Fi360 Conference: The Art of Economic Forecasting & the US Economic Outlook

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The Art of Economic Forecasting

I The Problem: The Plight of the Fortune Tellers

The Problem: How do we make decisions about the future in a world of uncertainty?

The Cardsharps, Cavaggio (1594)

Where is the economy headed?

What is the path of interest rates?

What are the inflation/deflation risks?

The Economist or the Meteorologist: Which is More Accurate?

Meteorology	Economics
Physical science	Social science
Rain	Human Beings
Snow	Human Choice
Wind	Data Availability
Laboratory Experiments	History, But Few Labs

"Most fundamentally, and perhaps most challenging for researchers, the crisis should motivate ***economists to think further about their modeling of human behavior****."* – Ben Bernanke commenting on economics in the wake of the financial crisis

II Types of Forecasts

Types of Forecasts

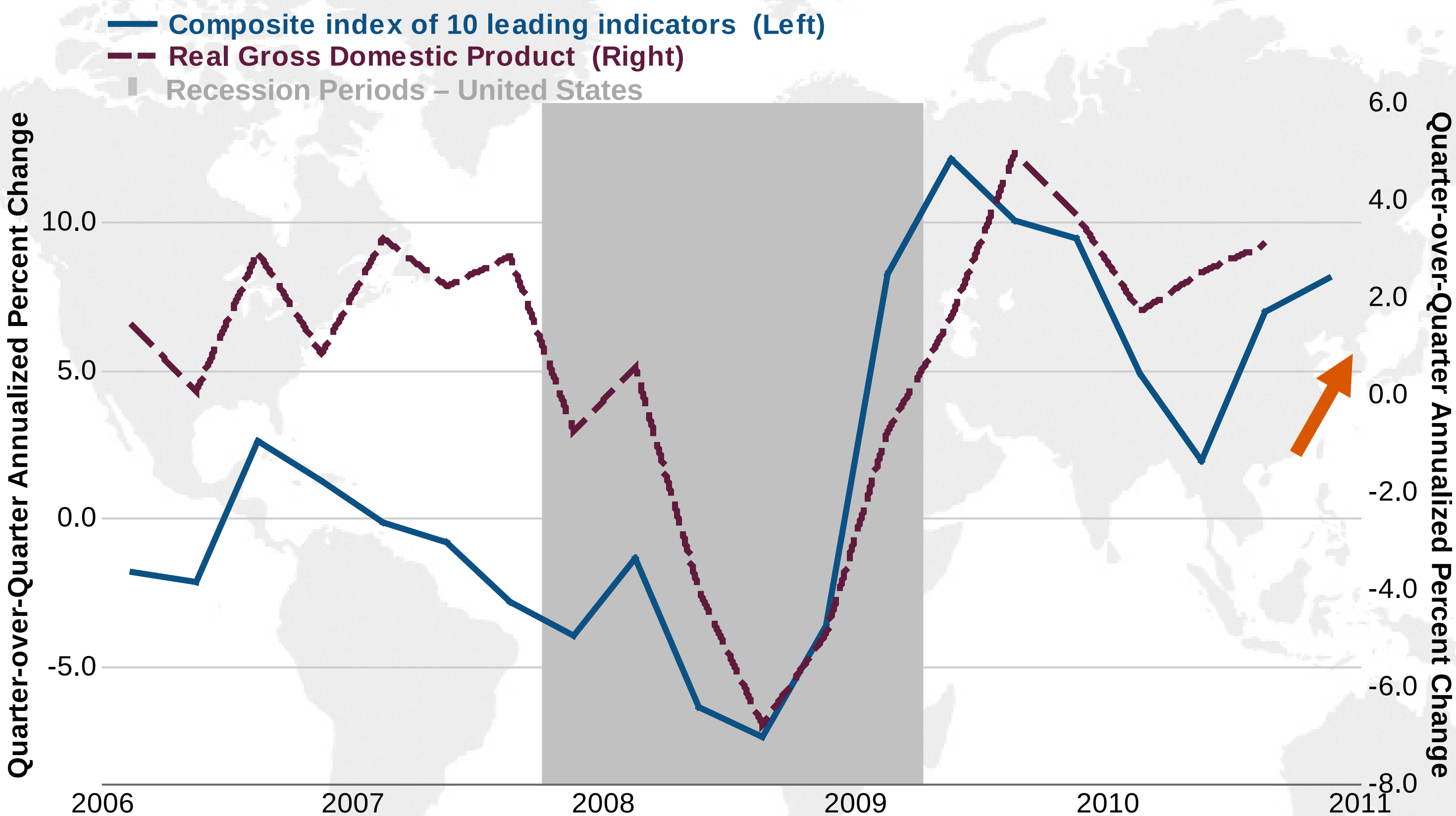
Forecast Type	Example
"Theory-free" forecasts	Leading indicators
Mathematical "models" of the economy	The Fed model
Market-based models	The Yield Curve
"The Mental Model"	Combines narrative + economic indicators + market-based indicators

"Human behavior is simply too complex and nuanced to be fully represented mathematically, at least with the maths known to modern man. Maths can help us to gain insight into economic processes, but it is not the only way to gain such insight, nor even the most productive."

-- DeLisle Worrell, Governor of the Central Bank of Barbados

The US Index of Leading Indicators Suggests Growth Will Improve

Composite of 10 Leading Economic Indicators and Real Gross Domestic Product (GDP)



Sources: The Conference Board and The Commerce Department

Last Updated: Q4 2010

The Conference Board's Leading Economic Index (LEI) leads turning points in the economy by an average of 7 months. The index correctly predicted a rebound in real GDP growth over the past year. At the present time, it is pointing to an improved pace of expansion for the first half of 2011.

What Are Leading Economic Indicators?

Leading Economic Indicators are economic and financial market variables that have a proven track record of changing direction ahead of shifts in the overall economy.

Two main categories:

- Real variables are reflective of actual economic activity whether it involves production, employment, income or sales.
- Financial variables are reflective of stock or bond market performance and monetary aggregates.

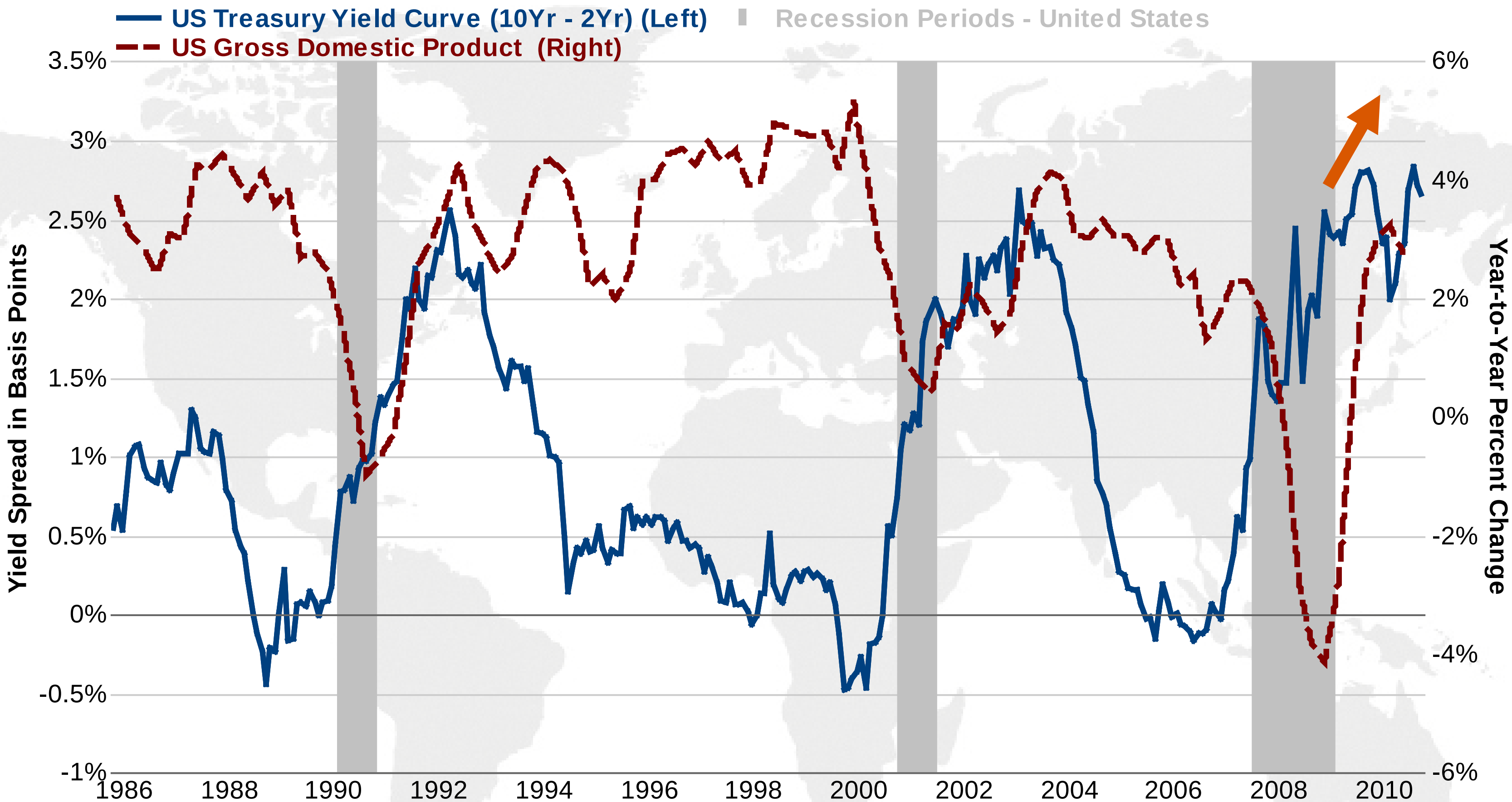
None of Our Leading Indicators Are Pointing to a Double Dip

	Lead Time (months)	Reliability	Growth Momentum (3-Month Change)	Pointing to Double-Dip?
Financial Indicators				
Yield Curve	12 to 24	High	Moderating	X
M2	12 to 24	Low	Improving	X
Stock Prices	3 to 6	Medium	Moderating	X
Real Indicators				
Existing Home Sales	6 to 9	High	Stable	X
ISM Manufacturing Index	3 to 6	High	Improving	X
Consumer Expectations	3 to 6	Low	Improving	X
New Orders for Durable Goods	1 to 3	High	Improving	X
Unemployment Insurance Claims	1 to 3	Medium	Improving	X
Average Weekly Hours	1 to 3	High	Stable	X

Conclusion: Medium-Term Outlook Has Improved

The Yield Curve Is Indicating Positive Growth

Real GDP and Yield Spread between 2-Year and 10-Year US Treasuries

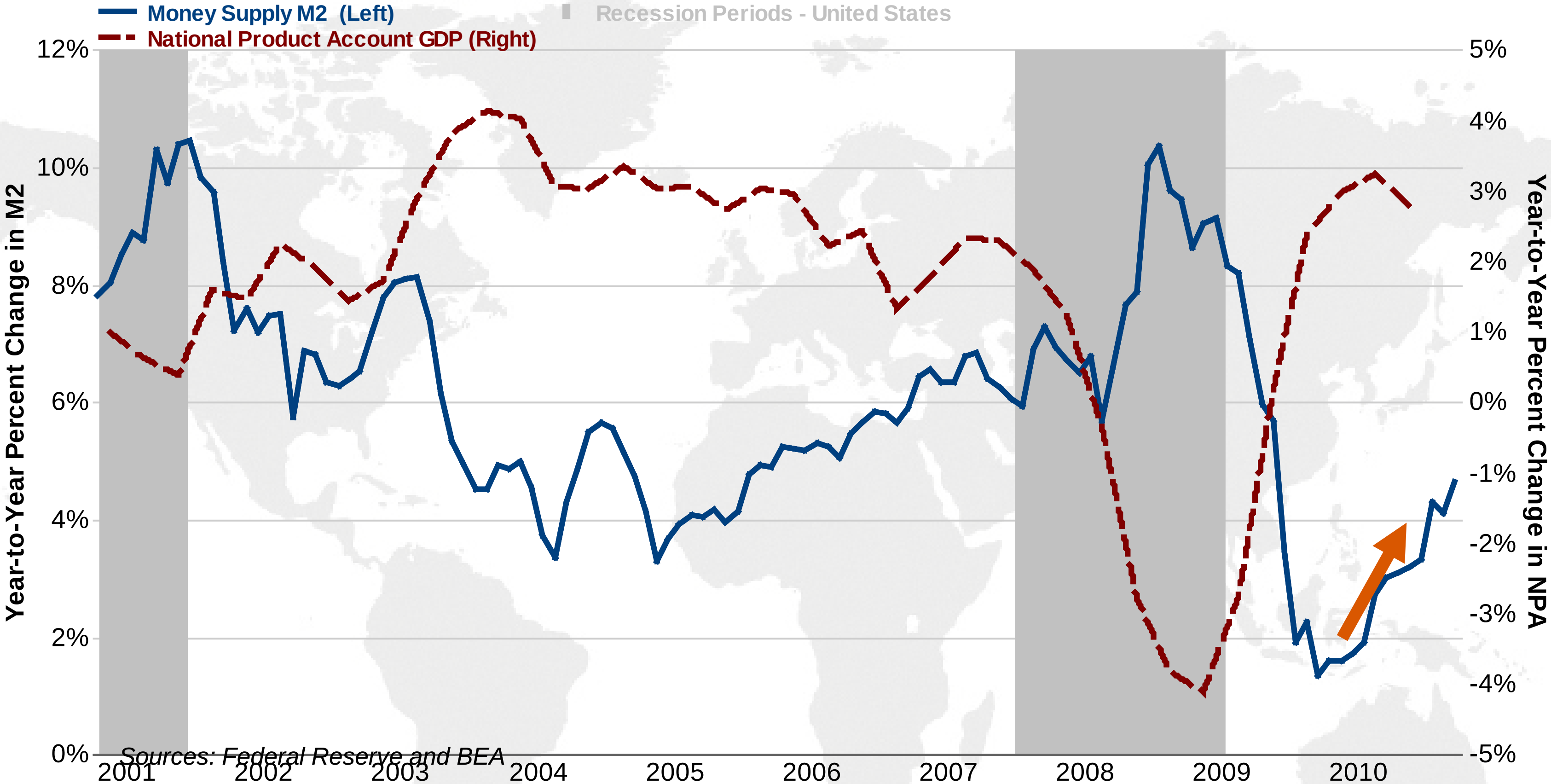


Sources: Federal Reserve and the Commerce Department

The yield curve tends to lead the economy by between 1 to 2 years, and is defined as the difference between 2- and 10-year US Treasury yields. To illustrate, if investors think the coming two years will be much better for the economy than the next six years, the yield spread will be small or even negative. Currently, however, the curve is pointing towards a continued expansion.

