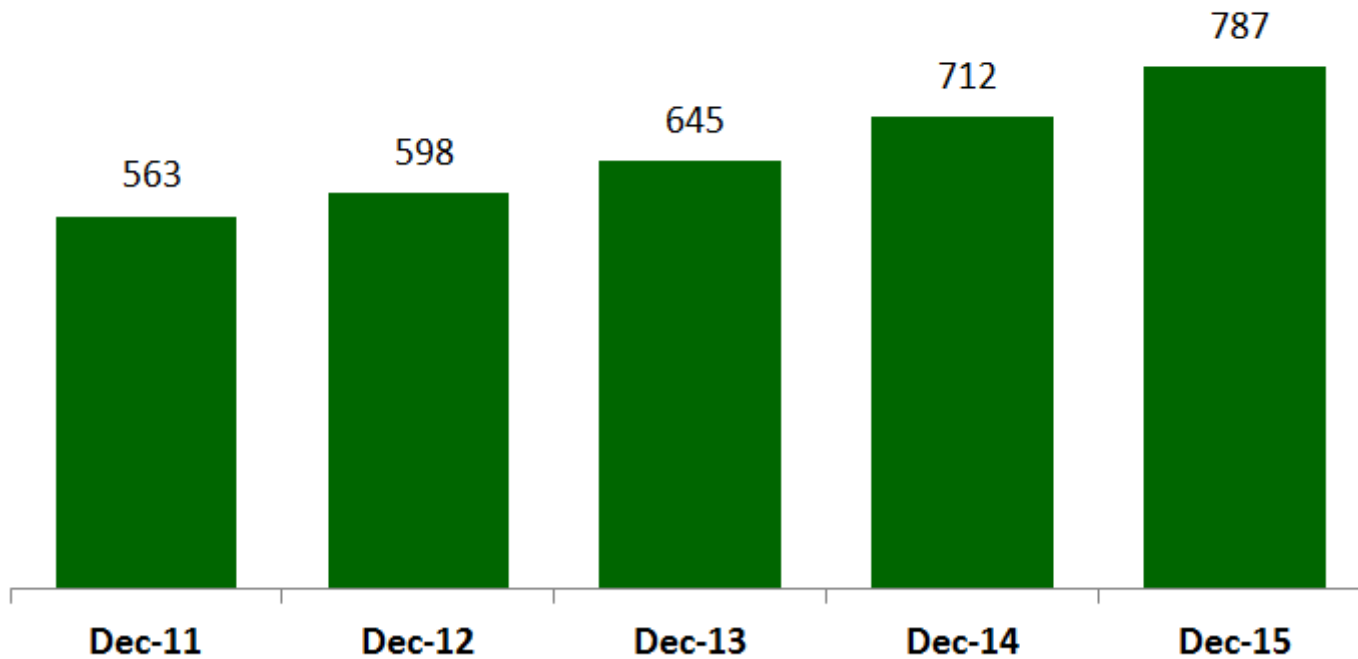


5.7% Annual Growth

Industry Update

Trends

Total Loans (billions)

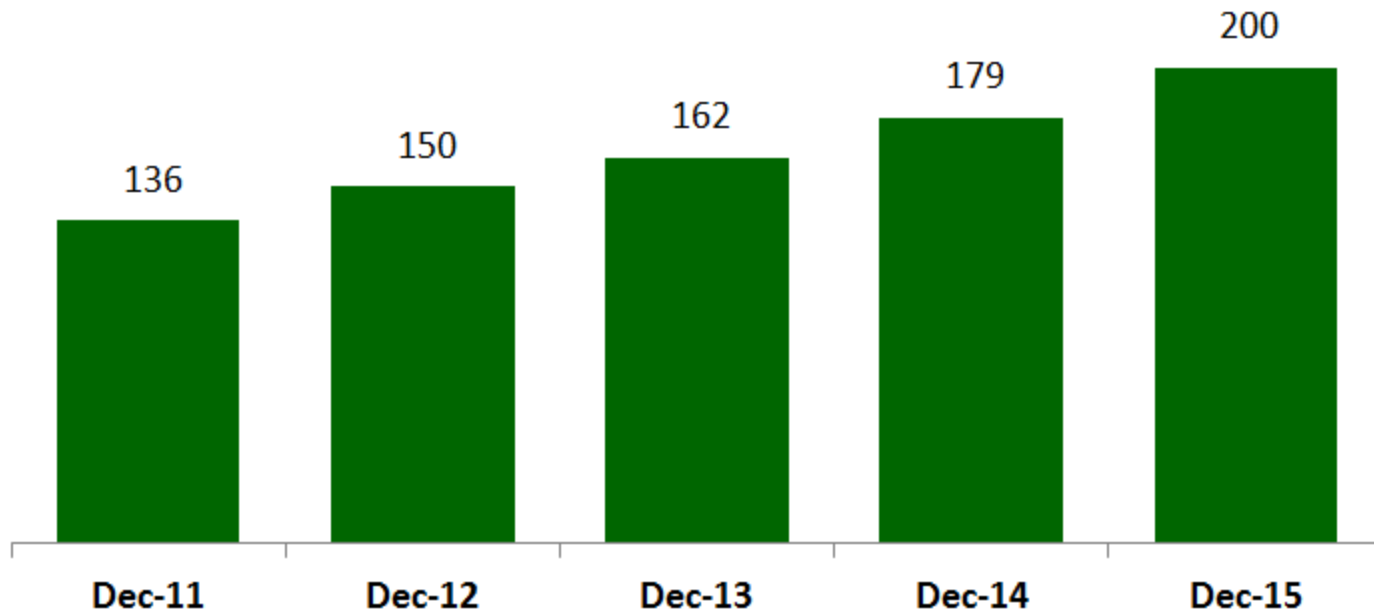


8.8% Annual Growth

Industry Update

Trends

Average Assets (millions)

