2012 Economic Environment and Capital Markets Review Senate Finance Committee

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Callan's Capital Market Projection Process

Economic outlook drives our projections.

- **Evaluate the current environment and economic outlook for the U.S. and other major industrial countries:**
  - Business cycles, relative growth, inflation.
- **Examine the relationships between the economy and asset class performance patterns.**
- **Examine recent and long-run trends in asset class performance.**
- **Apply market insight:**
  - Consultant experience - Plan Sponsor, Manager Search, Specialty
  - Industry consensus
  - Client Policy Review Committee
- **Test the projections for reasonable results.**

Themes Explored in Setting the 2012 Expectations

- **What the heck happened in 2011? Are we back on track? What are the prospects for growth in the short term?**
- **Did inflation disappear as a risk?**
- **Bond market surprised yet again in 2011, with rates going down rather than up. Did anyone call the 2011 fixed income market? Is THIS finally the end of the road for bonds? Do rising rates doom the return expectations for fixed income?**
- **Has the long term trend for GDP growth changed?**
- **Sharp contrast between a long term, strategic vision for an investor (10+ years), the short term (1-3 years) reality, and the path from the current conditions to the long term expectations.**
- **Scenarios beyond the expected case:**
  – Threat of double dip.
  – Stagnation and deflation.
  – The recovery reignites and inflation takes hold.

The Capital Markets in 2011

Fixed Income Surprises, Equity Markets Suffer Loss of Confidence

							Average Annual Return		
							Five Years	Ten Years	Fifteen Yrs
	2006	2007	2008	2009	2010	2011	2007-11	2002-11	1997-2011
Broad U.S. Stock Market									
Russell 3000	15.72	5.14	-37.31	28.34	16.93	1.03	-0.01	3.51	5.68
S&P Super Composite 1500	15.34	5.47	-36.72	27.25	16.38	1.75	0.11	3.40	5.84
Large Cap U.S. Stocks									
Russell 1000	15.46	5.77	-37.60	28.43	16.10	1.50	-0.02	3.34	5.68
S&P 500	15.79	5.49	-37.00	26.47	15.06	2.11	-0.25	2.92	5.45
Small Cap U.S. Stocks									
Russell 2000	18.37	-1.57	-33.79	27.17	26.85	-4.18	0.15	5.62	6.25
S&P 600 Small Cap	15.11	-0.30	-31.07	25.57	26.31	1.02	1.94	7.09	8.27
Non-U.S. Stock Markets									
EAFE ($US)	26.34	11.17	-43.38	31.78	7.75	-12.14	-4.72	4.67	3.39
MSCI Emerging Markets	32.59	39.78	-53.18	79.02	19.20	-18.17	2.70	14.20	7.12
Fixed Income Markets									
BC Aggregate	4.33	6.97	5.24	5.93	6.54	7.84	6.50	5.78	6.32
Citi Non-US Bonds	6.95	11.45	10.11	4.38	5.22	5.17	7.23	8.36	5.54
Cash Market									
90-day T-bill	4.85	5.00	2.06	0.21	0.13	0.10	1.48	1.95	3.02
Inflation									
CPI-U*	2.54	4.08	0.09	2.72	1.50	2.96	2.26	2.48	2.37

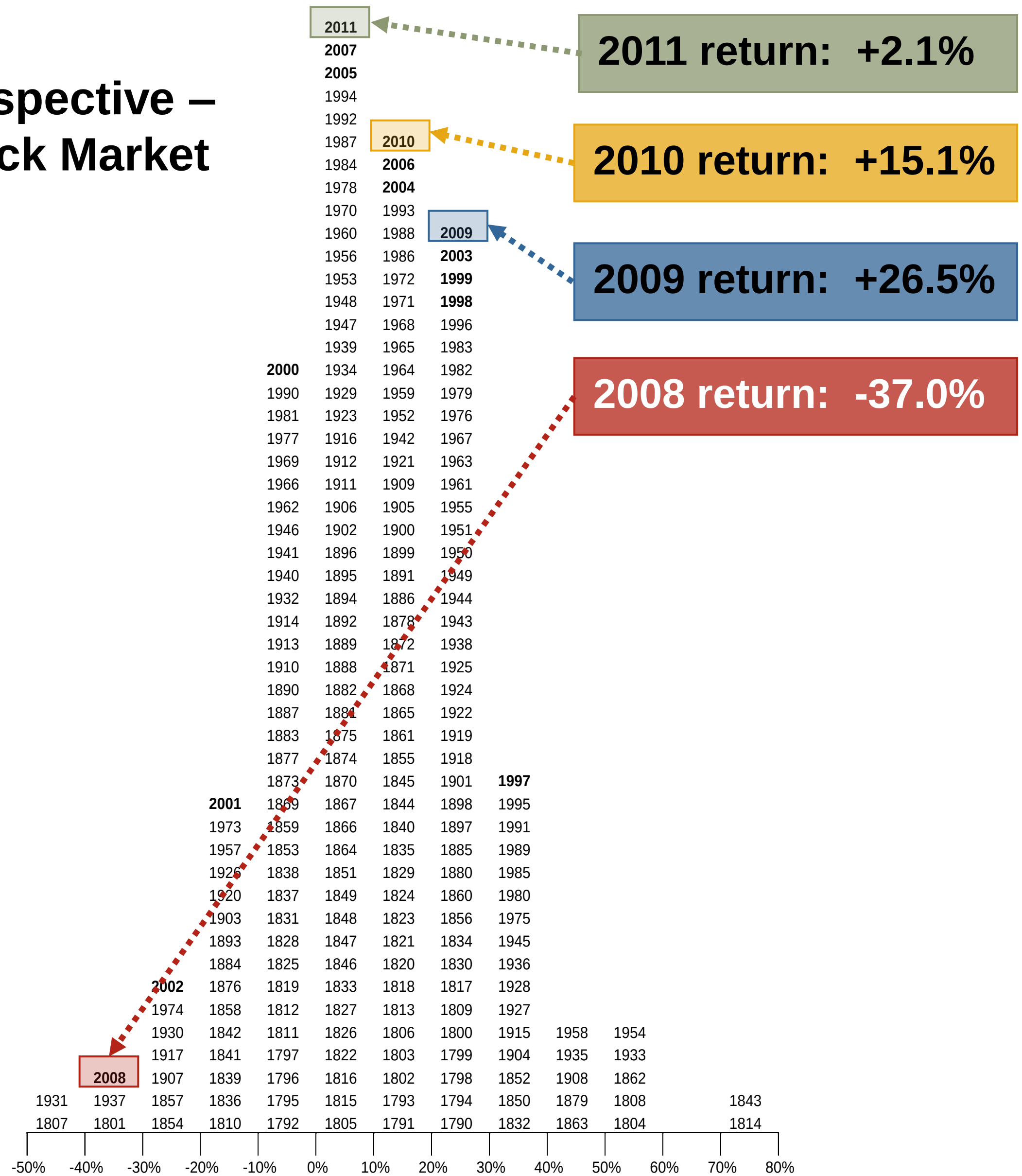
* CPI-U data are measured as year-over-year change through 12/31/11.