The Money Supply Has Begun to Expand

Money Supply (M2) and National Product Account



Source: The Federal Reserve

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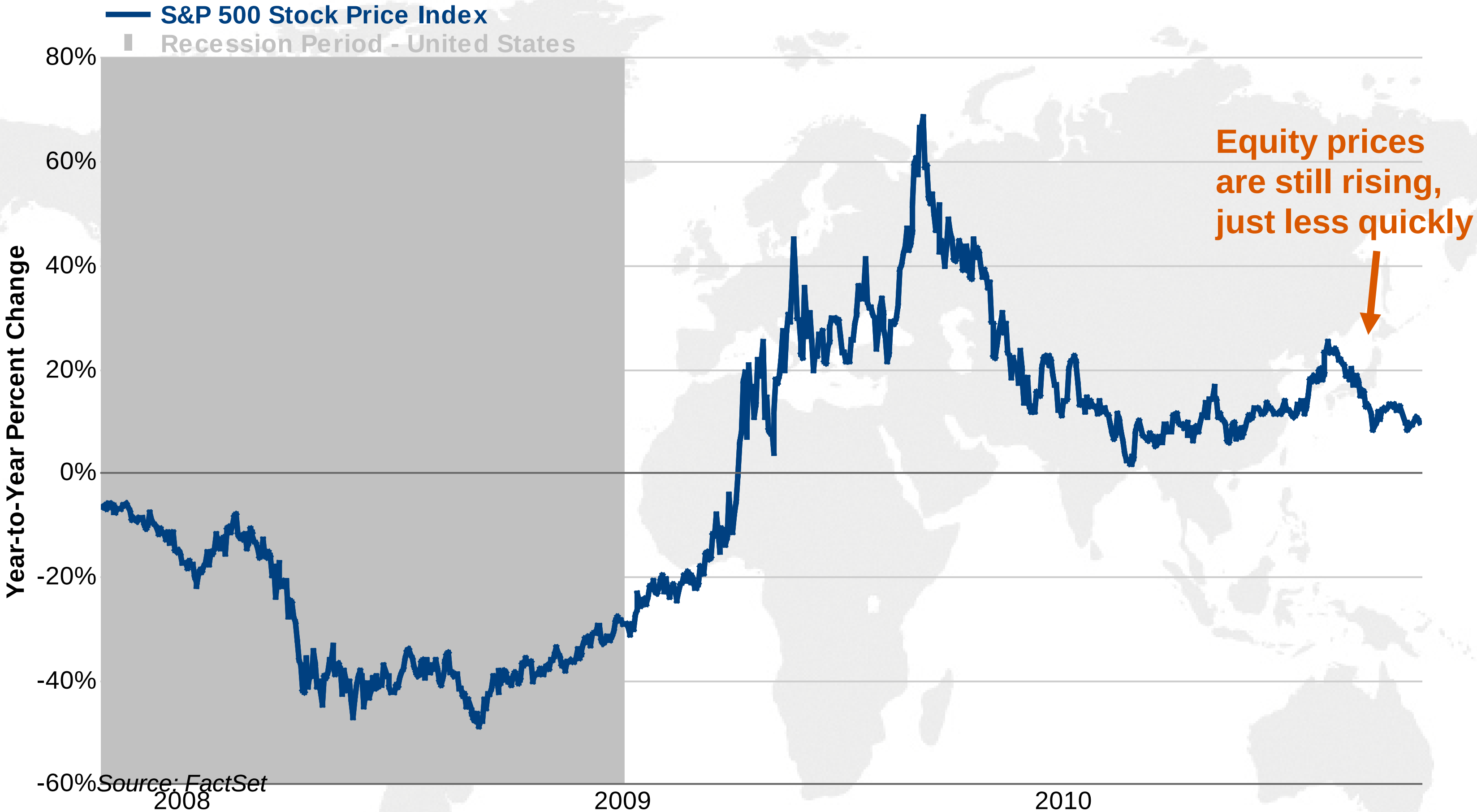
After falling sharply during the recession, the money supply (M2) began to expand again in mid-2010. M2 tends to lead the economy by between one to two years, so the recent expansion is a positive sign for future growth.

Stock Market Growth is Slower But Still Above Year-Ago Levels

US Stock Prices



Source: Standard & Poor's

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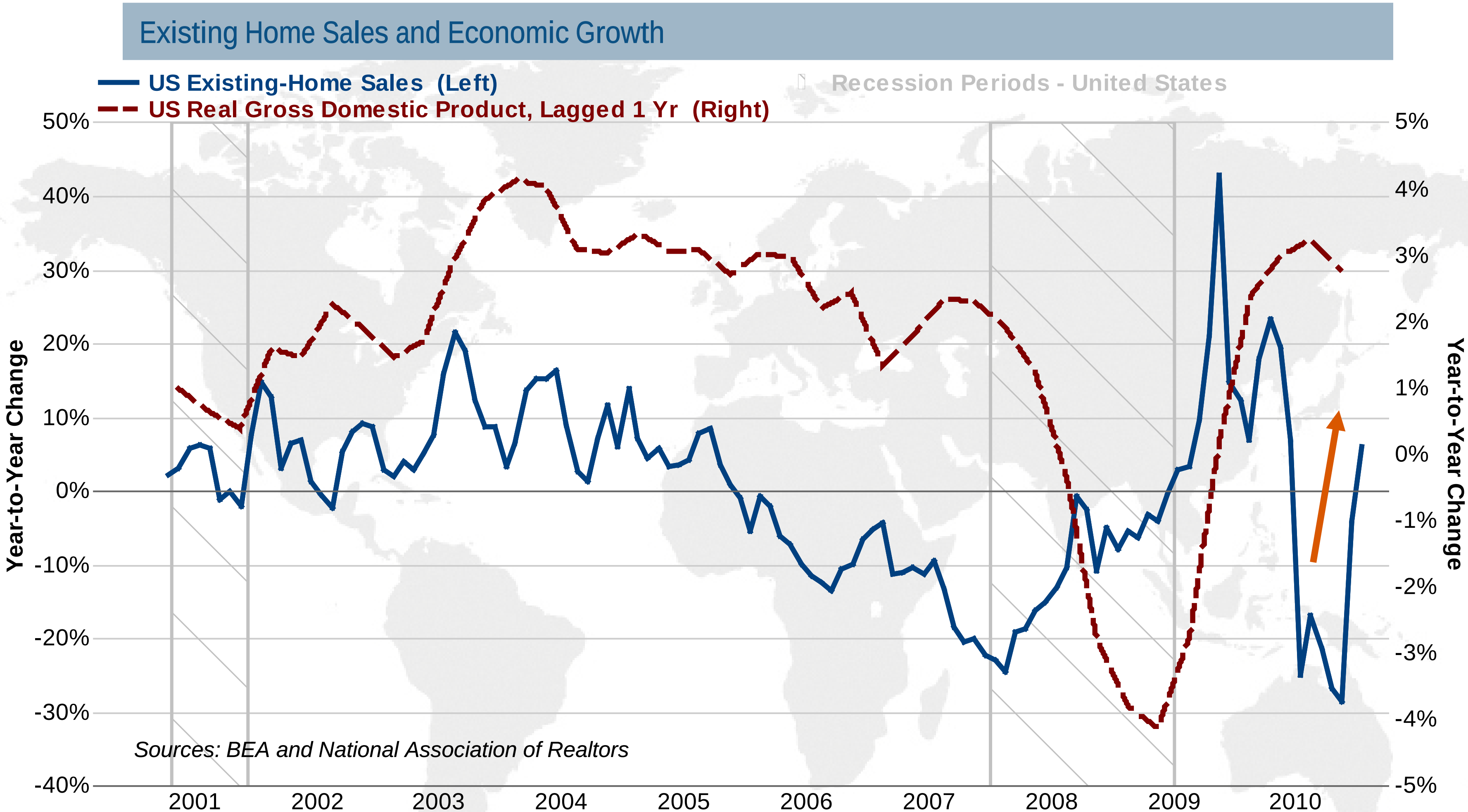
Despite a recent slowing, the S&P 500 is over 13% higher than it was one year ago. Stock prices generally lead the economy by between three to six months.

After Plummeting Post-Tax Credit, Home Sales Show Some Life



Sources: National Association of Realtors and Commerce Department *©FactSet Research Systems*

The federal homebuyer tax credit produced a large spike in sales of existing homes in 2009-2010. Following the expiration of the credit, homes sales experienced the largest month-to-month percentage drop in history. However, after the initial adjustment, sales appear to be growing again, perhaps aided by record low mortgage rates and investors looking for deals on foreclosed homes.

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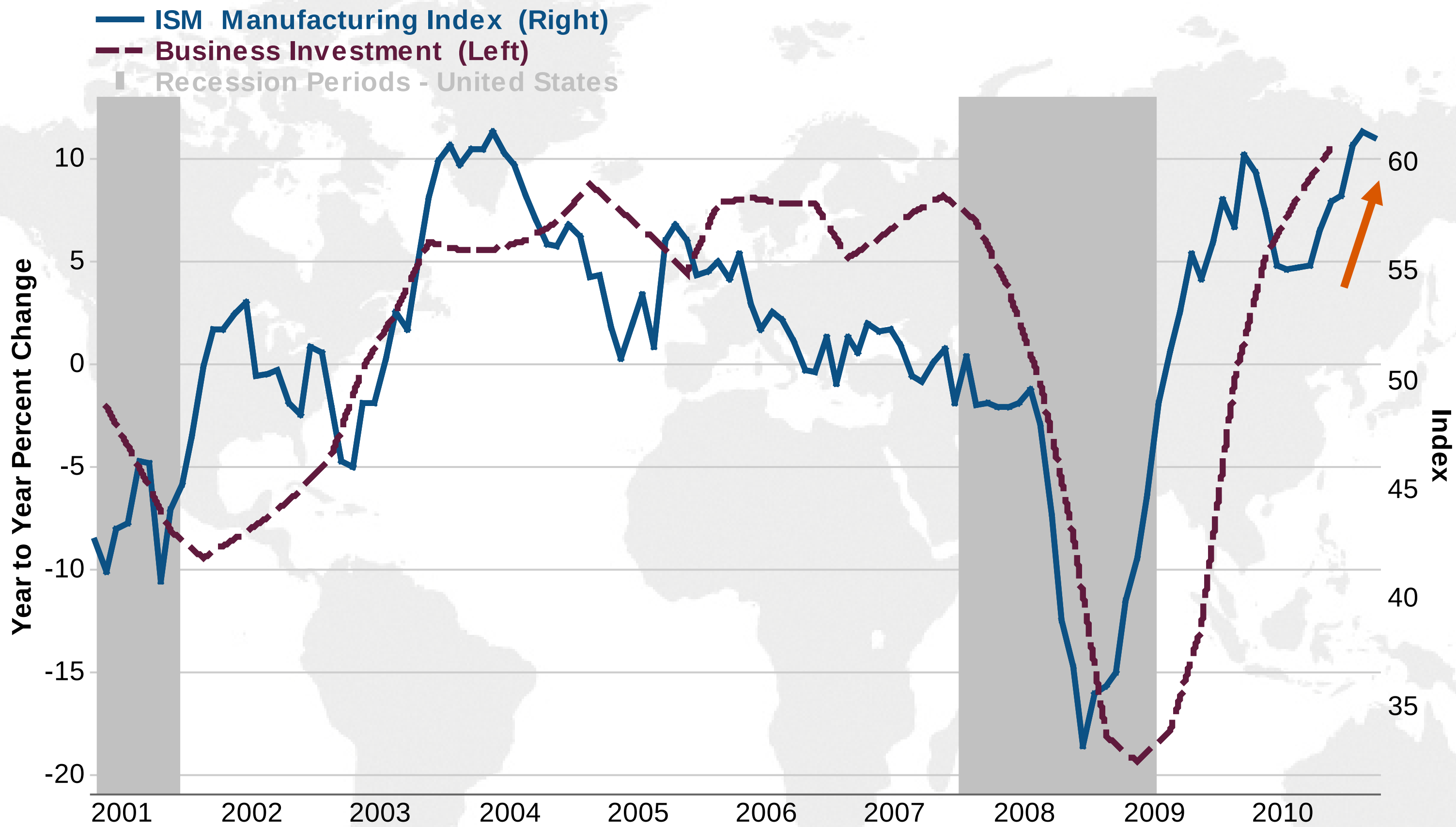
Manufacturing and Business Investment Continue to Drive Growth

ISM Purchasing Managers Index and Non-Residential Business Investment

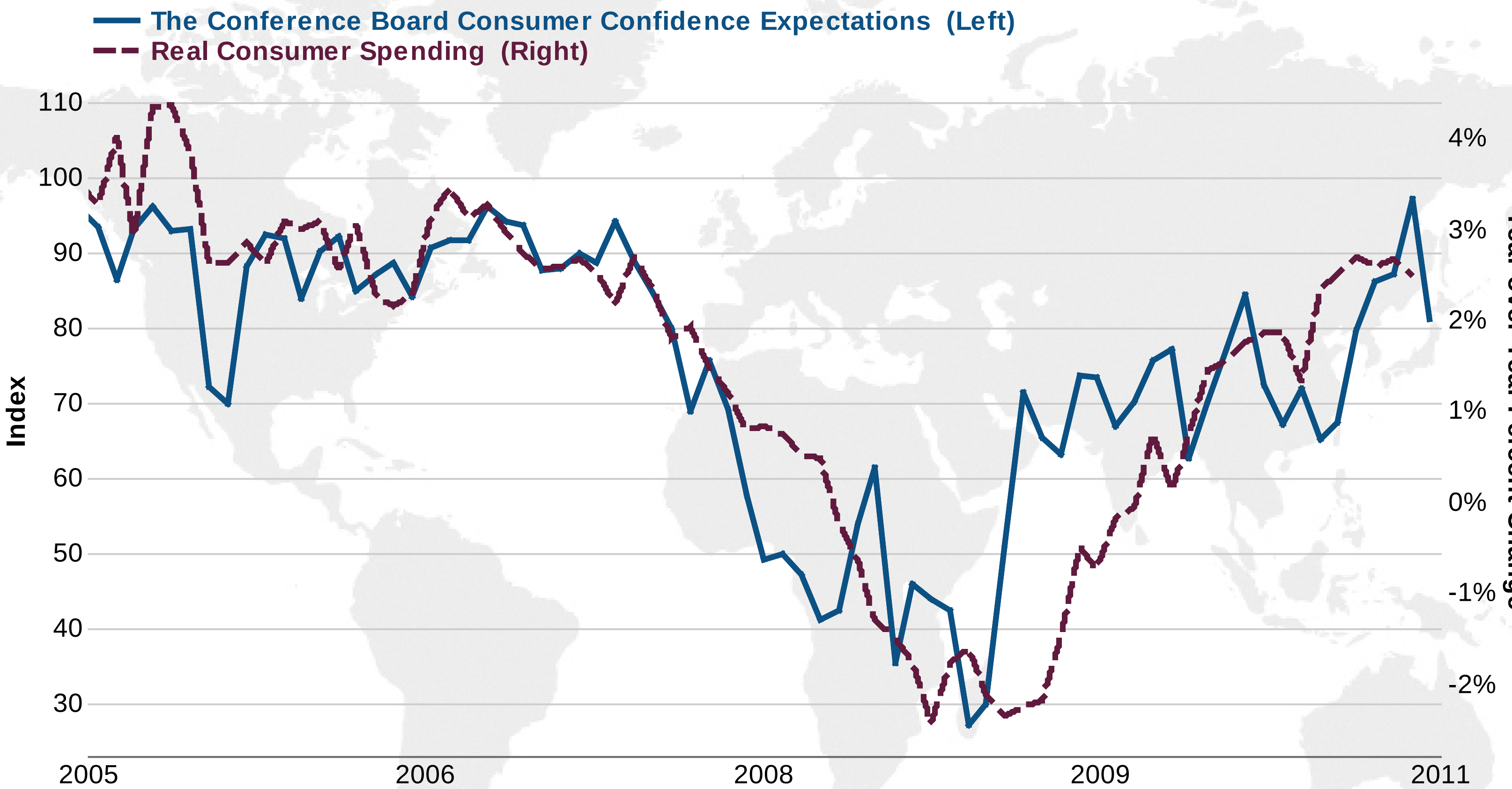


Sources: Institute for Supply Management and the Commerce Department

The Institute of Supply Management's Index of manufacturing activity rose dramatically following the recession and continues to rise as demand returns and companies replenish their low inventories. Recently, the index reached a 25-year high. Business investment is likely to continue to grow in coming months.