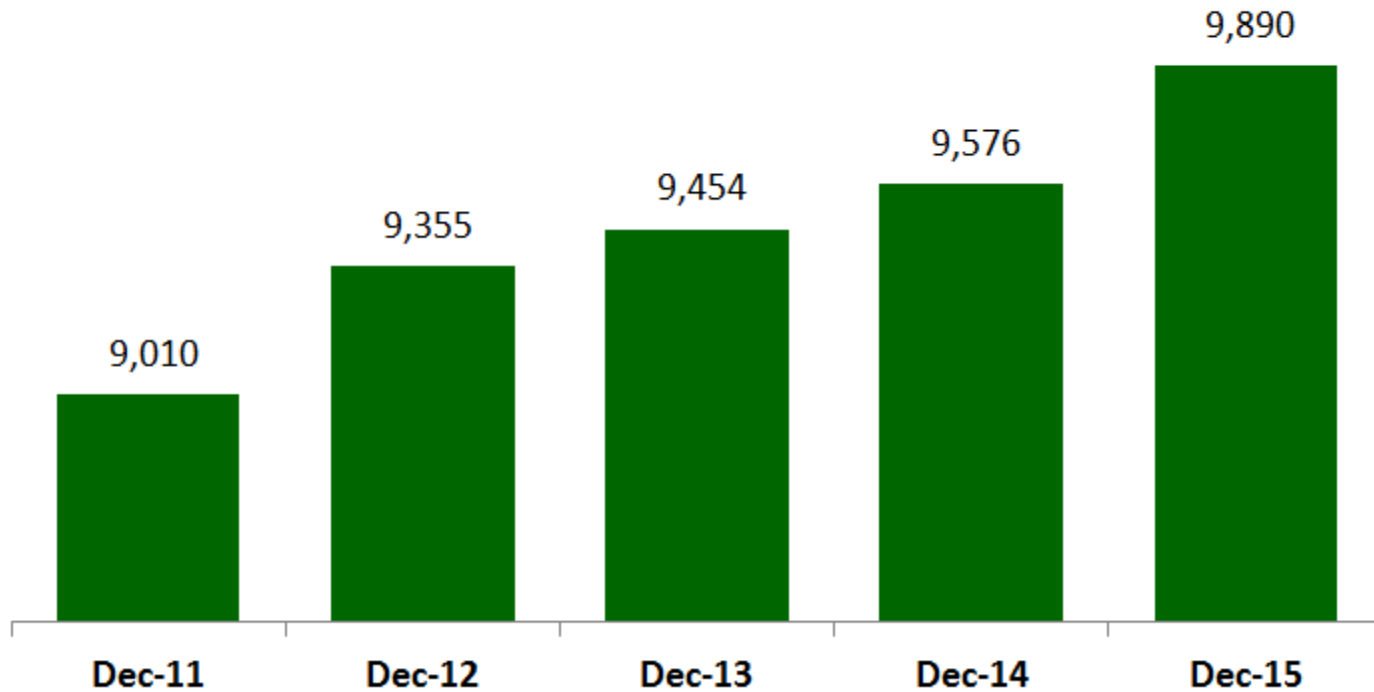


10.1% Annual Growth

Industry Update

Trends

Average Shares Per Member

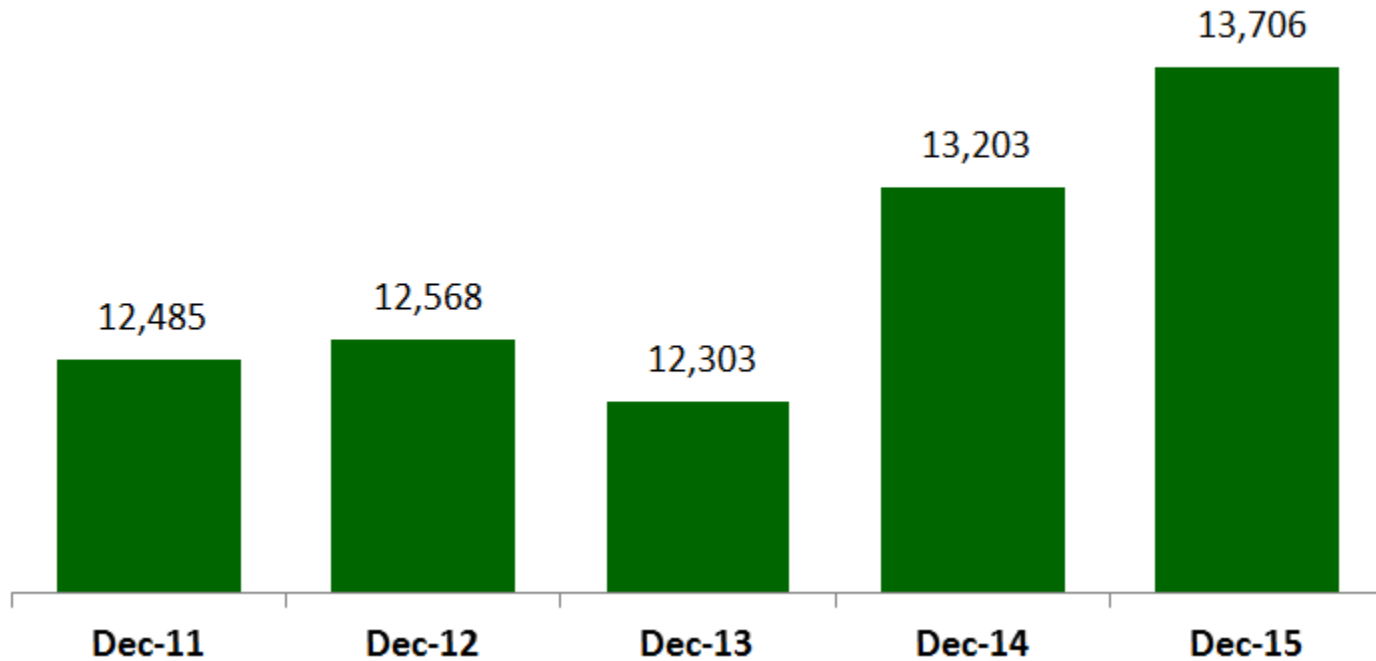


2.4% Annual Growth

Industry Update

Trends

Average Loan Balance

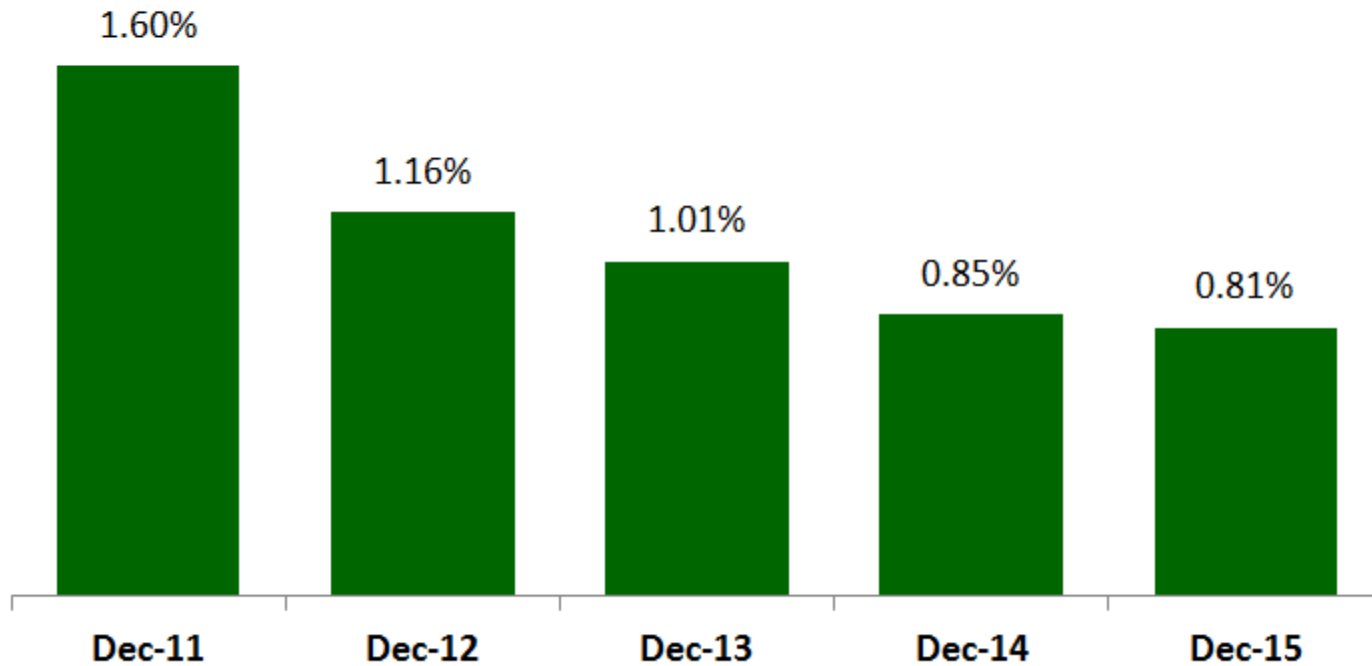


2.4% Annual Growth

Industry Update

Trends

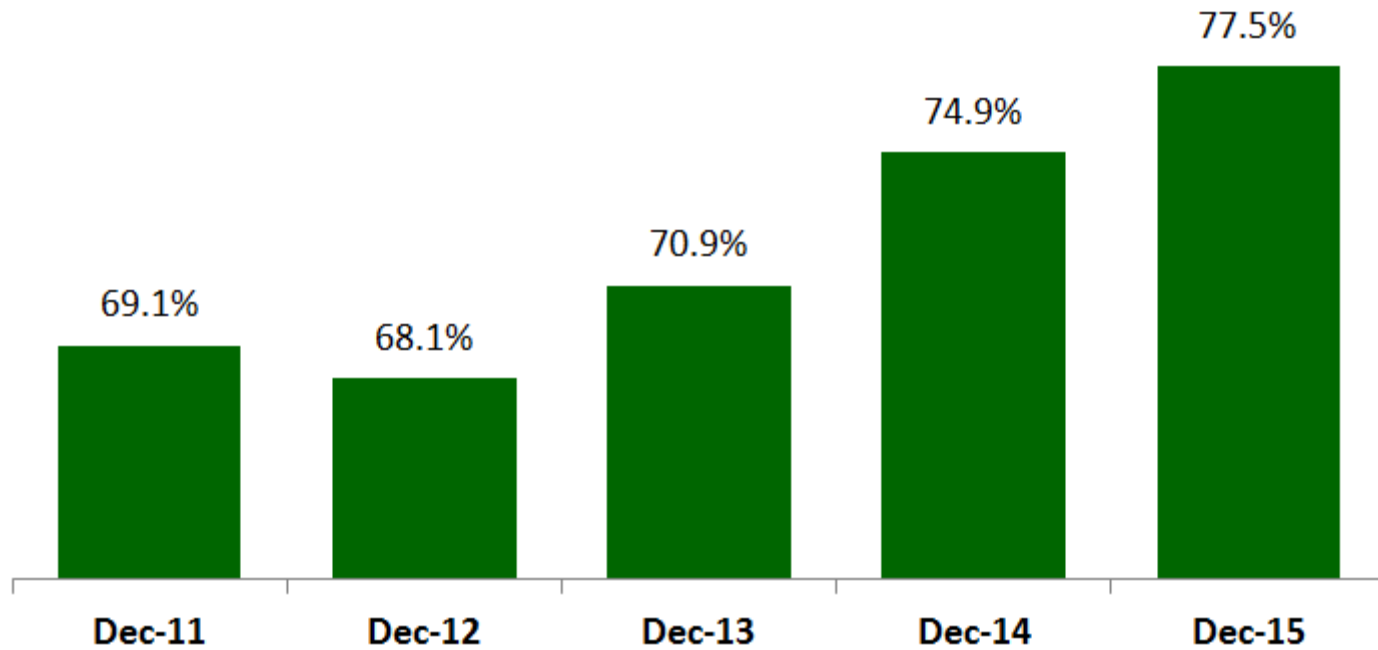
Delinquency Ratio



Industry Update

Trends

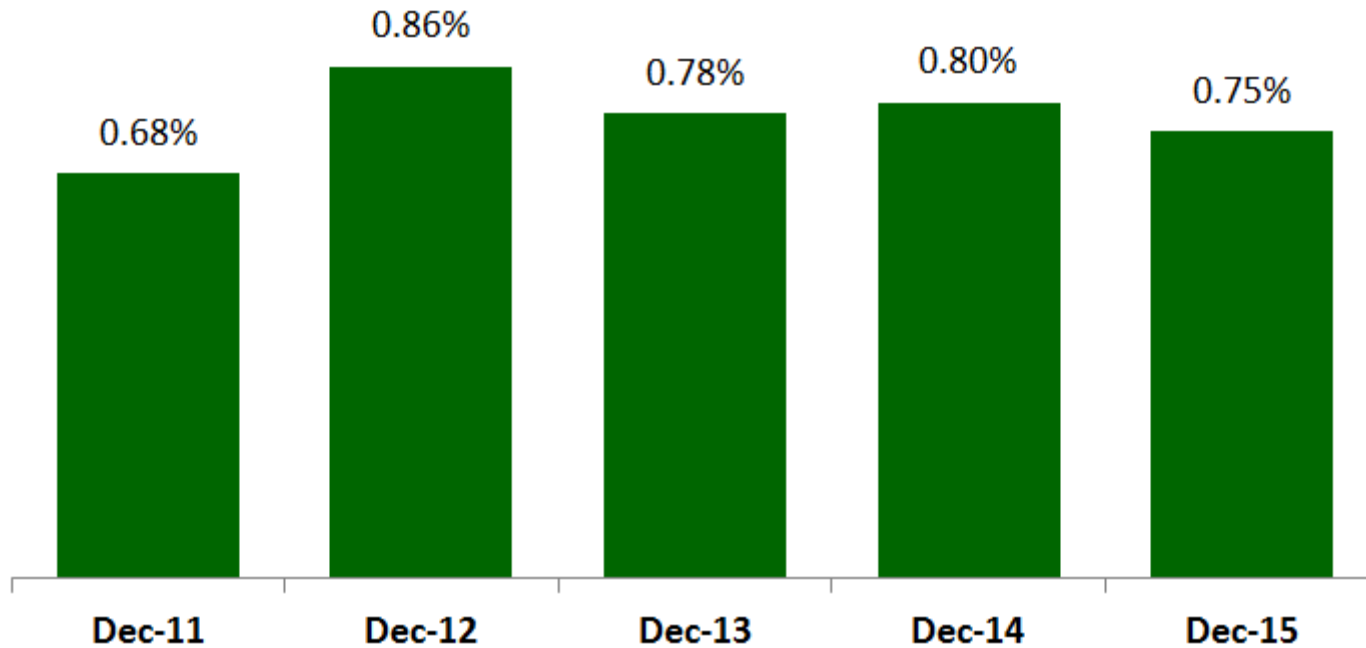
Loan to Share Ratio



Industry Update

Trends

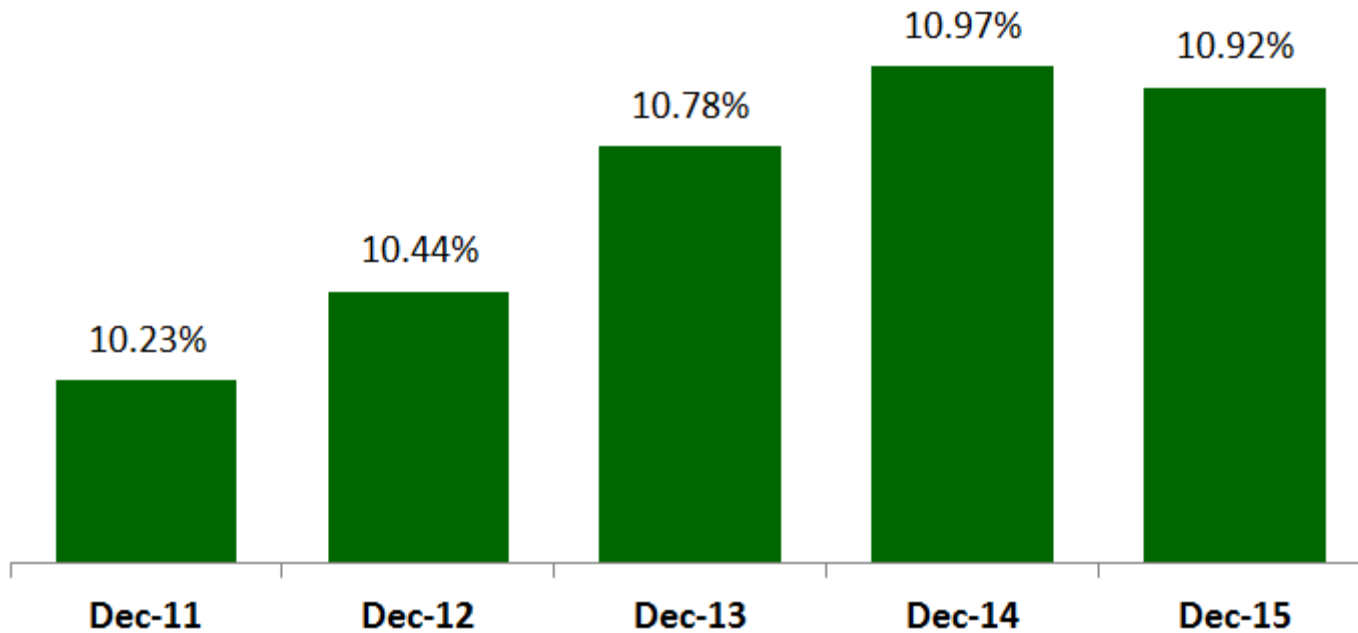
Return on Average Assets



Industry Update

Trends

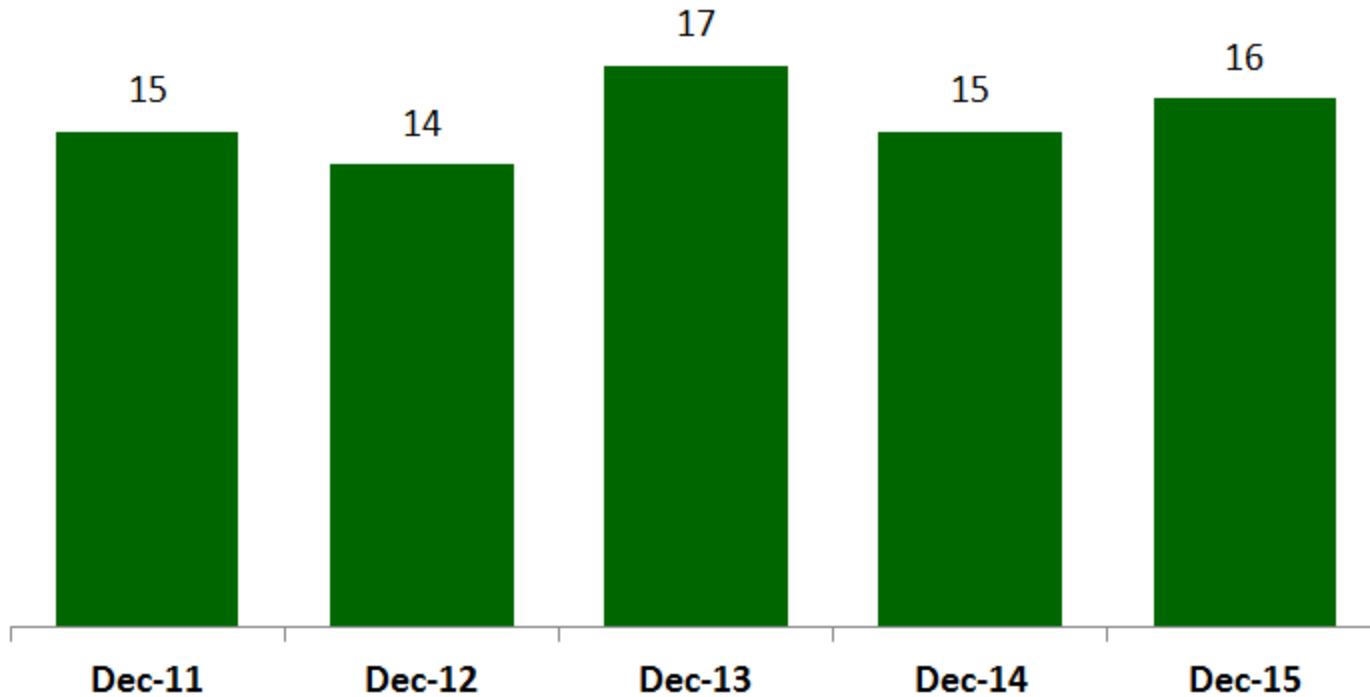
Net Worth Ratio



Industry Update

Trends

Failed Credit Unions



Industry Update

Trends

Favorable:

- Membership, asset, loan and deposit growth
- Larger average credit union size
- Higher average member loan and share balances
- Improved delinquency ratios
- Higher loan-to-share ratios
- Net worth growth

Unfavorable:

- Industry consolidation
- Failed credit unions

Historical Interest Rates

Interest Rates

Pop Quiz

**Pop
Quiz**

**The last Fed Funds rate change
was December 2015**

Q1

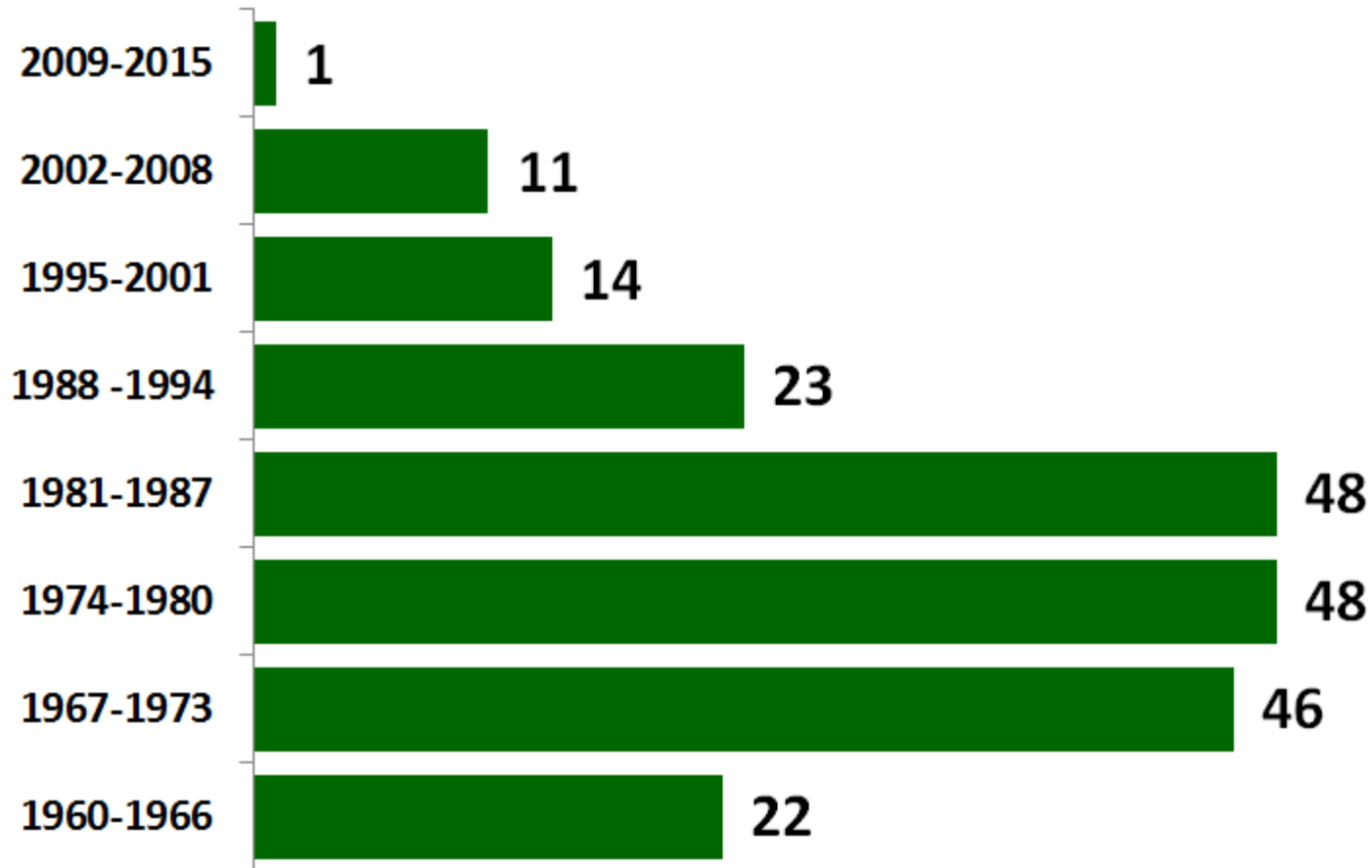
**When was the last change prior
to December 2015?**

**December
2008 (7 Years)**

Interest Rates

Historical Fed Funds Rate Changes

Number of times the Fed Funds Rate Changed in Each 7 Year Period



Interest Rates

Pop Quiz

Pop
Quiz

Q2

On average, over the past 50 years how often has the Fed Funds target rate changed?