Confidence and Consumer Spending Improving

Consumer Expectations Six Month Hence and Real Consumer Spending

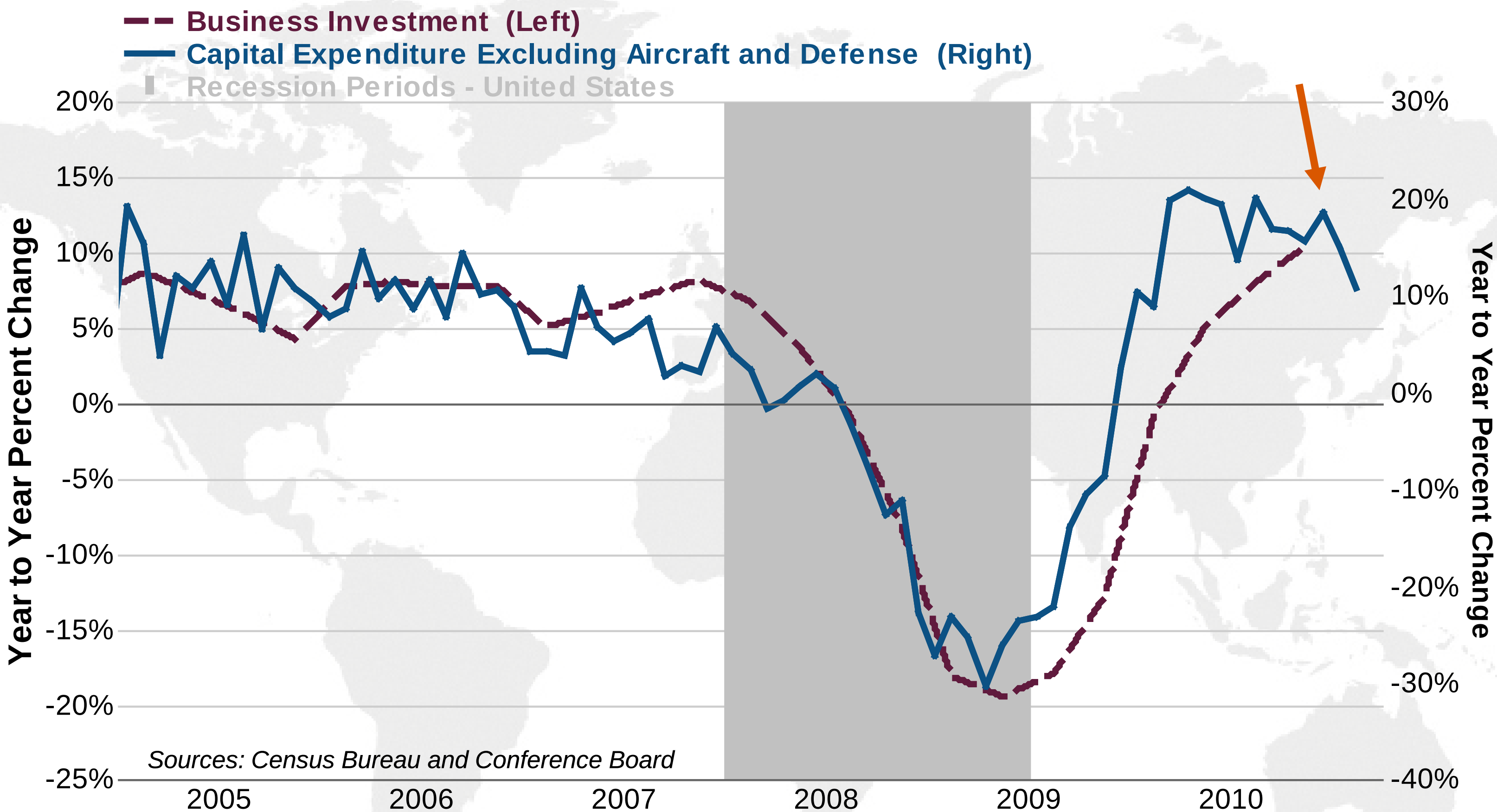


Sources: The Conference Board and The Commerce Department

After faltering in the summer of 2010, consumer confidence and consumer spending have rebounded. Over the past decade, expectations have had an 89% correlation with consumer spending.

Non-Defense Capital Expenditure Growth is Still Strong

Business Investment and New Orders for Capital Goods Excluding Defense and Aircraft

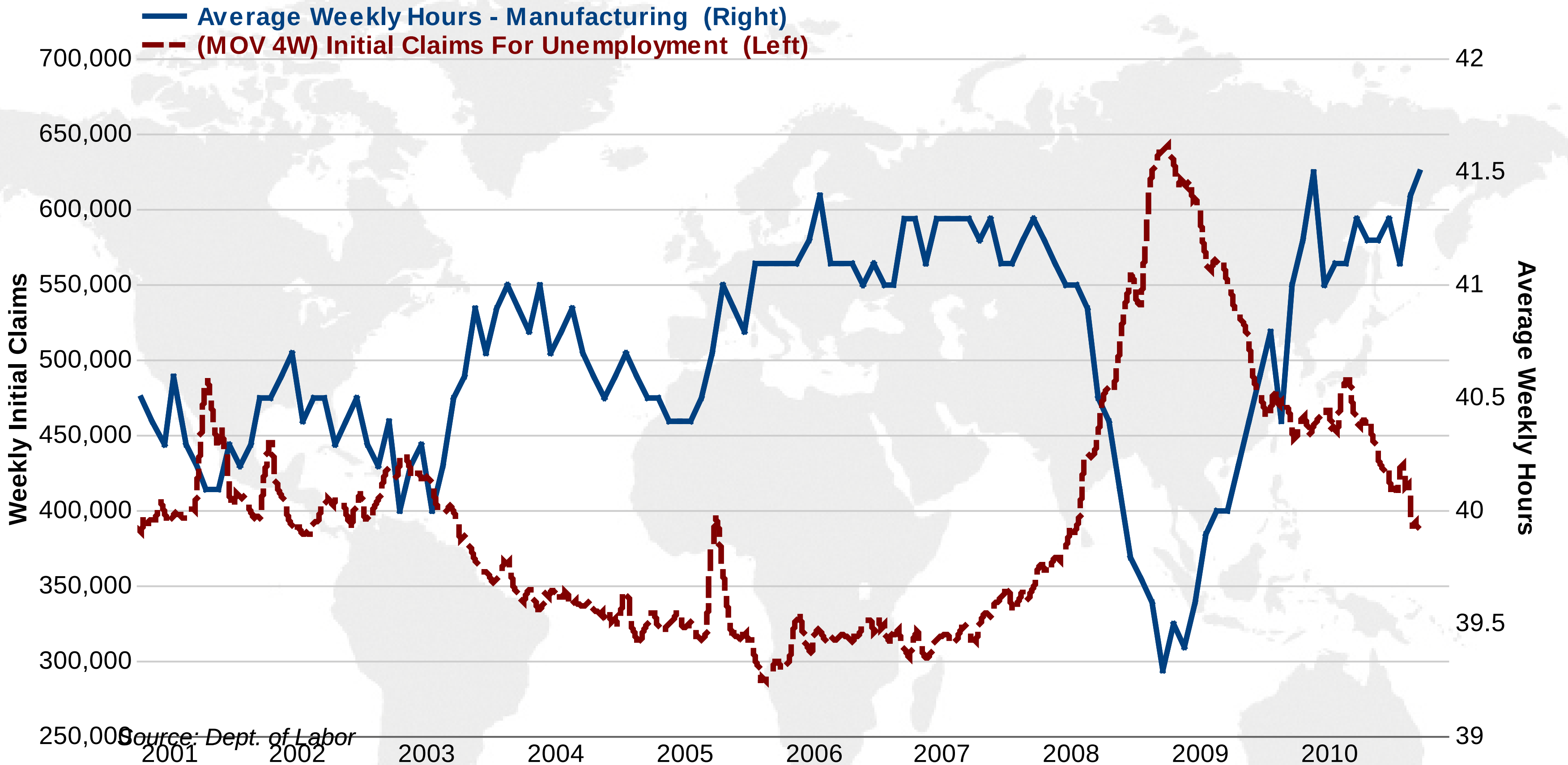


Sources: Census Department and the Commerce Department *©FactSet Research Systems*

After a precipitous rise following the recession, growth in new orders for durable goods excluding aircraft and defense goods has moderated. However, growth remains strong at about 15% over the previous year. Business investment has maintained its rapid upward trajectory, but may moderate in the first half of 2011.

Workweek is Longer as Jobless Claims Fall

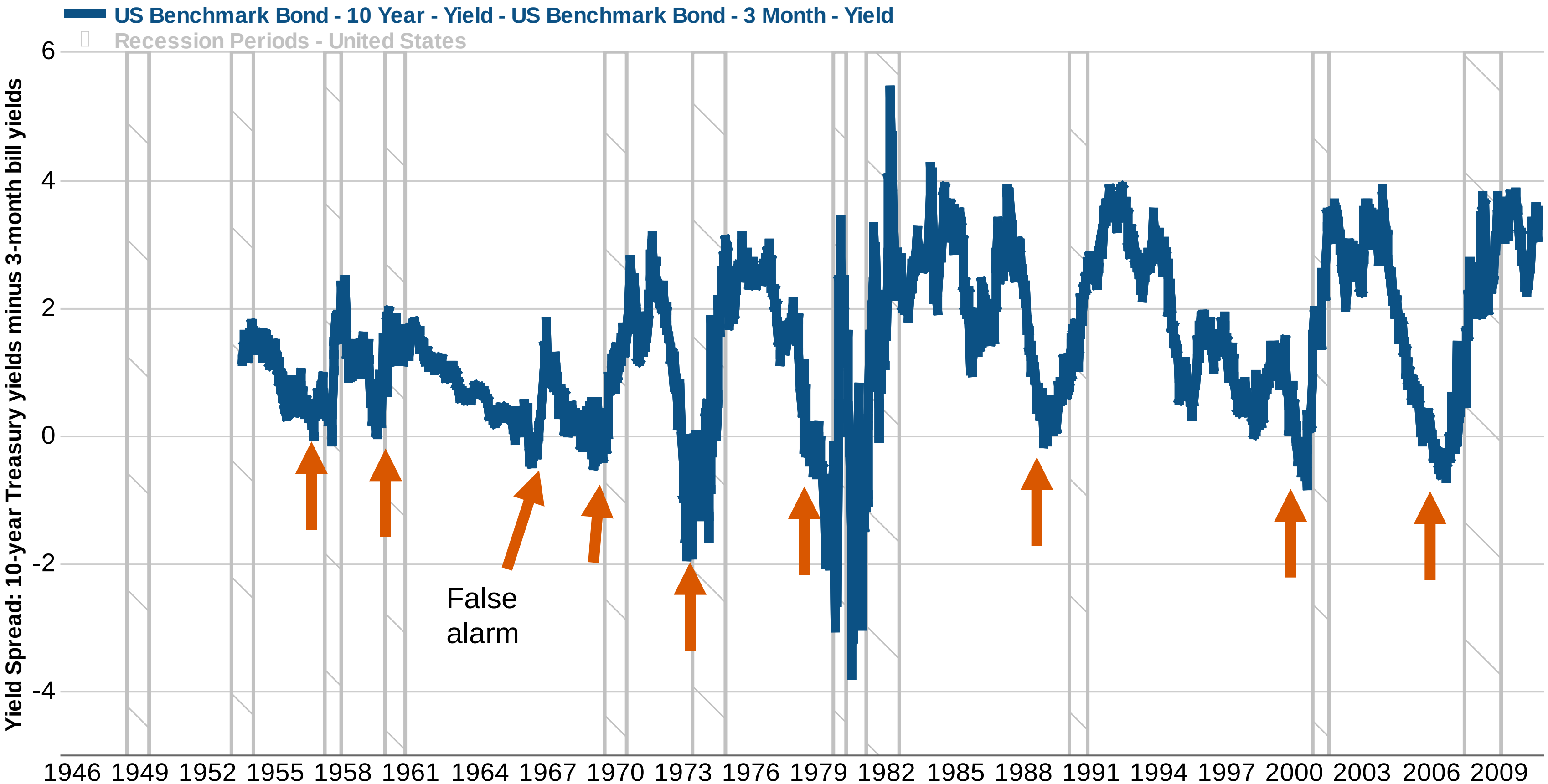
Unemployment Claims and the Average Workweek



Source: *©FactSet Research Systems*

Improvement in the labor market is critical for supporting aggregate demand, but job growth in this recession has been quite slow. However, the average manufacturing workweek has now returned to pre-recession levels, suggesting that the recent improvement in unemployment claims will continue.

The Yield Curve Model

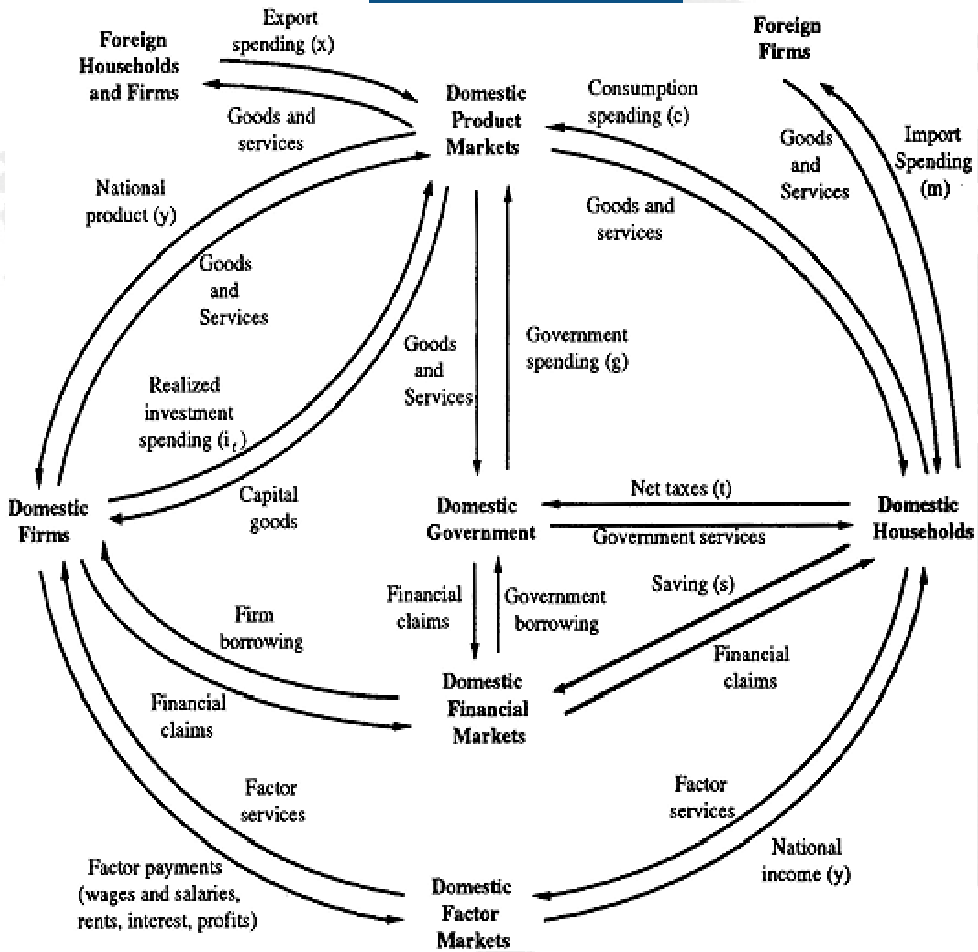


Source: FactSet

The yield curve is the single most reliable predictor of recessions. Over the past 40 years, each time the yield curve “inverted,” or 3-month yields were higher than 10-year yields, the business cycle peaked about 18-24 months later and a recession followed. There was one false signal during the mid-1960s. Currently, the curve is very steep, indicating that the expansion is likely to continue.

Mathematical Models of the Economy

The Economy



Abstracting Further…

Standard Regression Model:

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon$$

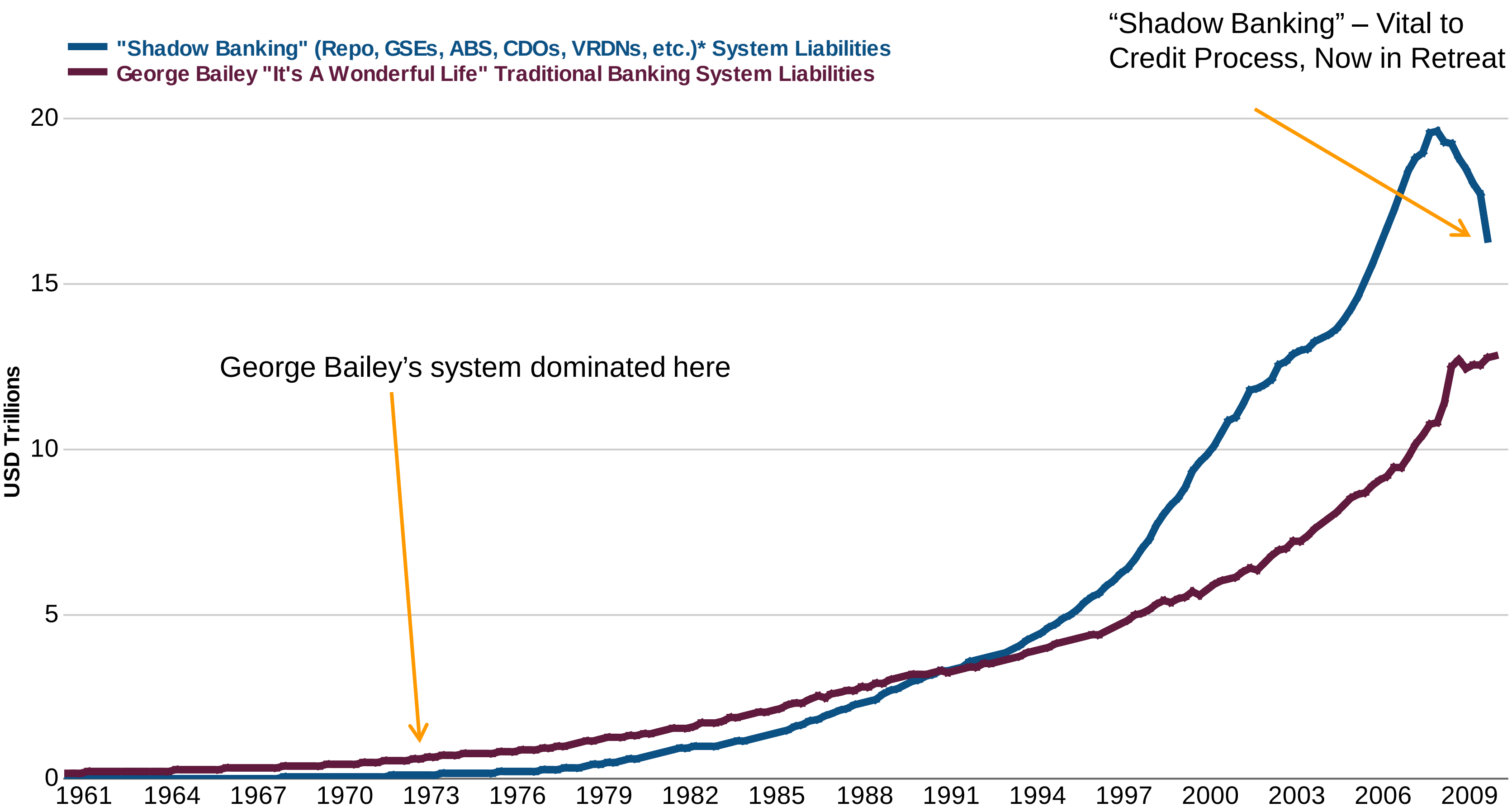
Example

IS (Investment-Savings) Equation of a National Economy

$$Y = C(Y-T(Y)) + I(i) + G + NX(Y)$$

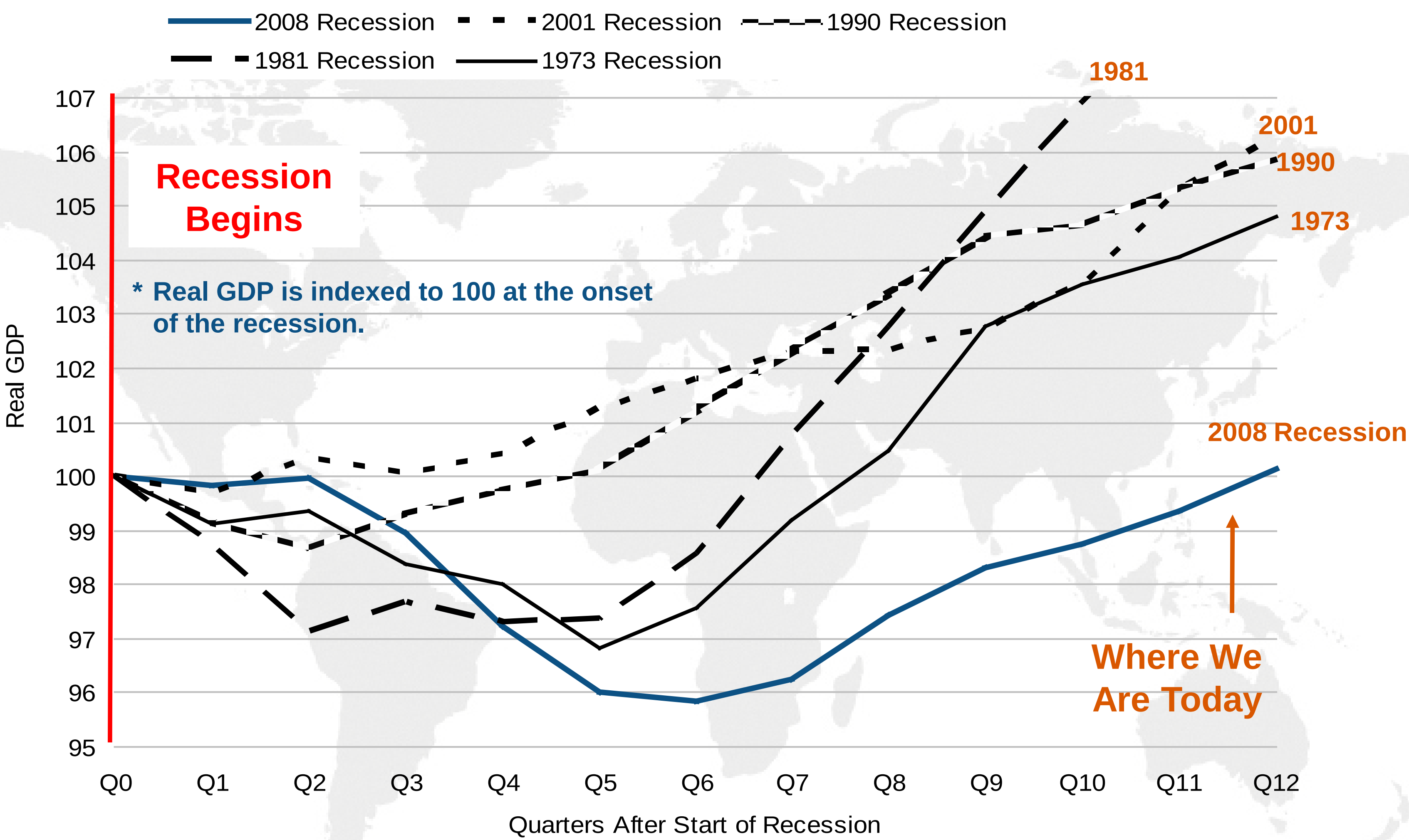
III Our Forecast: The Economic Narrative

"Shadow Banking" System vs. The Traditional Banking System



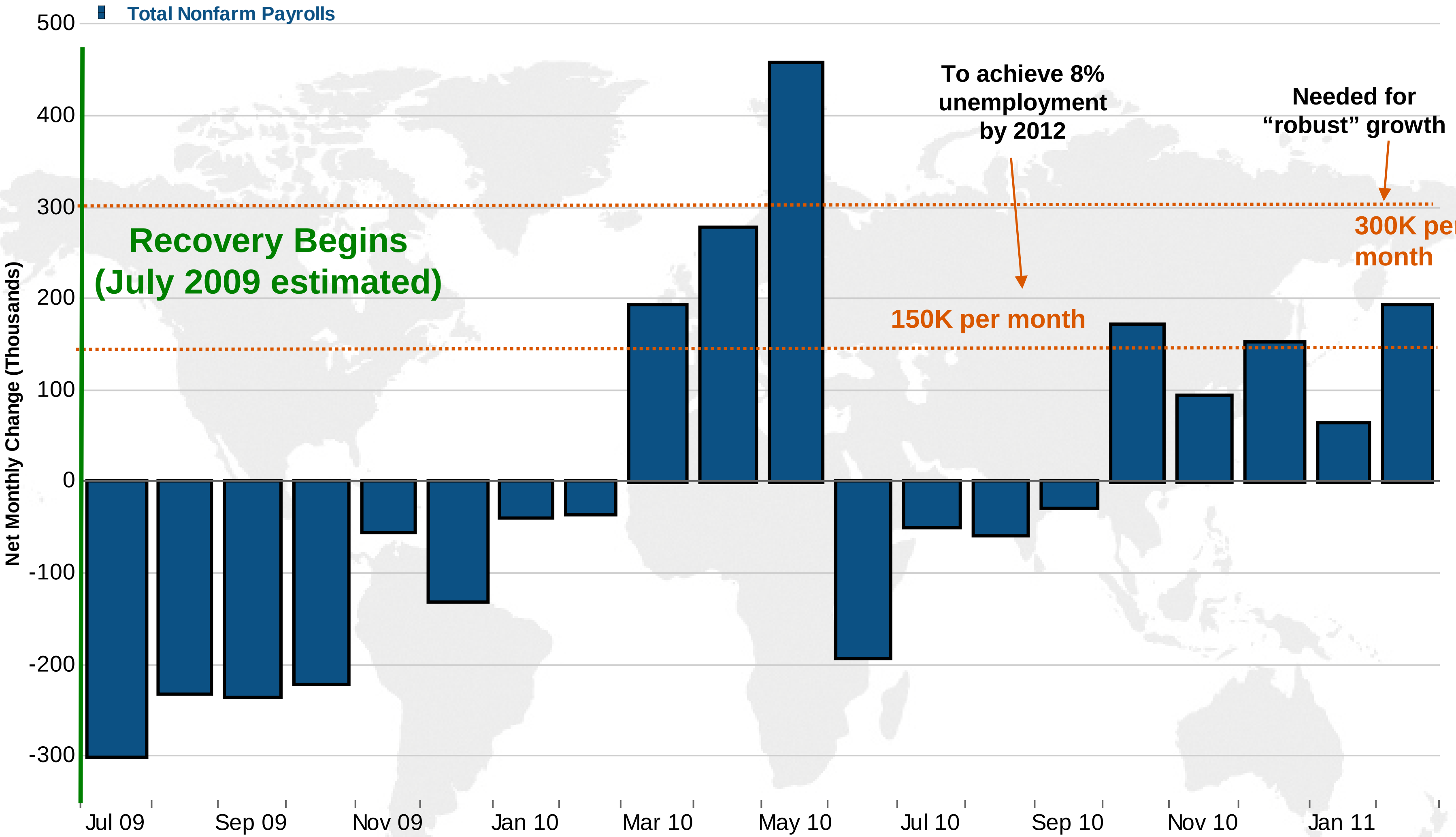
Source: Federal Reserve,=Shadow Banks are financial intermediaries without access to central bank liquidity or public sector guarantees (Pozar, Adrian, Ashcraft, Boesky, 2010)*

Good News: The Economy is Growing…Slowly



Sources: Commerce Department, Payden & Rygel Estimates

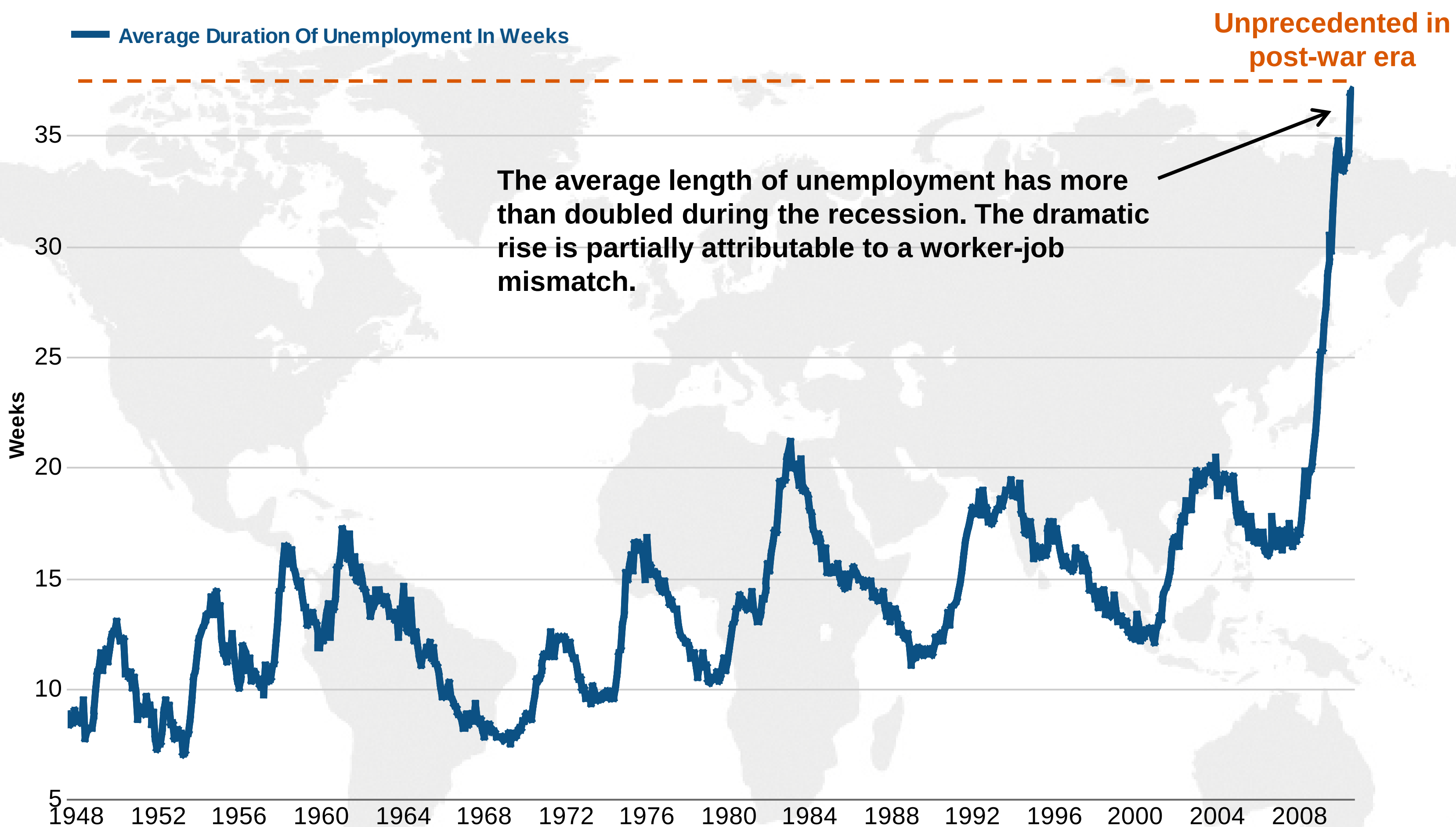
Bad News: Job Growth Remains Too Slow to Bring Unemployment Rate Down Quickly