A. Every 3 – 4 months

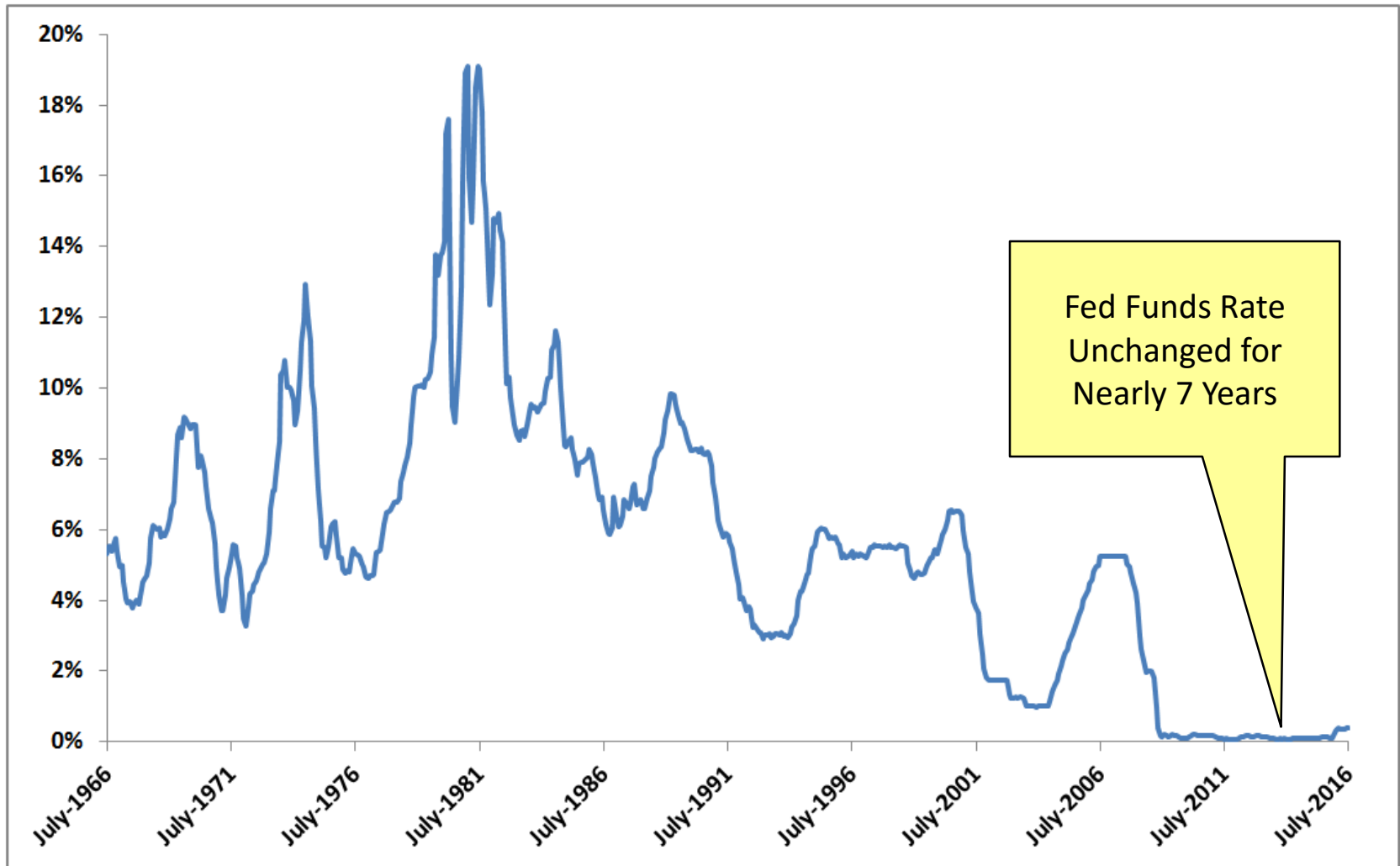
B. About once per year

C. Every 18 months

D. Every 2 - 3 years

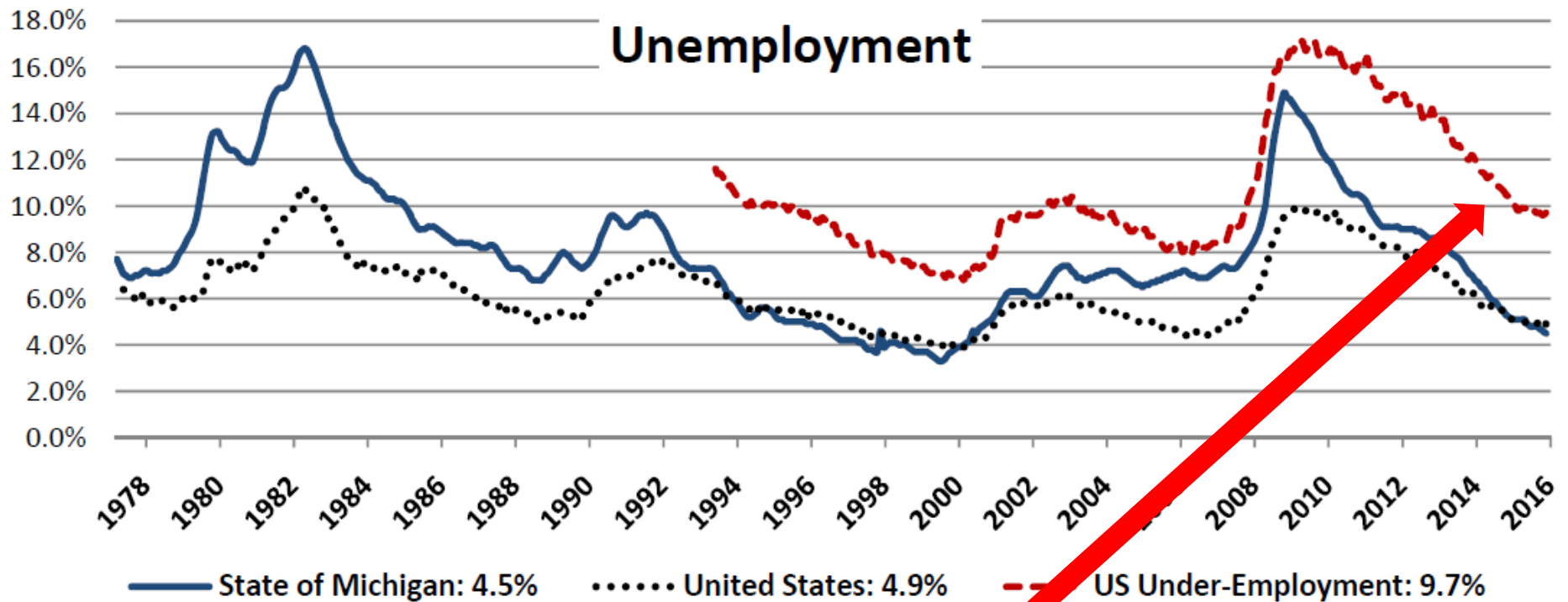
Interest Rates

Historical Fed Funds Rate: 1966 to 2016



Economic Indicators

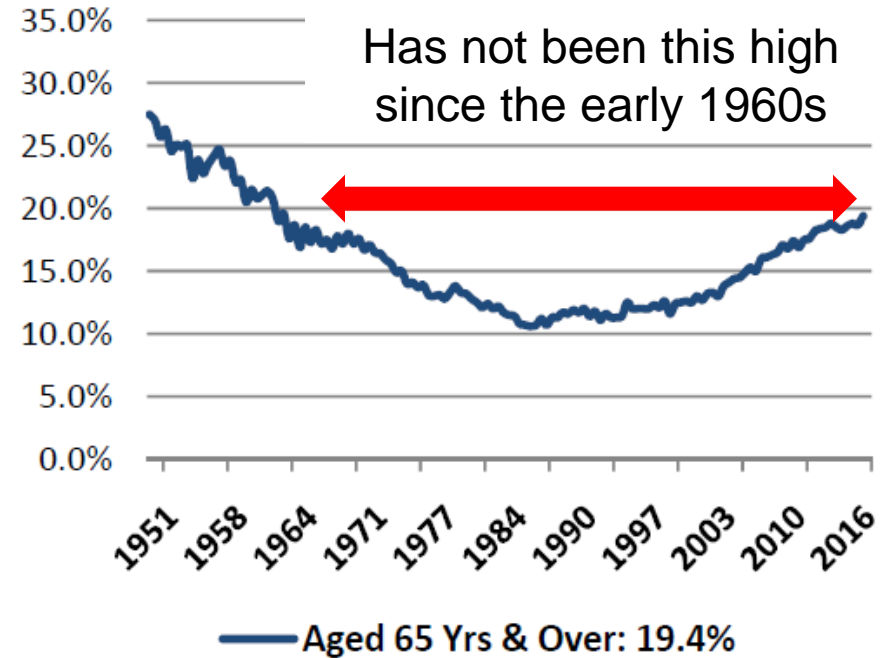
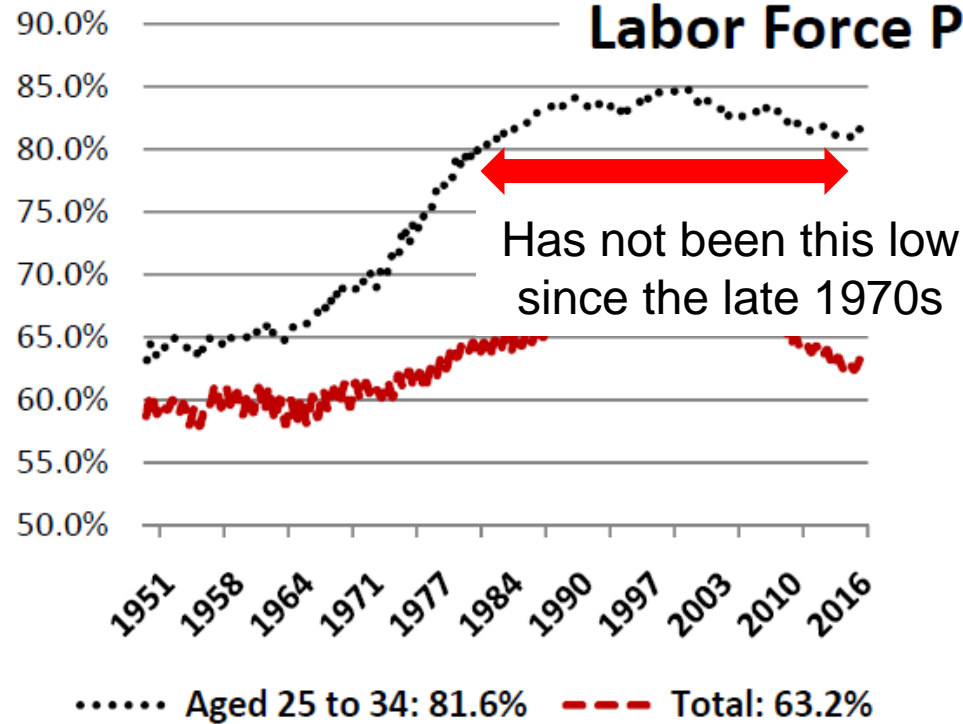
Economic Indicators