Source: US Dept. of Labor

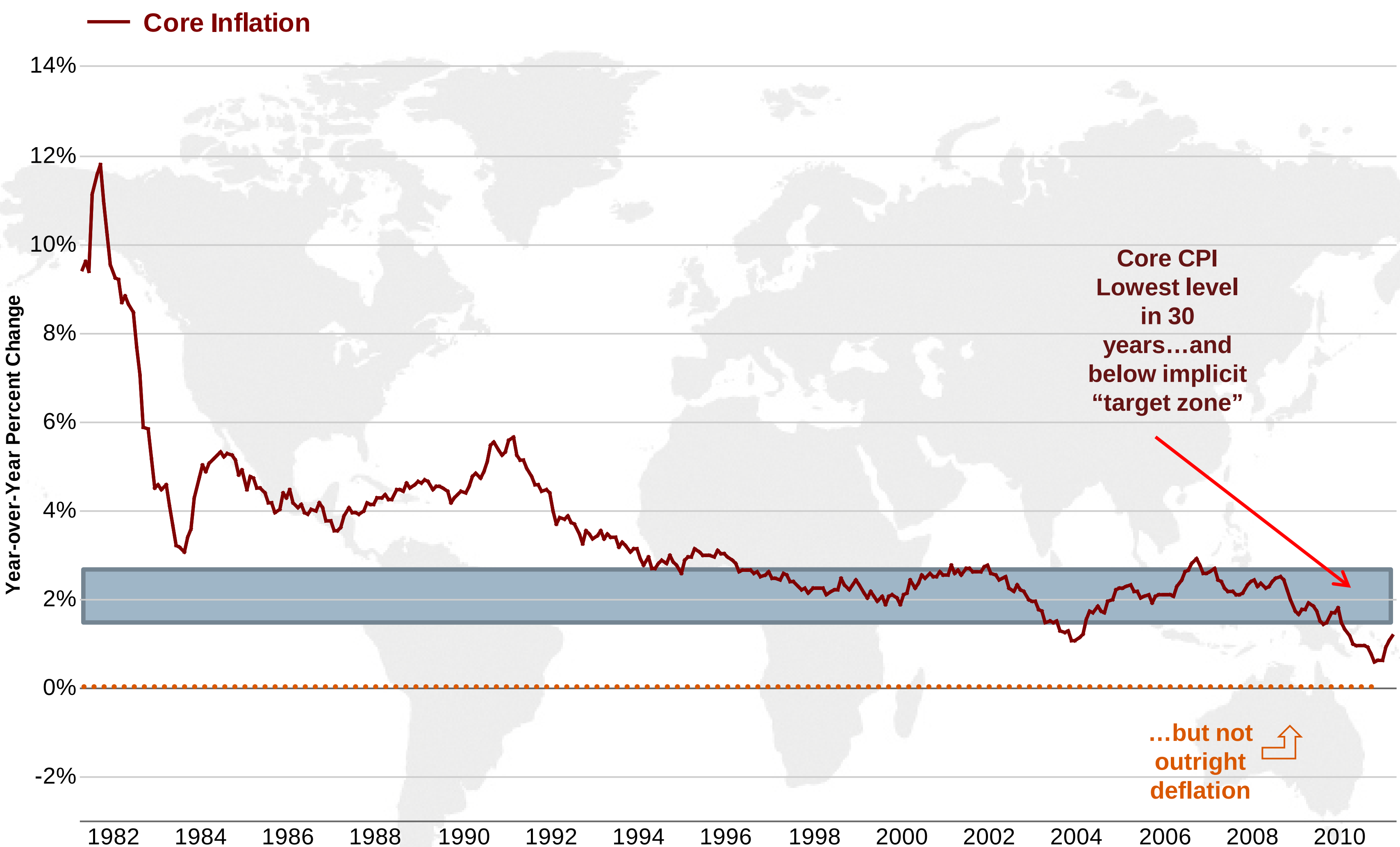
Updated through: Feb 2011

It's Taking Workers Far Longer To Shift to New Jobs



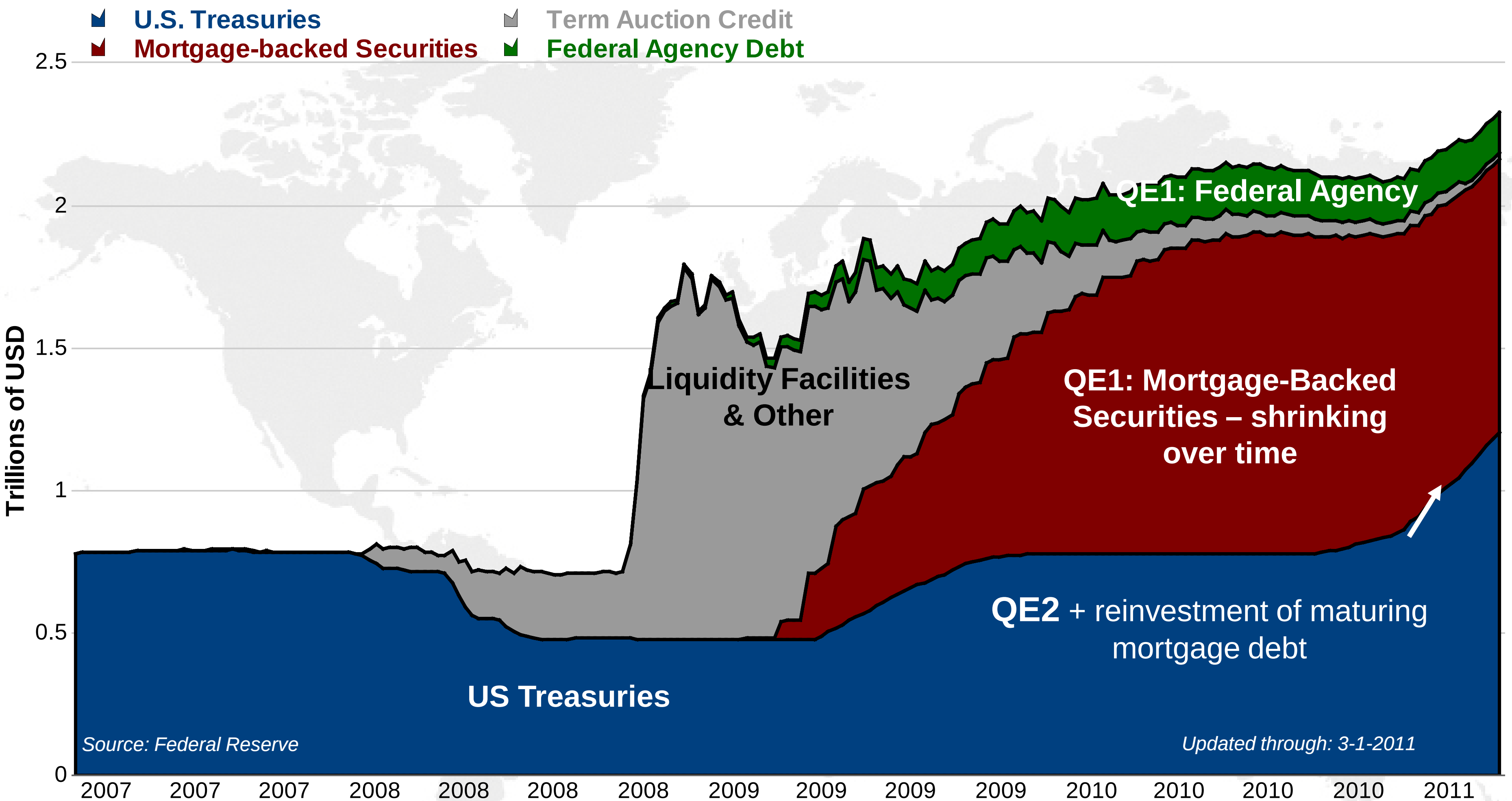
Source: BLS

And Current Inflation Rates Are Lowest in 30 Years



Source: BLS

Policy Response: The Fed's Balance Sheet, Quantitative Easing 1 & 2



Source: Federal Reserve

"If action is taken by the Fed, **a clear option is to grow the size of the balance sheet** since the policy interest rate, for all practical purposes, cannot go any lower" – Dennis P. Lockhart, President, Federal Reserve Bank of Atlanta, 9/28/2010

Another Way To Think of Monetary Policy

The Fed wants some positive rate of inflation (approximately 2%) and higher inflation expectations…

….but not *too* much inflation!

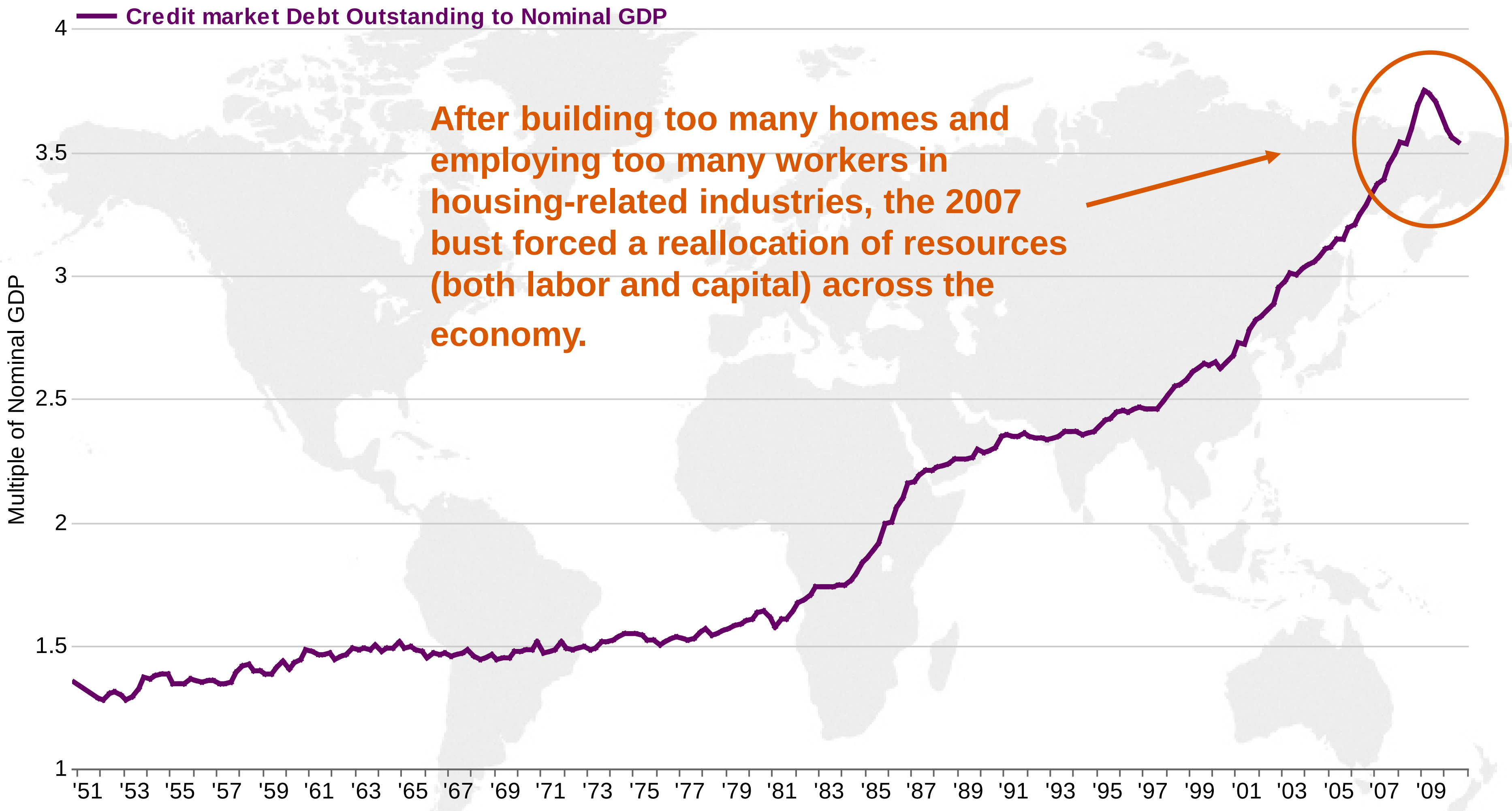
Would Further "QE" Have an Impact?

On the Real Economy?
Probably Not

On Capital Markets?
Yes

The US Economy is Like A Giant Jigsaw Puzzle

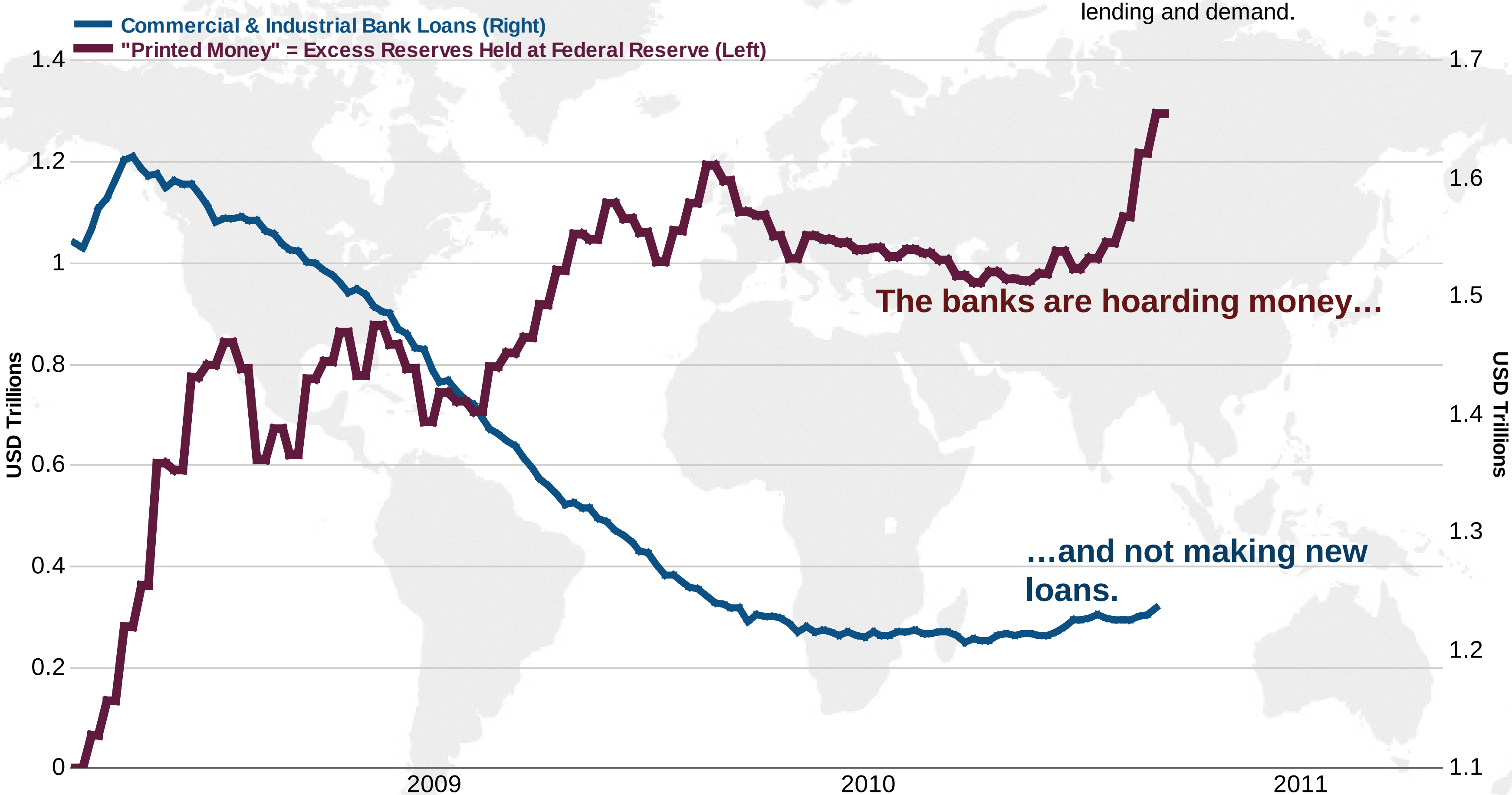
Boom and Bust Cycle Still in the Unwinding Phase



Source: Federal Reserve

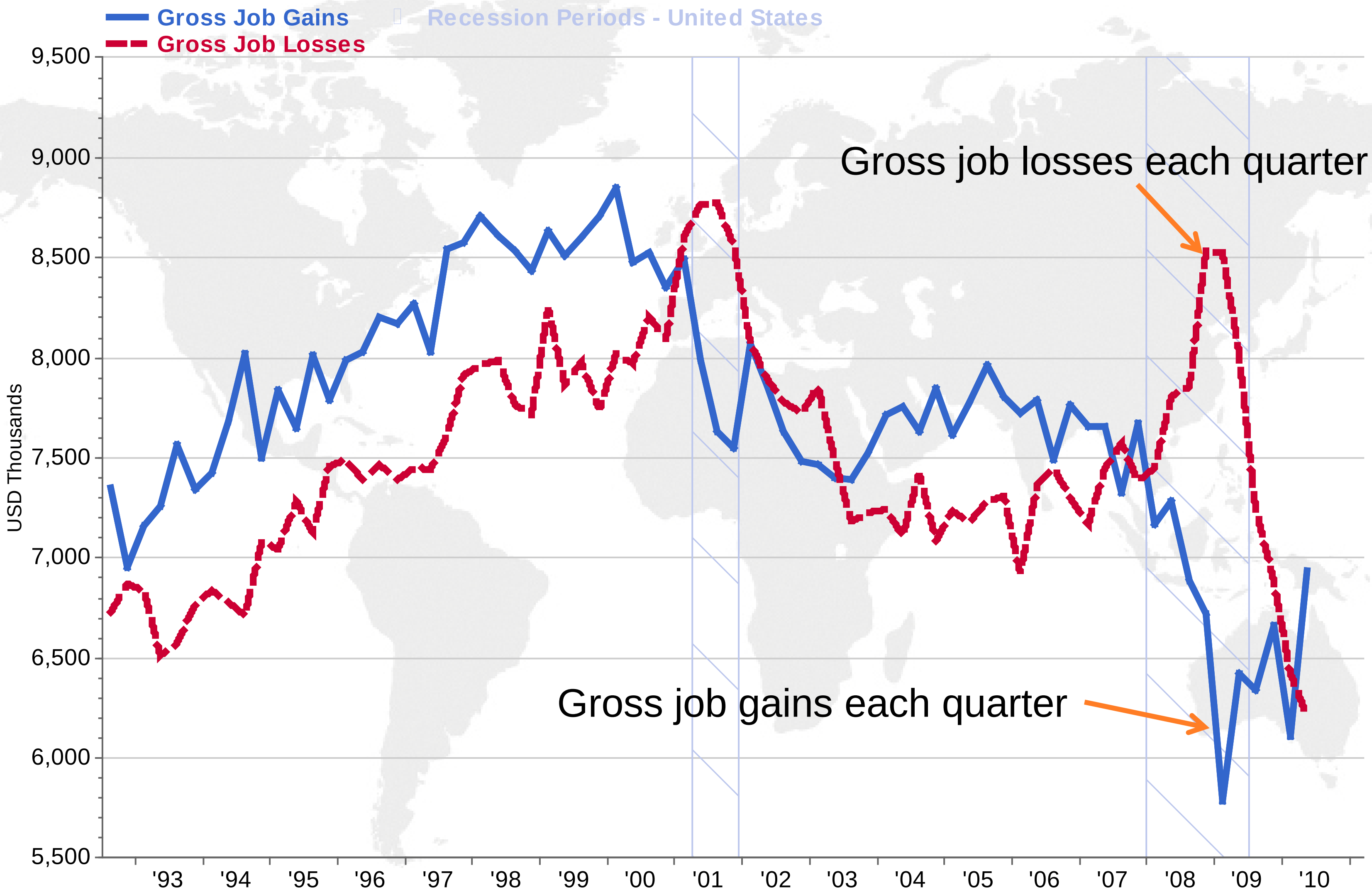
The Limits of QE: Banks Accumulate Excess Reserves, Not New Loans

In textbooks, reserves work through the “money multiplier” to increase aggregate lending and demand.