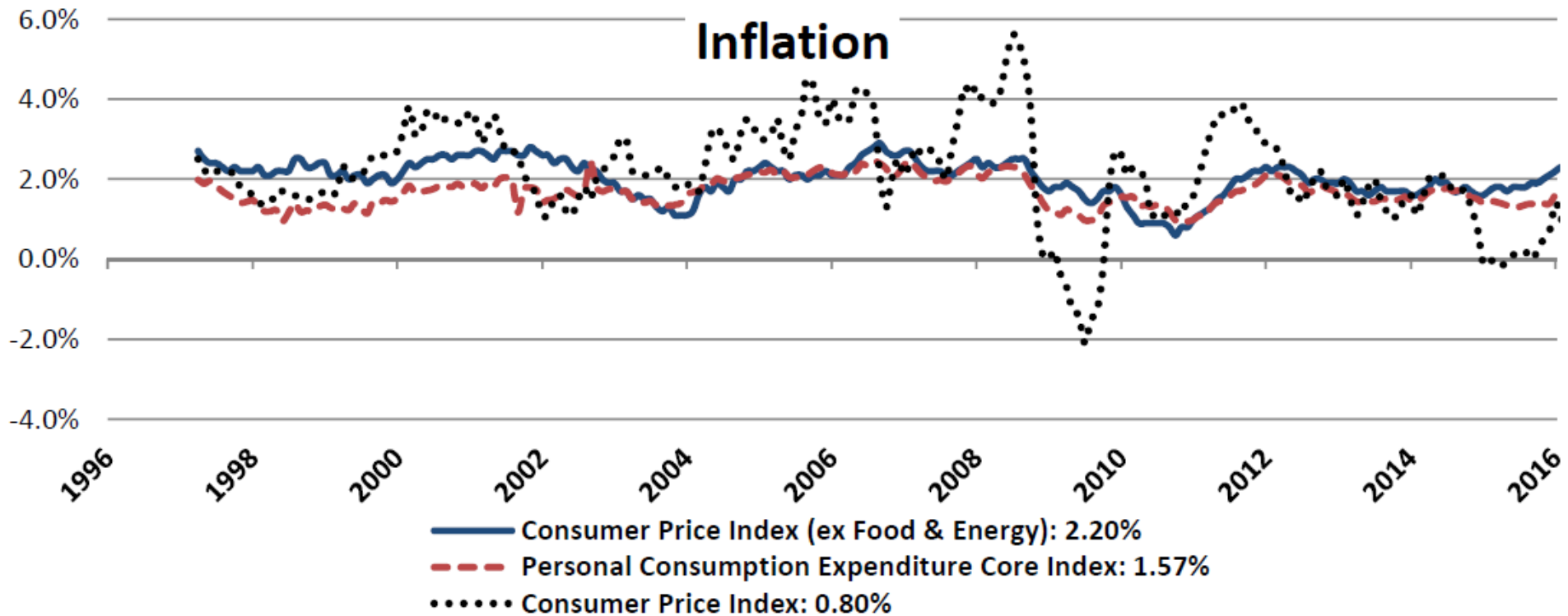
Underemployment
rate still too high

Economic Indicators

Labor Force Participation



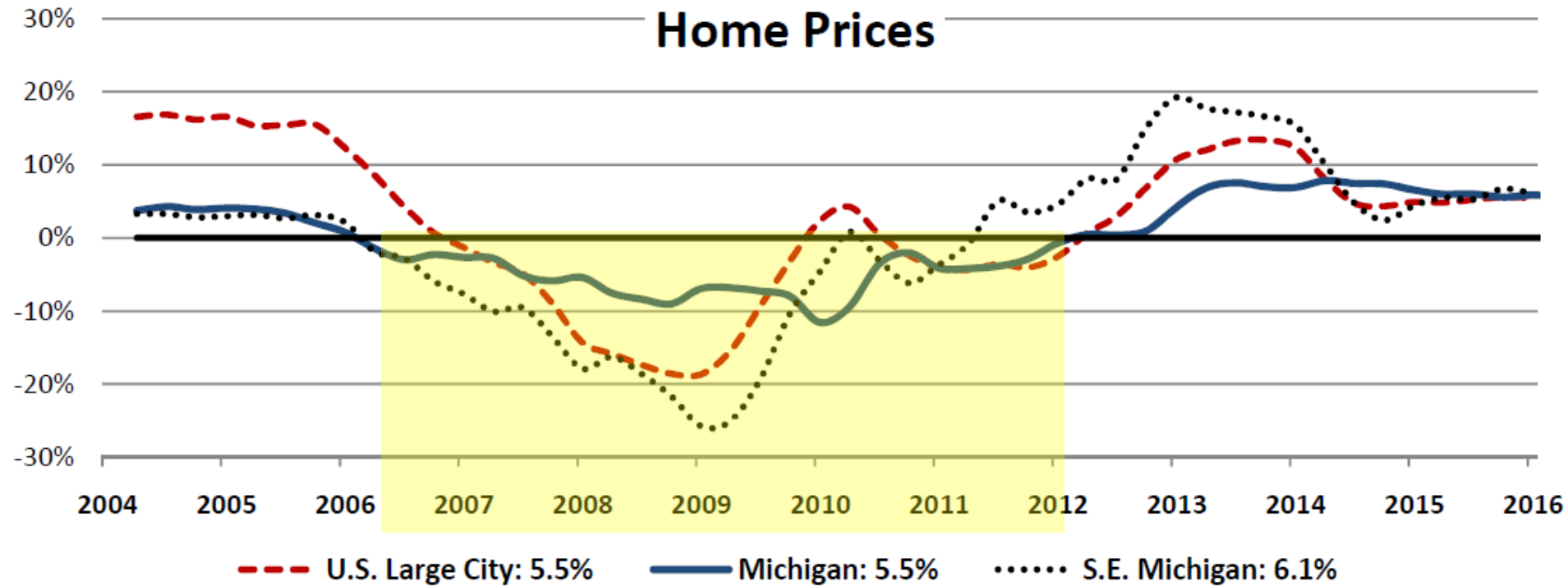
Economic Indicators



The Federal Reserve's favorite measure of inflation is trending sideways below 2.00%