Source: Federal Reserve

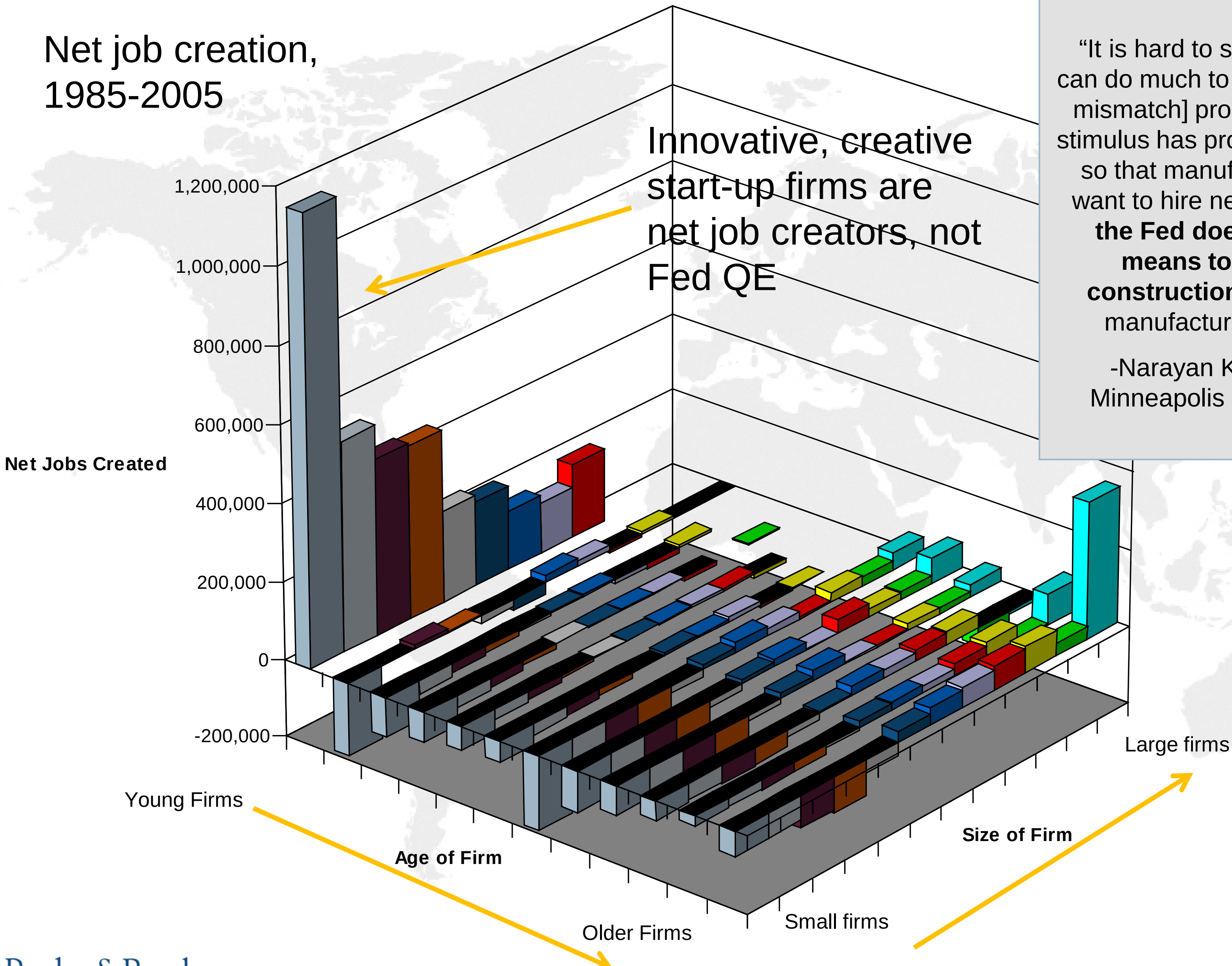
Job Gains Are Still Weak Compared to the 1990s and 2000s…



Source: BLS

Updated through Q2 2010

The Limits of QE: We Need Innovation To Create Jobs

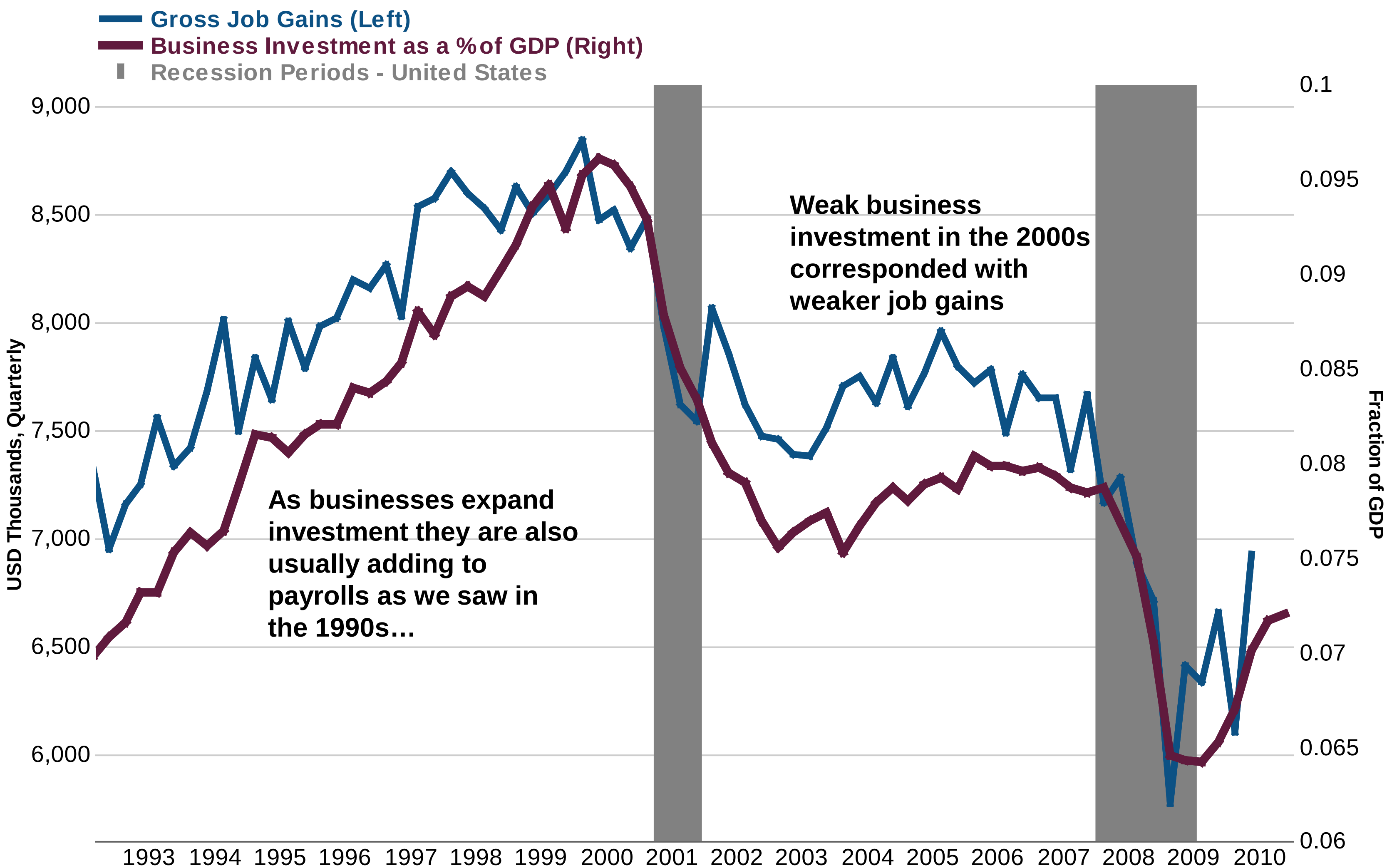


"It is hard to see how the Fed can do much to cure this [worker mismatch] problem. Monetary stimulus has provided conditions so that manufacturing plants want to hire new workers. **But the Fed does not have a means to transform construction workers** into manufacturing workers."

-Narayan Kocherlakota,
Minneapolis Fed President

Source: Business Formation and Dynamics By Business Age

And More Business Investment Needed To Promote Job Gains



Source: BLS

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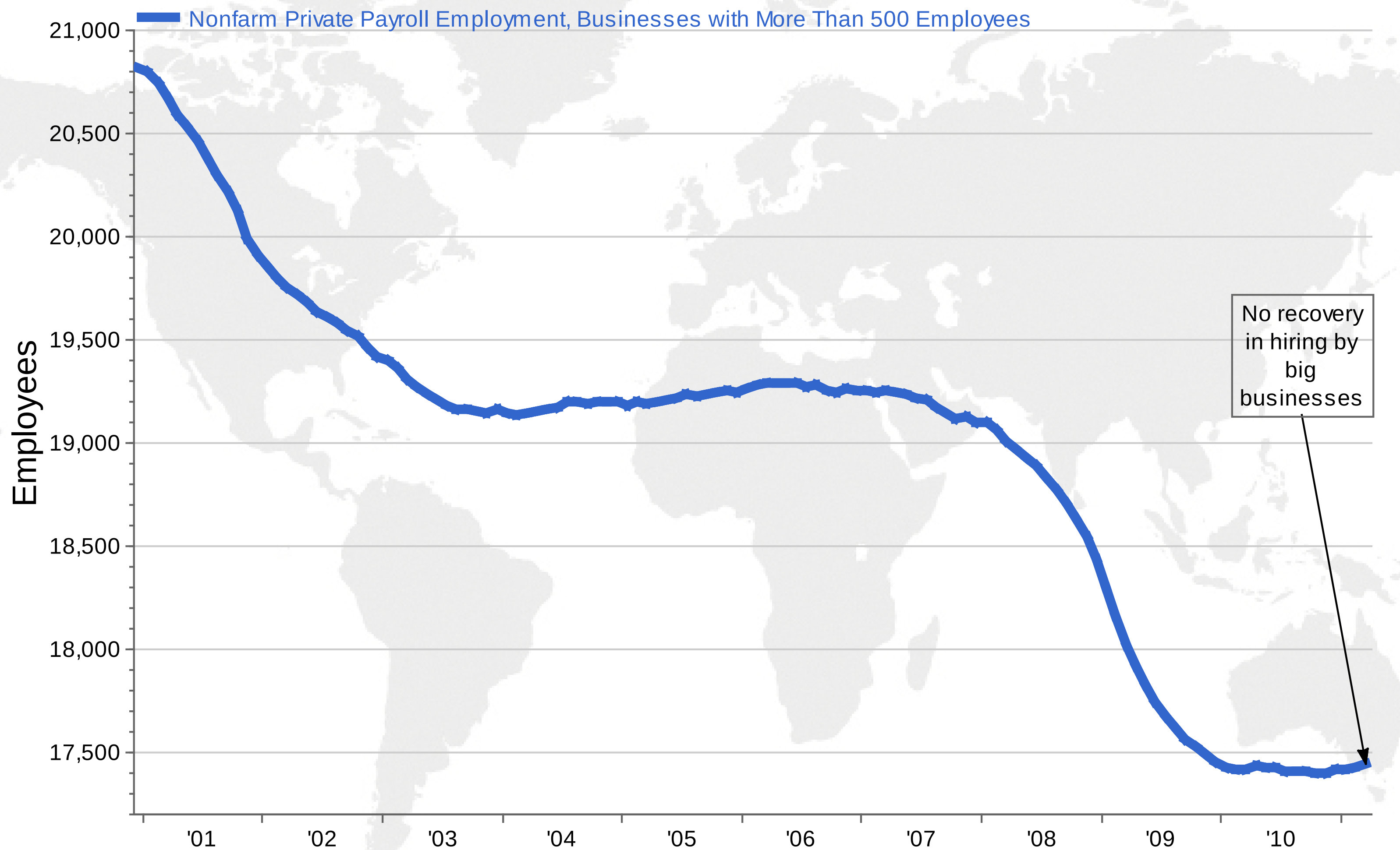
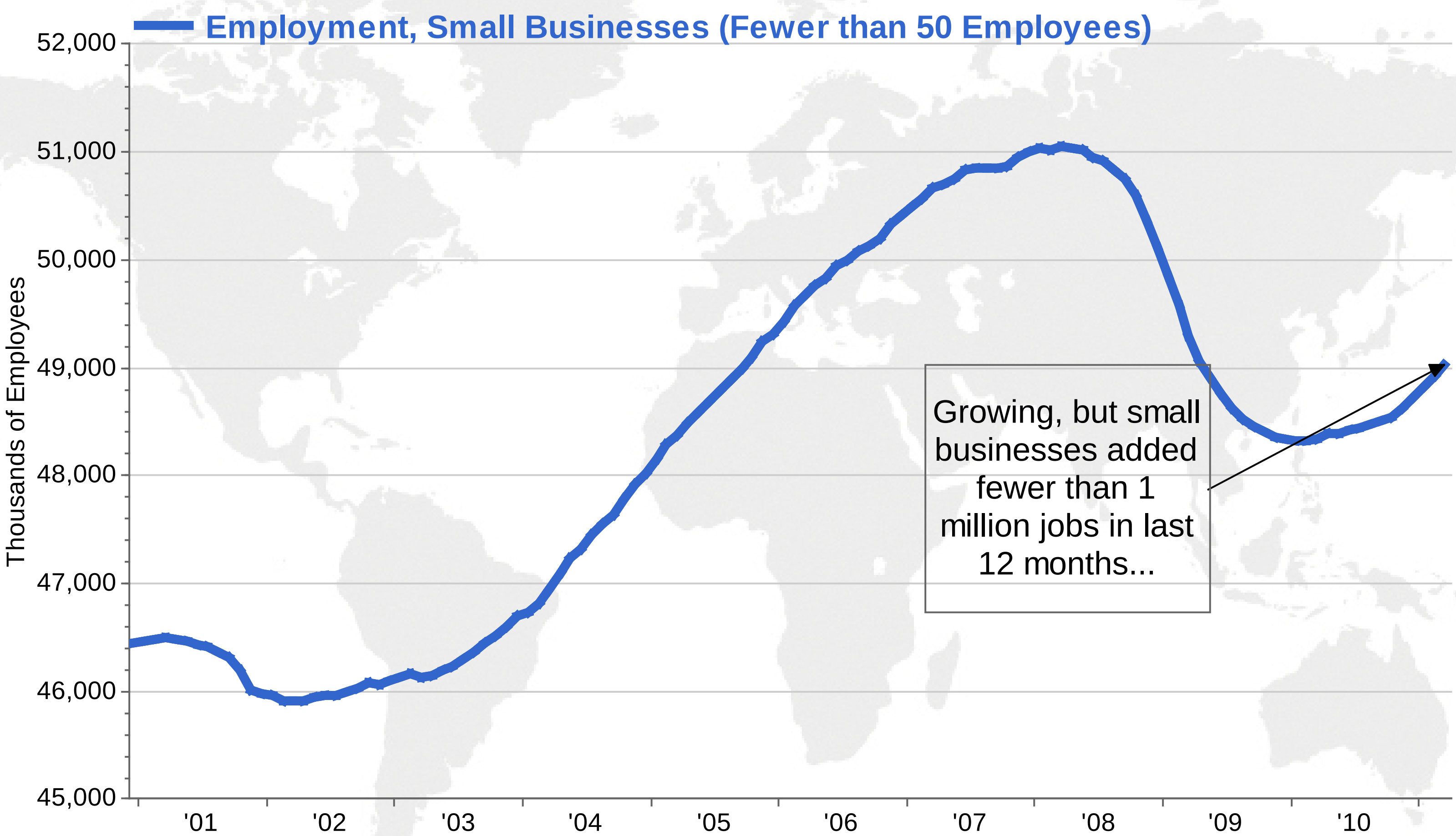
Larger Businesses Are Not Hiring

Total Private Employment

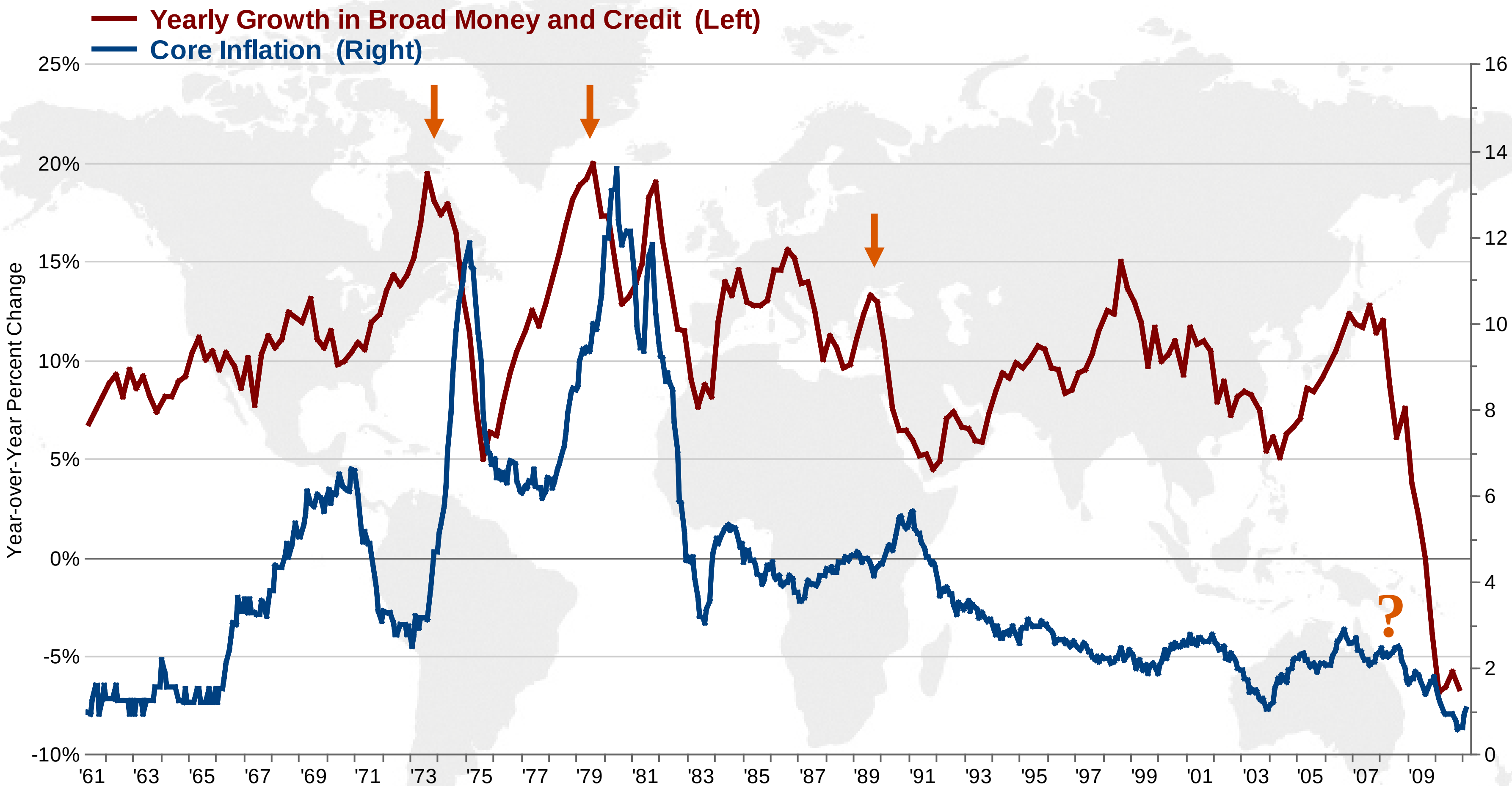


Small Businesses, Critical to Job Growth, Are Slowly Hiring

Total Private Employment



Is Inflation A Risk? Broad Money & Credit Growth Usually <u>Precede</u> Consumer Price Inflation



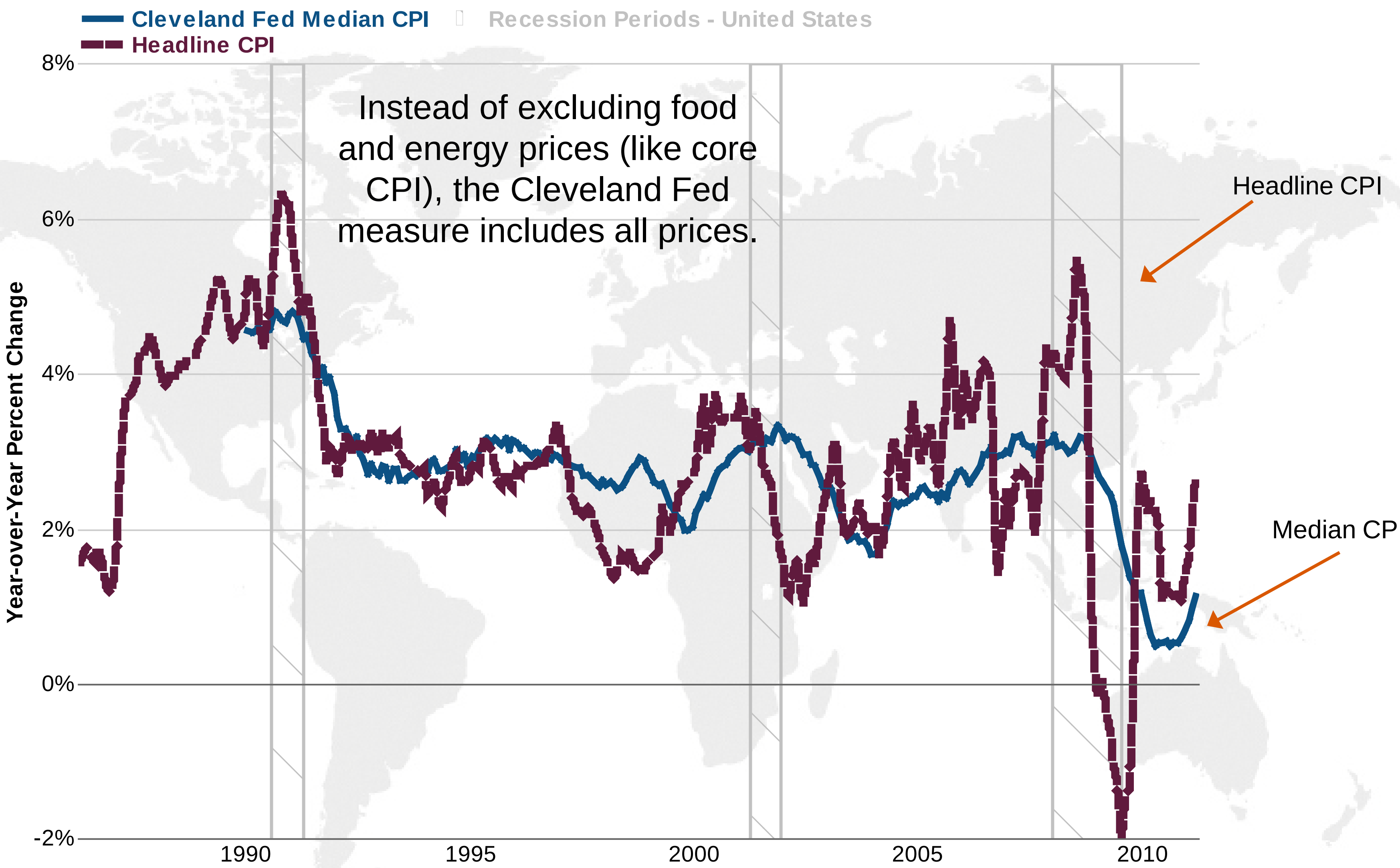
Sources: Federal Reserve Flow of Funds and Federal Reserve Bank of New York Report #458, July 2010

Wage Growth Also Usually Precedes Inflation

Sources: U.S. Labor Department

Updated through Feb 2011

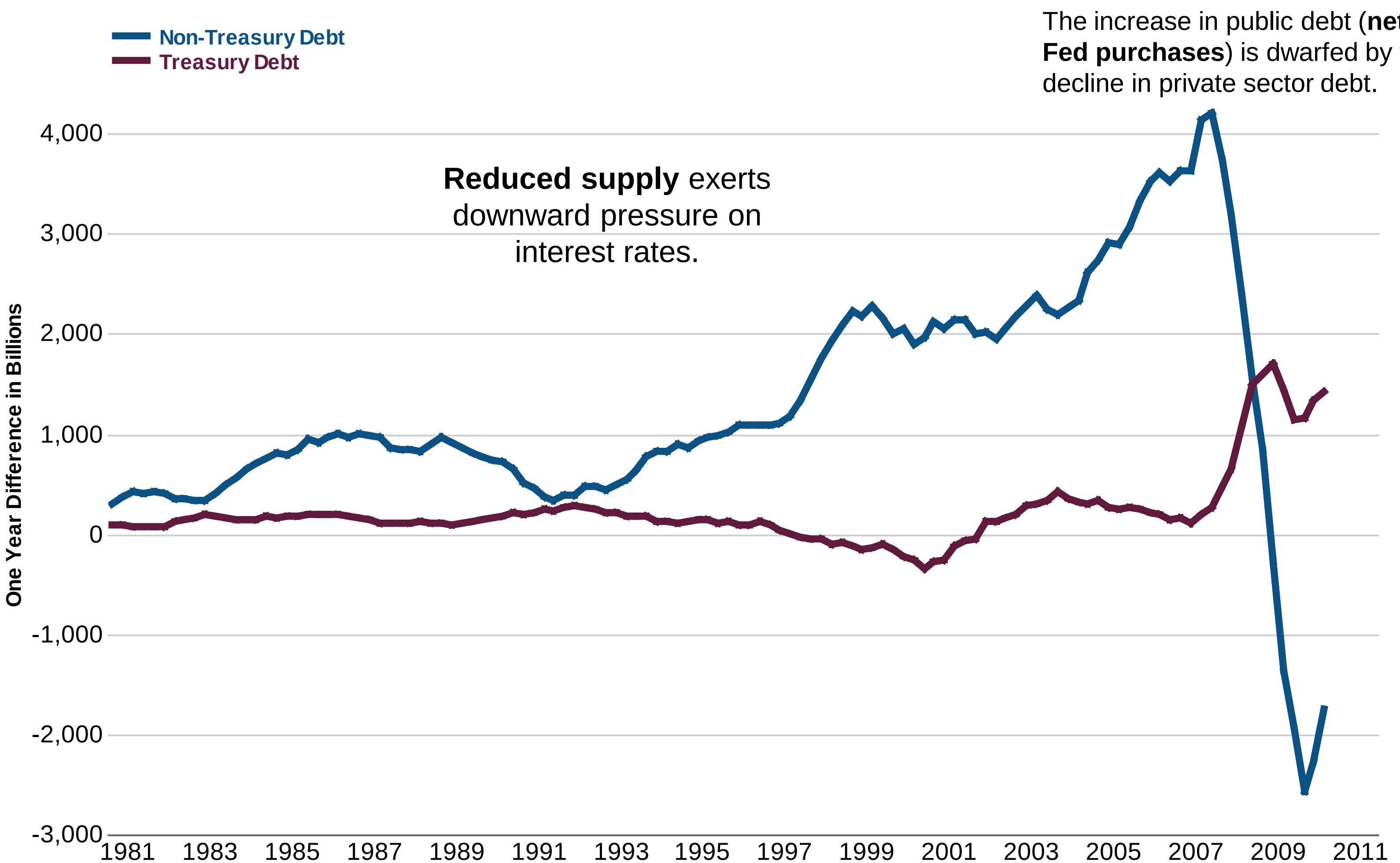
CPI Inflation Subdued Even If You *Include* Food & Energy



Sources: Conference Board and Cleveland Fed

Updated through Feb 2011

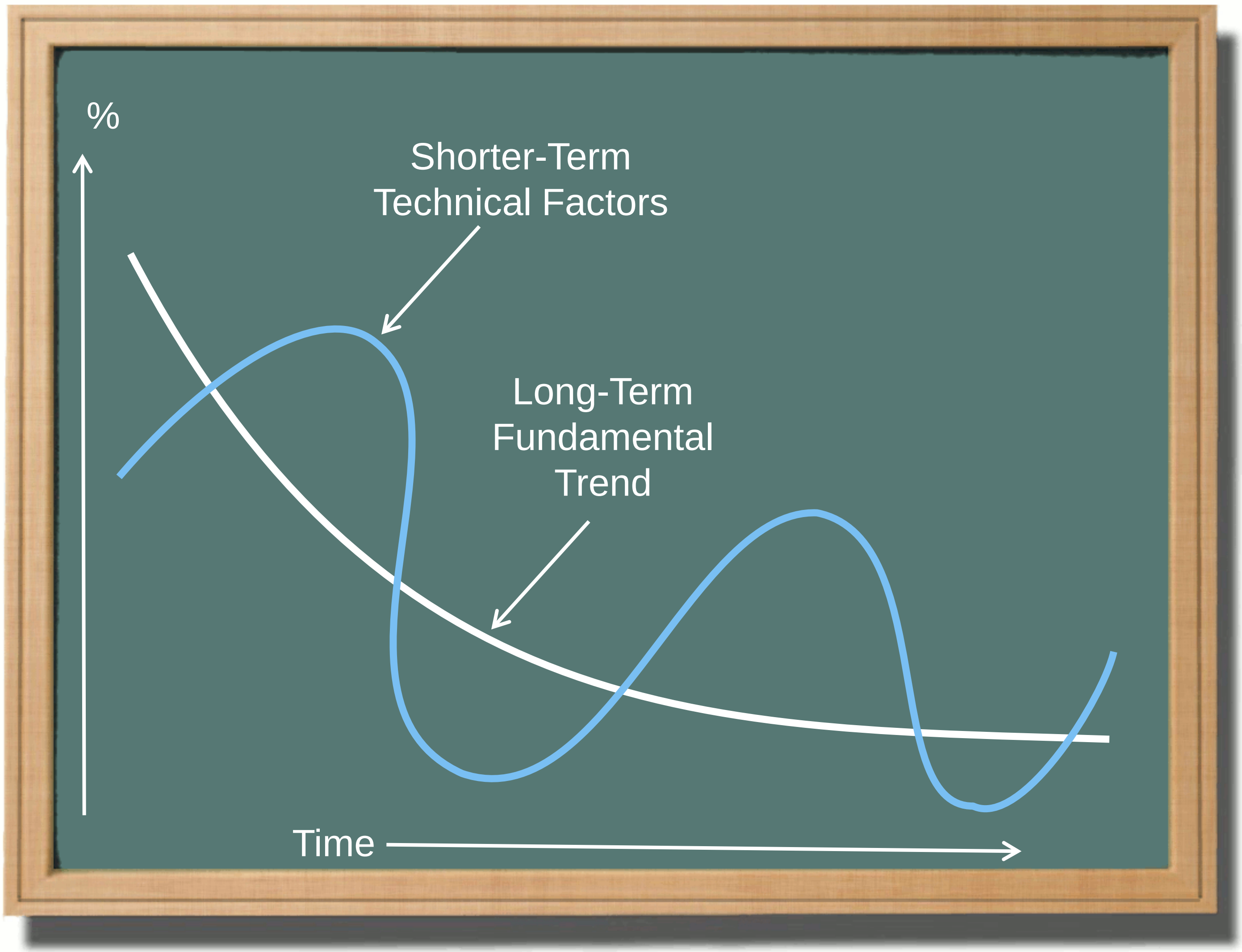
Non-Treasury Debt Contraction versus Treasury Debt Surge