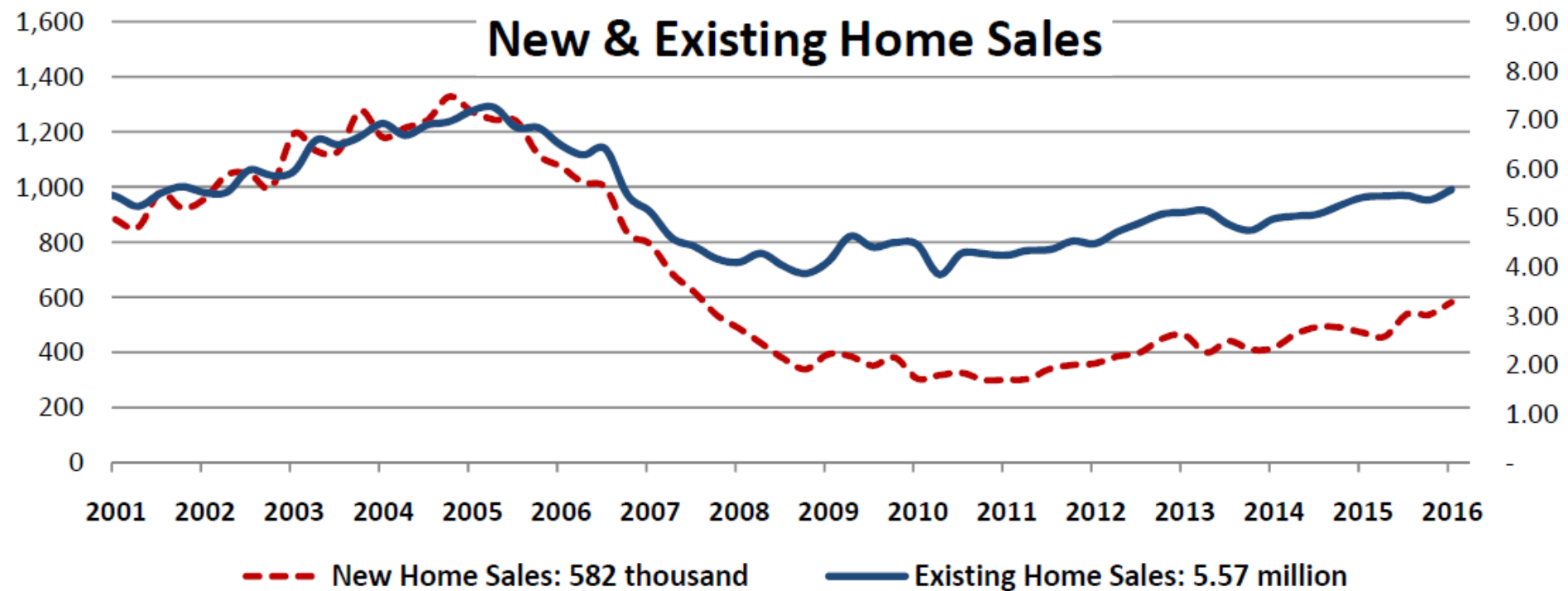
Economic Indicators

Home Prices

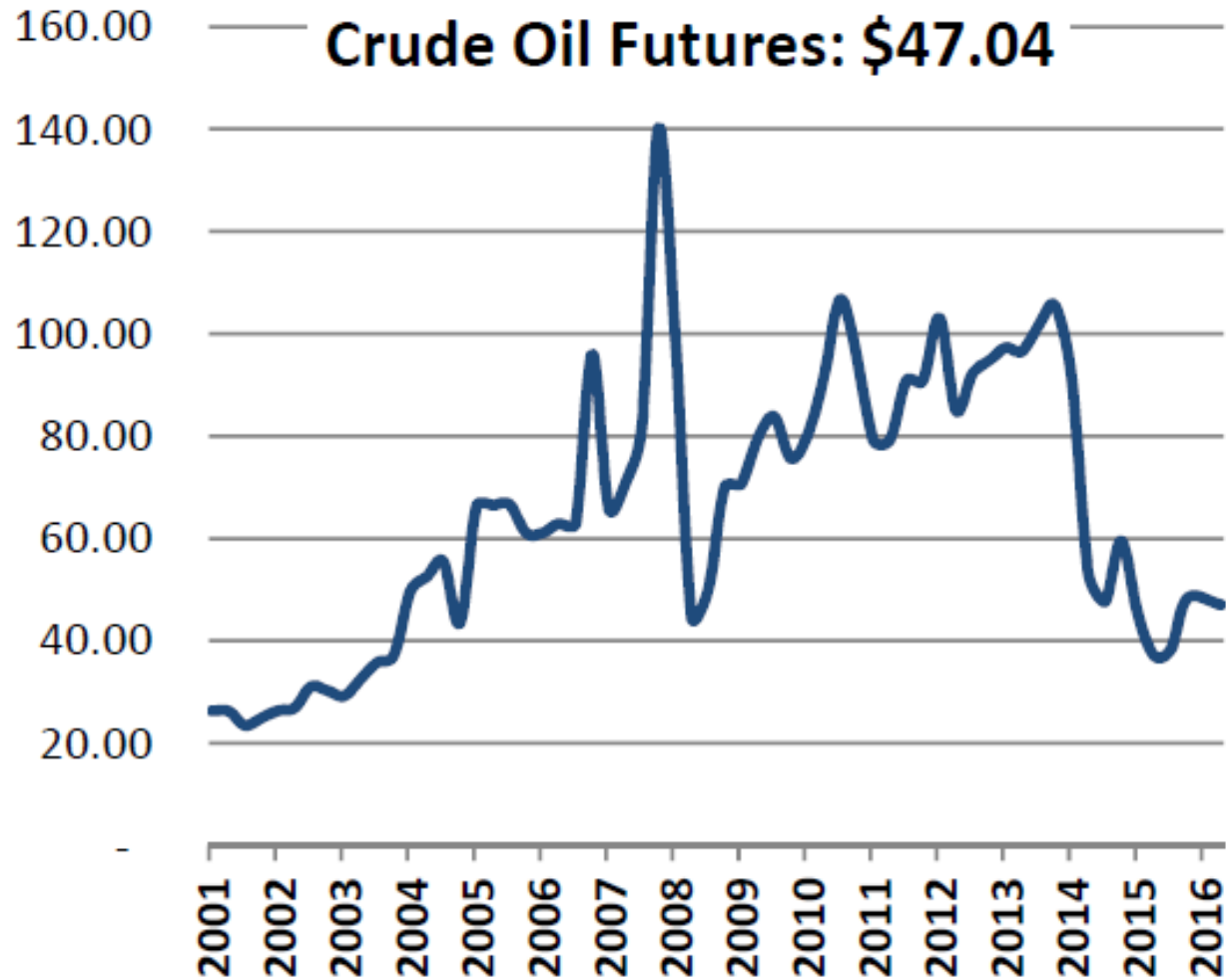


Downward trend for many years has been reversed

Economic Indicators

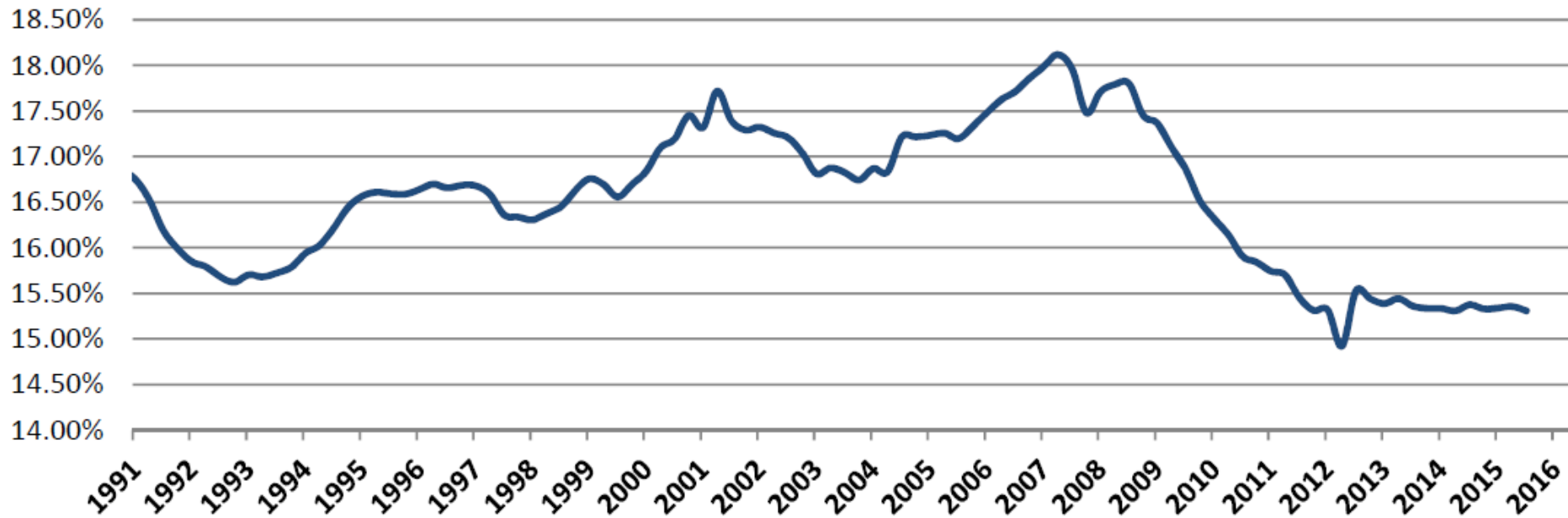


Economic Indicators



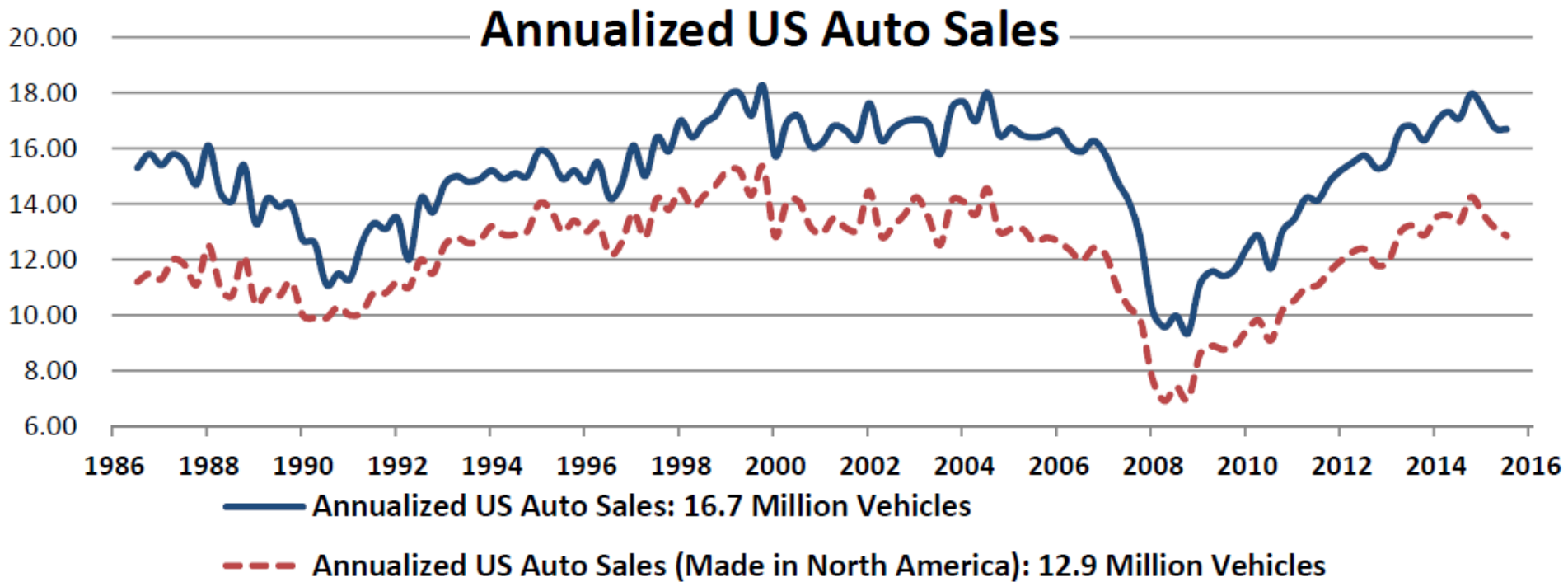
Economic Indicators

Household Financial Obligations Ratio: 15.31%

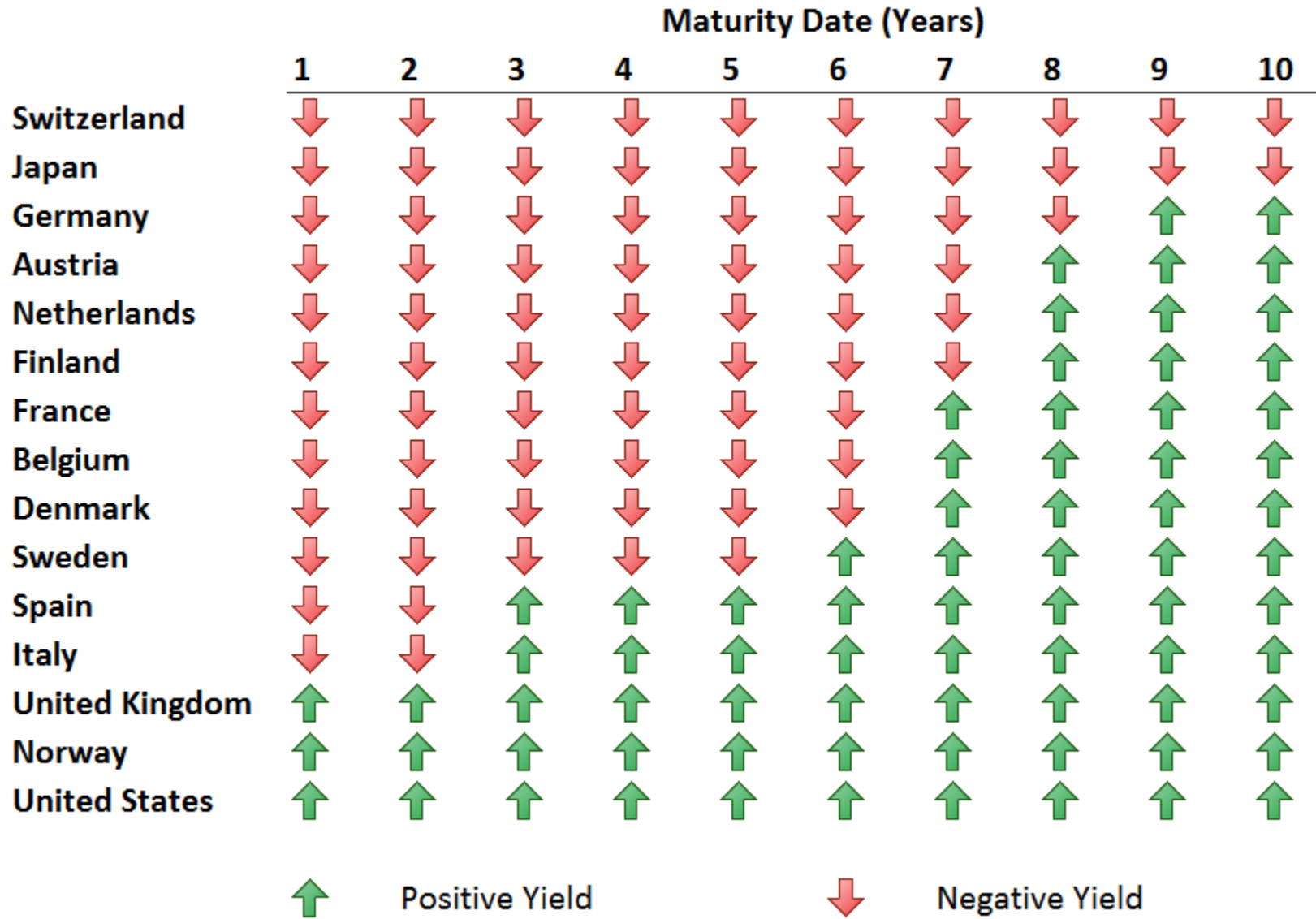


Percentage of take home pay allocated to house-hold obligations (mortgage payments, rent, property taxes & insurance)

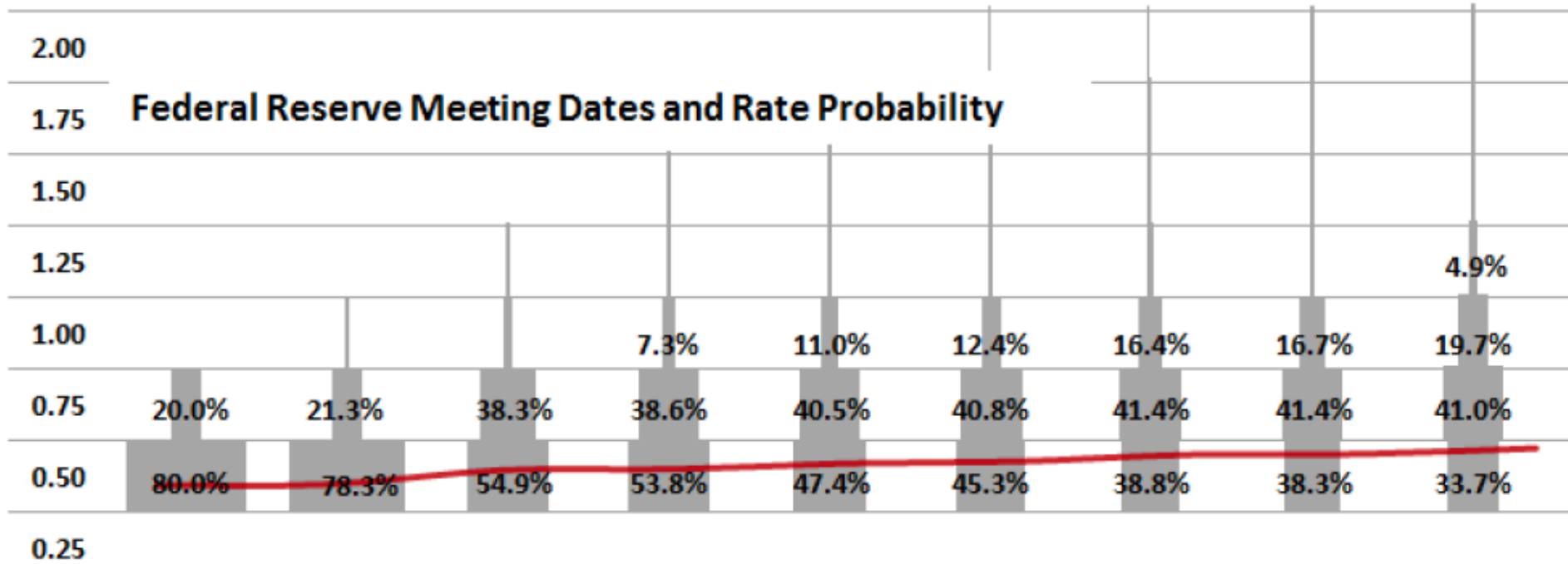
Economic Indicators



Economic Indicators



Economic Indicators



Date	9/21/2016	11/2/2016	12/14/2016	2/1/2017	3/15/2017	5/3/2017	6/14/2017	7/26/2017	9/20/2017
Rate	0.30%	0.31%	0.38%	0.39%	0.41%	0.43%	0.46%	0.47%	0.49%

Future implied probable rates are calculated using Fed Funds futures data.

Interest Rates What's Next?

When will interest rates change and by how much?



Economic indicators will continued to be released.
Markets and the Federal Reserve Bank will react.

Risk

Risk

Economic & Rate Outlook

Economic, political and interest rate outlook is uncertain:

- Uneven US economic growth
- Negative interest rates
- Election results?
- Uncertain path






The Asset Liability Management Model is the primary tool to measure risk under a variety of scenarios






- Risk to income
- Risk to value
- Growth scenarios
- What-if analysis

Risk

Review Risk to Income

As interest rates change, the Credit Union's income may also change. Risk to income is measured using both gradual and shock parallel tests. The gradual tests assume that all rates will rise slowly for a full year. The shock tests assume an immediate and sustained rate change. For example, if all market rates immediately rose 300 basis points (shock test), net interest income would be expected to fall by 6.0%.

Gradual Income Simulation			
Change	NII	% Ch	Limit
+500	4,347	-3.9%	NA
+400	4,385	-3.0%	-28.0% 
+300	4,421	-2.2%	-21.0% 
+200	4,456	-1.5%	-14.0% 
+100	4,489	-0.7%	-7.0% 
Base	4,522		
-100	4,530	0.2%	-7.0% 

Shock Income Simulation			
Change	NII	% Ch	Limit
+500	4,057	-10.3%	NA
+400	4,154	-8.1%	-28.0% 
+300	4,249	-6.0%	-21.0% 
+200	4,342	-4.0%	-14.0% 
+100	4,432	-2.0%	-7.0% 
Base	4,522		
-100	4,455	-1.5%	-7.0% 

Historical Income Sensitivity: Up 300 Shock Test

Jun-15	Sep-15	Dec-15	Mar-16	Jun-16
-7.7%	-7.6%	-7.4%	-6.0%	-6.0%

Important to review income sensitivity and trend over time.

Risk

Review Risk to Value

Net economic value of equity (NEVE) is the net present value of the balance sheet's cash flow. It is calculated by discounting anticipated principal and interest cash flow under a variety of interest rate scenarios. NEVE tests are based on parallel rate shocks. For example, if all rates increased by 300 basis points, NEVE would be expected to fall by 9.0%.