Source: Federal Reserve

Updated through Q3 2010

The Chalk Board: Fundamental versus Technical Factors Drive Interest Rates

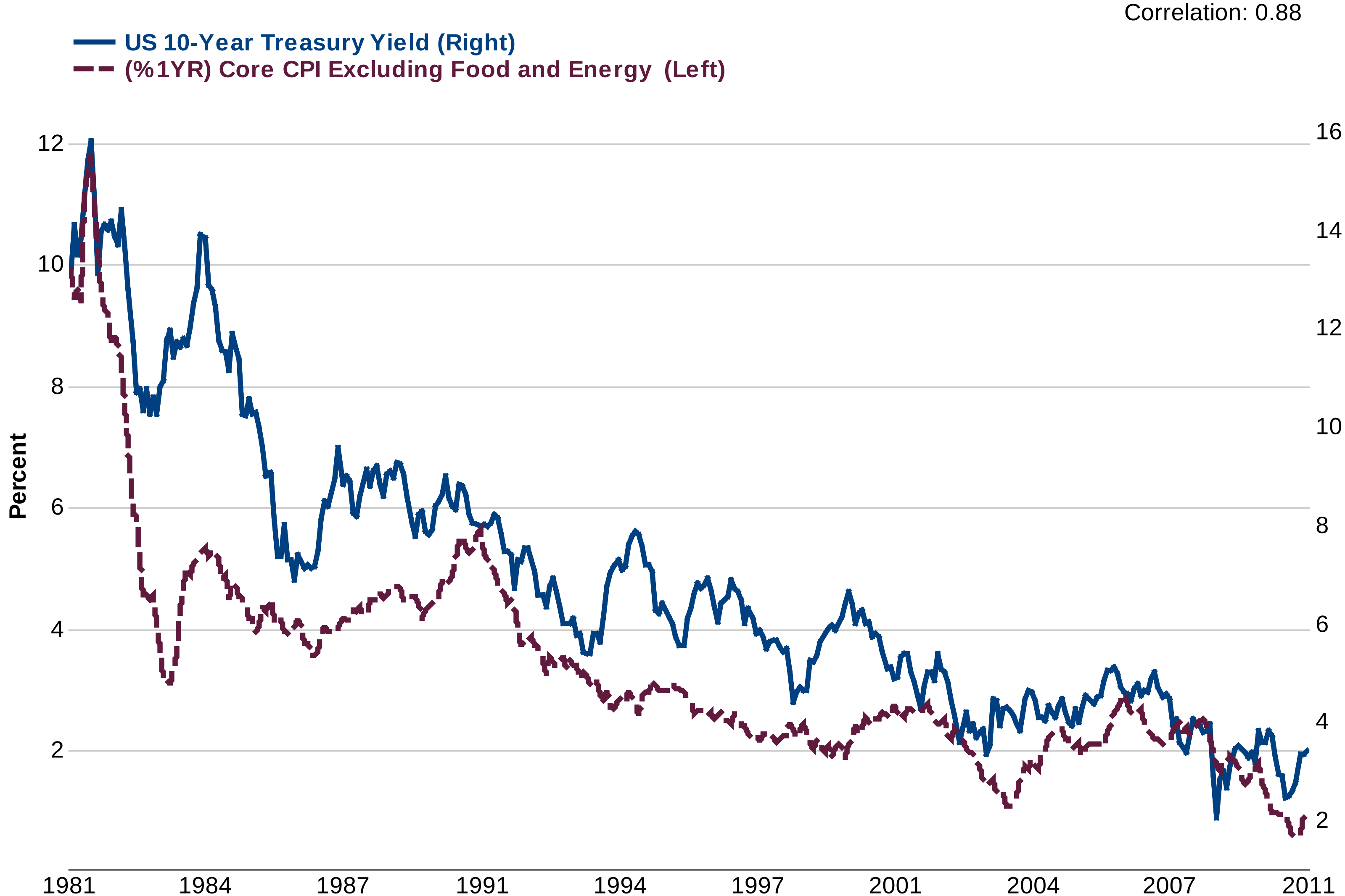


U.S. Interest Rate Scorecard

	Comment	Explanatory Power	Impact on Rates	Assessment
Fundamental Factors – Help to establish long-term fair value				
GDP Growth	Around long-term average of 3%	High	→	Economic fundamentals point to continued low yields. Though the US debt load is on investors' radar, it is not currently weighing on rates.
Inflation	At historic lows	High	→	
Demographics	Retiring boomers switching from equities to bonds	Medium	↓	
Required Risk Premium	Budget deficits a potential concern	Low	↑	
Bank Lending and Private Debt Issuance	Banks are buying Treasuries instead of making loans	Medium	↓	
Technical Factors – Influence near-term volatility				
Market Sentiment	Concern for higher rates	High	↑	Technical factors point to higher rates, with market sentiment the most important driver.
Investor Demand for Treasuries	High global demand for a safe-haven investment	Medium	↓	
Treasury Auctions	Record funding requirements	Medium	↑	
Federal Reserve Purchases (QE2)	$600 billion program over 8 mos. plus mortgage reinvestment	Medium	↓	

Conclusion: Yields on benchmark 10-year US Treasuries should fluctuate between 3% and 4% in 2011. As for the federal funds rate, we do not anticipate rate hikes in 2011. This implies a steep yield curve throughout the year.

Fundamental: Strong Relationship Between Inflation and 10-Year Interest Rates



Source: The Federal Reserve and The Labor Department

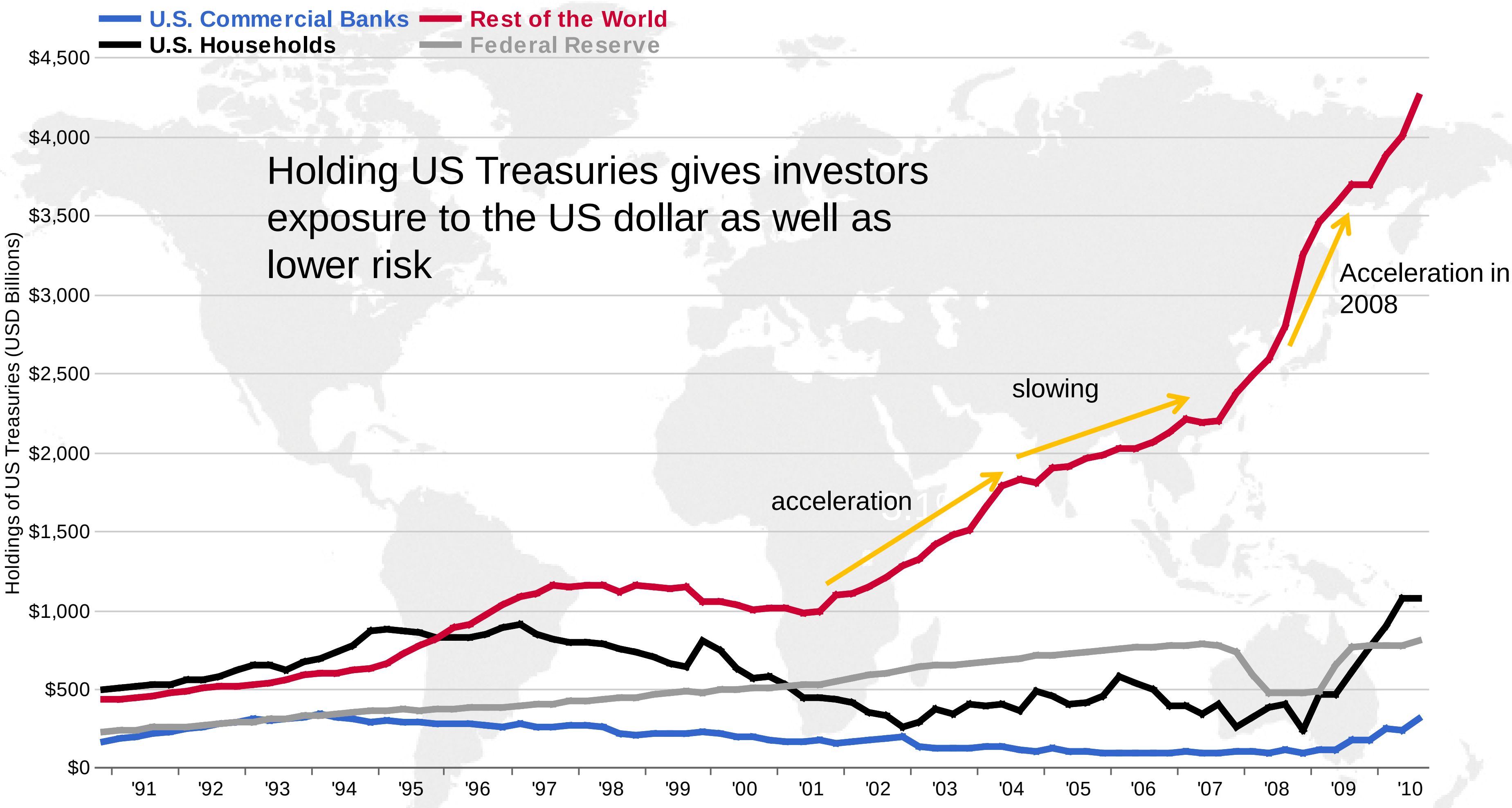
Updated through Feb 2011

Interest Rates Tend to Follow GDP Growth

Source: Federal Reserve

Updated through Q4 2010

<u>Fundamental/Technical</u>: US Treasuries Still Enjoy a Special Status in The Global Financial System

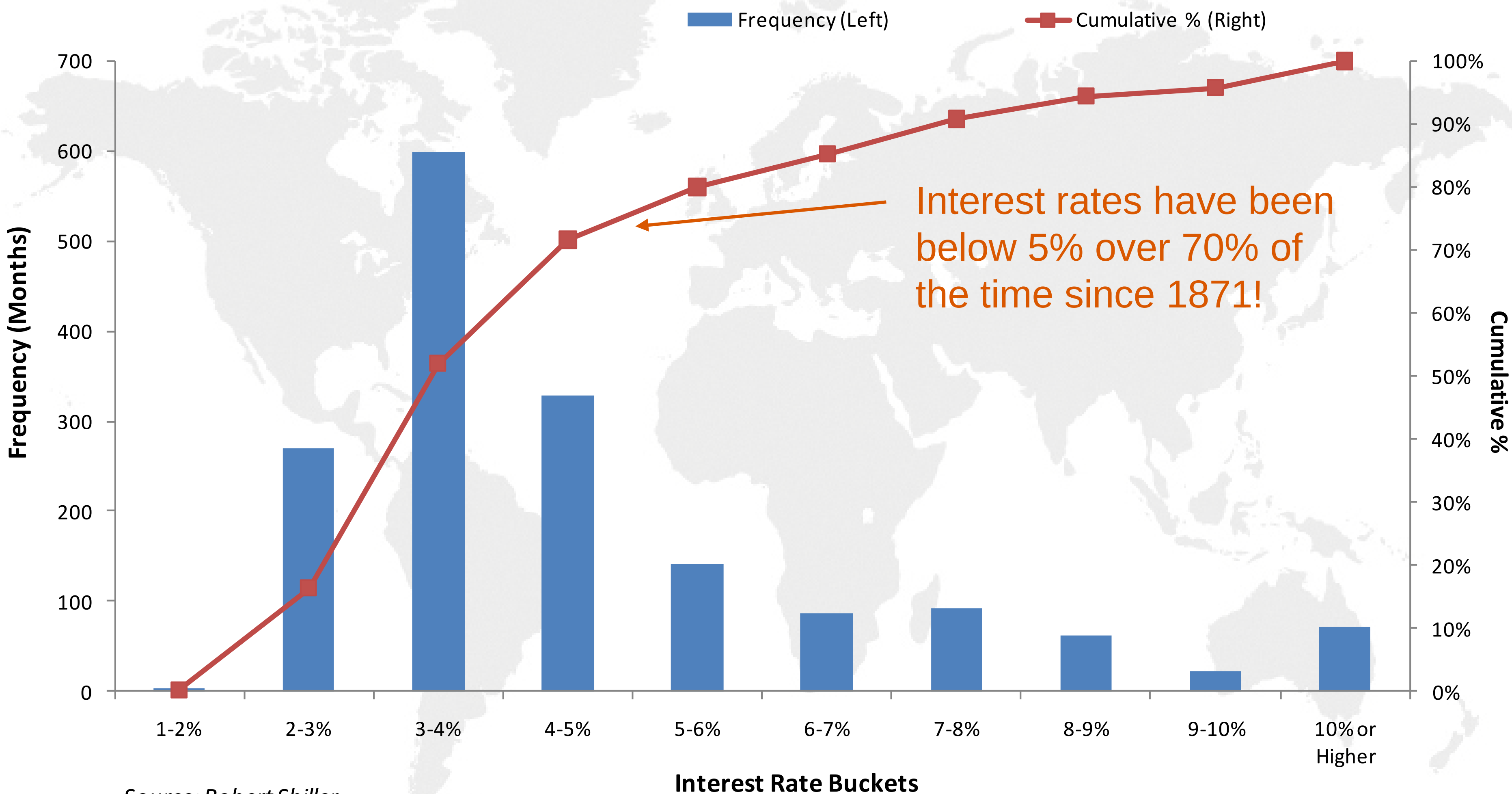


Source: Federal Reserve

Data through Q3 2010

High Interest Rates are the Anomaly, Not Low Ones

Nominal Long-Term Monthly Yields since 1871



Source: Robert Shiller

Updated through Nov. 2010

V The Output

2010-2011 Baseline US Economic Forecast*

"I can calculate the motions of heavenly bodies, but not the madness of people." – Sir Isaac Newton

Unemployment will remain high

	Actual						Forecast			
	2009		2010				2011			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Real GDP (quarter-to-quarter annualized percent change)	1.6	5.0	3.7	1.7	2.6	3.2	2.0	3.4	2.8	3.3
Unemployment Rate (percent)	9.6	10.0	9.7	9.7	9.6	9.6	8.9	8.8	8.6	8.5
Headline CPI Inflation (year-over-year percent change)	-1.6	1.5	2.4	1.8	1.2	1.2	2.2	2.5	3.3	3.9
Core CPI Inflation (year-over-year percent change)	1.5	1.7	1.3	1.0	0.9	0.6	1.1	1.2	1.4	1.6
Federal Funds Rate (percent)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
10-Year Treasury (percent)	3.30	3.54	3.71	3.49	2.80	3.37	3.47	3-4%	3-4%	3-4%

Inflation below Fed's target

*Data represent quarterly averages

Fed Keeps "Foot on Pedal"

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The Risks to the Forecast

"I can calculate the motions of heavenly bodies, but not the madness of people." – Sir Isaac Newton

State & Local Government Fiscal/Debt

Oil Prices Shock (Middle East Tensions)

Fiscal/Regulatory Uncertainty

Housing Market Supply Overhang

International Currency War

Global Growth Slowdown

QE3?

"Hello, young man.
I'm with the Federal Reserve.
Today, we're buying baseball cards."