NEVE Sensitivity: Shock Tests

Change	NEVE	% Ch	Limit		NEVE Ratio
+500	20,126	-15.1%	NA		18.2%
+400	20,839	-12.1%	-48.0%	✓	18.5%
+300	21,588	-9.0%	-36.0%	✓	18.7%
+200	22,344	-5.8%	-24.0%	✓	19.0%
+100	23,056	-2.8%	-12.0%	✓	19.2%
Base	23,714				19.3%
-100	24,610	3.8%	-12.0%	✓	19.8%

Historical NEVE Sensitivity: Up 300 basis point test

Jun-15	Sep-15	Dec-15	Mar-16	Jun-16
-20.6%	-12.8%	-13.2%	-10.4%	-9.0%

Important to review value sensitivity and trend over time.

Risk

Review Non-Parallel Scenarios

In order to understand interest rate risk inherent in the Credit Union's balance sheet, it is important to measure the potential change to both income and net economic value of equity over a variety of interest rate scenarios.

Traditionally, ALM tests relied on parallel interest rate shift assumptions, with short-term and long-term rates moving in lock step. To expand our understanding of interest rate risk, this page displays the credit union's sensitivity to three non-parallel rate changes. Each graph displays the current U.S. Treasury yield curve as well as the new yield curve scenario. Test outcomes are shown below each graph.

Forward Yield Curve, short term rates higher, long term rates slightly higher.	Short term rates moderately lower & long term rates moderately higher.	Short term rates nearly unchanged & long term rates slightly lower.																																				
<table border="1"> <thead> <tr> <th></th> <th>Base</th> <th>Outcome</th> <th>% Change</th> </tr> </thead> <tbody> <tr> <td>NII</td> <td>4,522</td> <td>4,507</td> <td>-0.3%</td> </tr> <tr> <td>NEVE</td> <td>23,714</td> <td>24,014</td> <td>1.3%</td> </tr> </tbody> </table>		Base	Outcome	% Change	NII	4,522	4,507	-0.3%	NEVE	23,714	24,014	1.3%	<table border="1"> <thead> <tr> <th></th> <th>Base</th> <th>Outcome</th> <th>% Change</th> </tr> </thead> <tbody> <tr> <td>NII</td> <td>4,522</td> <td>4,528</td> <td>0.1%</td> </tr> <tr> <td>NEVE</td> <td>23,714</td> <td>23,692</td> <td>-0.1%</td> </tr> </tbody> </table>		Base	Outcome	% Change	NII	4,522	4,528	0.1%	NEVE	23,714	23,692	-0.1%	<table border="1"> <thead> <tr> <th></th> <th>Base</th> <th>Outcome</th> <th>% Change</th> </tr> </thead> <tbody> <tr> <td>NII</td> <td>4,522</td> <td>4,517</td> <td>-0.1%</td> </tr> <tr> <td>NEVE</td> <td>23,714</td> <td>25,138</td> <td>6.0%</td> </tr> </tbody> </table>		Base	Outcome	% Change	NII	4,522	4,517	-0.1%	NEVE	23,714	25,138	6.0%
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Risk

Review Pricing Sensitivity

Analysis compares changes in the Fed Funds rate to the client's deposit rates during a period of rapidly rising interest rates (2004 – 2006).

Client A: Increased rates very little

	Fed Funds	Money Market	Shares	Share Drafts	IRA Shares	Club Accounts
June 2004	1.25	0.85	0.15	0.30	0.75	0.15
June 2005	3.25	0.85	0.15	0.30	0.75	0.15
June 2006	5.25	0.85	0.25	0.30	0.75	0.25
Total Change	4.00	-	0.10	-	-	0.10
Per 100	1.00	-	0.025	-	-	0.025

Client B: Increased some rates and cut some rates

	Fed Funds	Shares	Money Market	Share Drafts	Club Accounts	IRA Shares
June 2004	1.25	0.75	1.49	0.75	0.75	1.12
June 2005	3.25	0.50	1.29	0.50	0.50	0.90
June 2006	5.25	0.50	2.28	0.50	0.50	1.39
Total Change	4.00	(0.25)	0.79	(0.25)	(0.25)	0.27
Per 100	1.00	(0.06)	0.20	(0.06)	(0.06)	0.07

Risk

Review Pricing Sensitivity

Often, these studies show that deposit rates changed very little or were cut in response to a large increase in the Fed Funds rate. **It would not be appropriate to assume the same deposit pricing going forward.**

Client A: Increased rates very little

	Fed Funds	Money Market	Shares	Share Drafts	IRA Shares	Club Accounts
June 2004	1.25	0.85	0.15	0.30	0.75	0.15
June 2005	3.25	0.85	0.15	0.30	0.75	0.15
June 2006	5.25	0.85	0.25	0.30	0.75	0.25
Total Change	4.00	-	0.10	-	-	0.10
Per 100	1.00	-	0.025	-	-	0.025

Client B: Increased some rates and cut some rates

	Fed Funds	Shares	Money Market	Share Drafts	Club Accounts	IRA Shares
June 2004	1.25	0.75	1.49	0.75	0.75	1.12
June 2005	3.25	0.50	1.29	0.50	0.50	0.90
June 2006	5.25	0.50	2.28	0.50	0.50	1.39
Total Change	4.00	(0.25)	0.79	(0.25)	(0.25)	0.27
Per 100	1.00	(0.06)	0.20	(0.06)	(0.06)	0.07

Risk

Review Performance & Condition Ratios

Overview of ALM Ratios

ALM Ratios with Policy Limits	Mar-15	Jun-15	Sep-15	Dec-15	Mar-16	Jun-16	Current *		Projected
							Policy Limit	Jun-17	
Net Interest Spread	4.11%	4.11%	3.84%	3.87%	3.82%	3.88%	> 3.50%	✓	3.81%
Liquidity Ratio	72.70%	90.11%	93.42%	92.05%	89.26%	88.53%	> 25.00%	✓	NA
Loans to Deposits	80.1%	82.0%	75.4%	76.8%	74.0%	75.6%	< 90.00%	✓	75.6%
Loans to Assets	64.7%	65.5%	59.7%	60.2%	59.4%	60.5%	< 80.00%	✓	59.7%
Net Worth To Assets	18.03%	17.92%	18.55%	18.72%	18.64%	18.56%	> 8.00%	✓	19.62%
ROA	1.94%	1.84%	1.44%	1.39%	1.68%	1.60%	> 1.00%	✓	1.31%

- Your ALM provider may include different ratios
- Individual policies will include different limits and measures
- Ask questions if any unfavorable trends are shown

Impact of Low Rate Environment

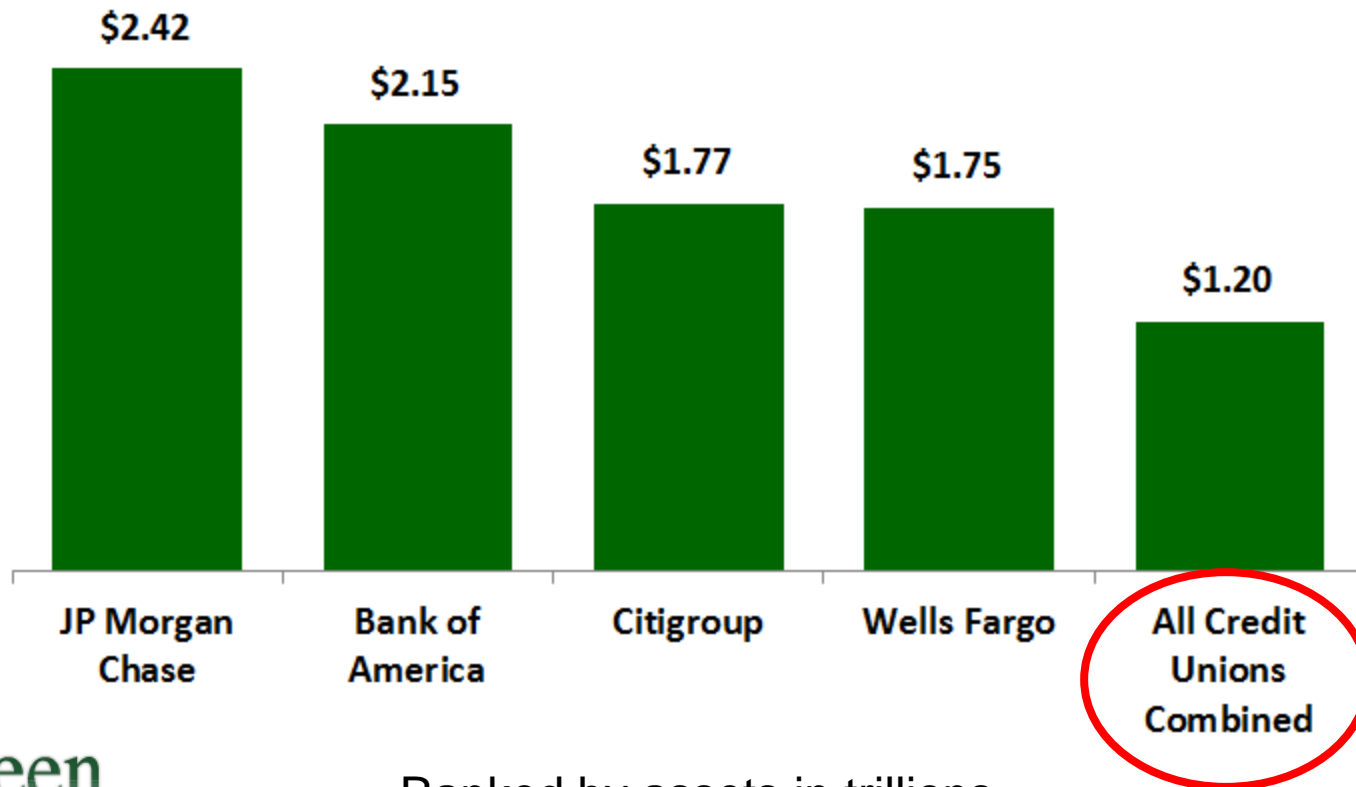
- Very low rates initially boosted credit union earnings as deposit costs fell to historic low levels. But it didn't last long...
- Deposit costs can not fall further, while loan and investment yields continue to fall.
- Common to see anemic loan growth and swelling deposits.
- Excess cash invested in a challenging rate environment.

Opportunities

Opportunities

Credit Unions & Banks

Each of the four largest U.S. banks is larger than the entire credit union industry:

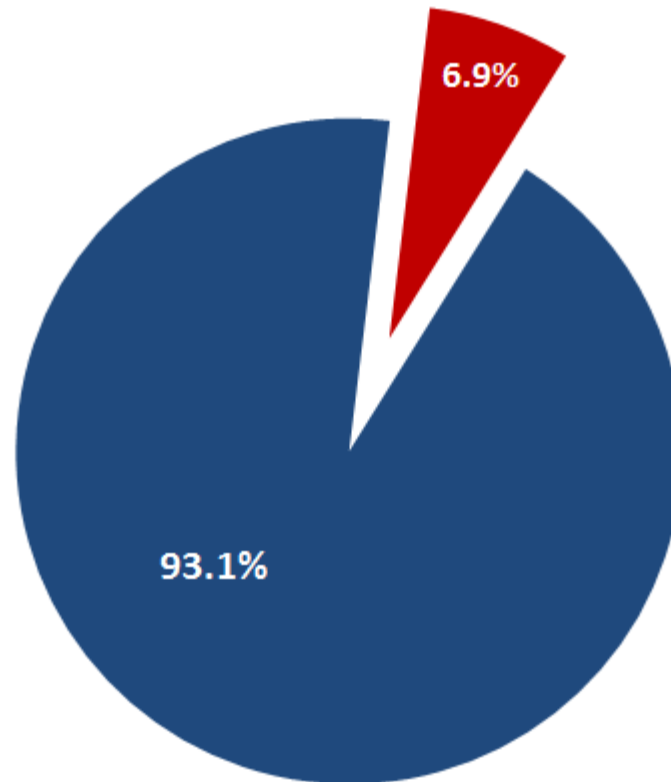


Opportunities

Credit Unions & Banks

Combined, assets at credit unions and banks exceeds \$17 trillion.

Opportunity to
compete with
banks and earn
greater market
share



Opportunities

Economic Conditions Matter

Brighter economic conditions generally include:

- Lower unemployment rate
- Higher home values
- Faster economic growth
- Higher earnings
- Greater consumer spending & borrowing
- Higher consumer confidence

Opportunities

Strategies for an improving economy

Plan to raise deposit rates slowly **only in response to need for funds**

Offer deposit specials to encourage member CDs **only in response to need for funds**

Prepare for consumer loan growth with properly trained staff

Consider member business lending where floating rate loans are more common

Offer 1st mortgage loans, but retain only loans with the most favorable terms

Understand your interest rate risk

Carefully plan investment portfolio to improve yield

Watch your competition as well as retail and housing trends

Opportunities Strategies

Attract and retain low-cost core deposits

History suggests that members may withdraw funds as the economy improves:

- Stock Market
- Competitors
- Spending
- Large purchase down payments

Tie members to the credit union with direct deposit, smart-phone apps, electronic deposit and payment services & convenience

Fee income opportunity

Train staff regarding importance of low-cost core deposits

Opportunities Strategies



GET UP TO \$300

when you open and use a new



start with a...

\$200 bonus

when you open a Fifth Third Essential Checking®



Get up to \$25

with a new Chase checking and savings account

Large banks are aggressively seeking new accounts and fee income that follows

Huntington



Get \$200

Open a qualifying checking account

Opportunities Summary

- The credit union industry is healthy and improving
- Low protracted interest rate environment is not normal
- Economic growth is uneven
- Interest rates likely to remain low, related to modest inflation and negative interest rates
- Effective use of the ALM model is key to understanding risk
- A slowly improving economy leads to growth opportunities
- Attract and retain core local deposits

Questions



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