- Results for 2011 showed a sharp slump in all equity segments. Domestic equity returns were down almost 10% through September 2011; a strong fourth quarter brought returns back above zero. International markets were not so fortunate.
- Five-year equity returns through 2011 are essentially zero. Ten-year returns are weak as the tech bubble has rolled out of the calculations, and include two downturns. Fifteen-year returns are still below long-run averages, and are back below those of fixed income.

Stock Market Returns by Calendar Year

2011 Performance Perspective – History of the U.S. Stock Market

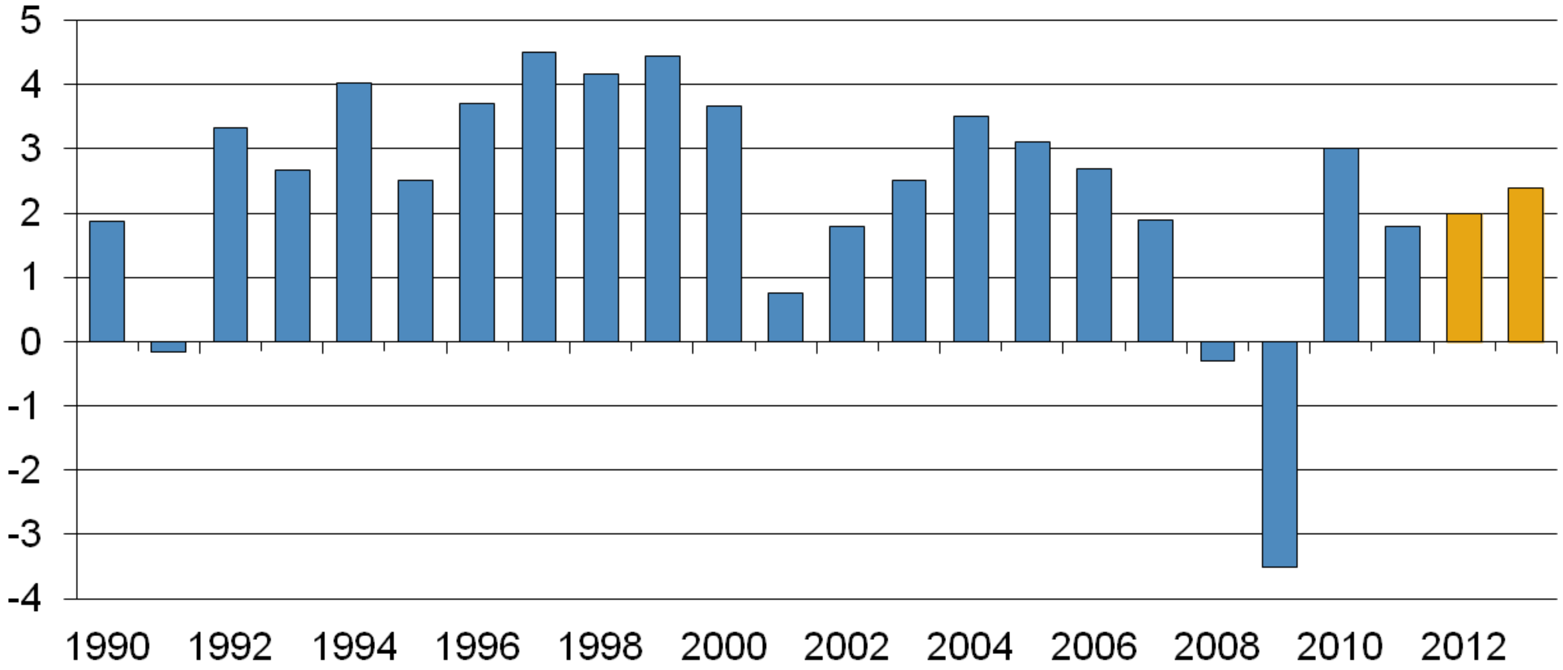
224 Years of Returns



Below-Par Recovery for the U.S. Economy

Real GDP

Annual Percent Change

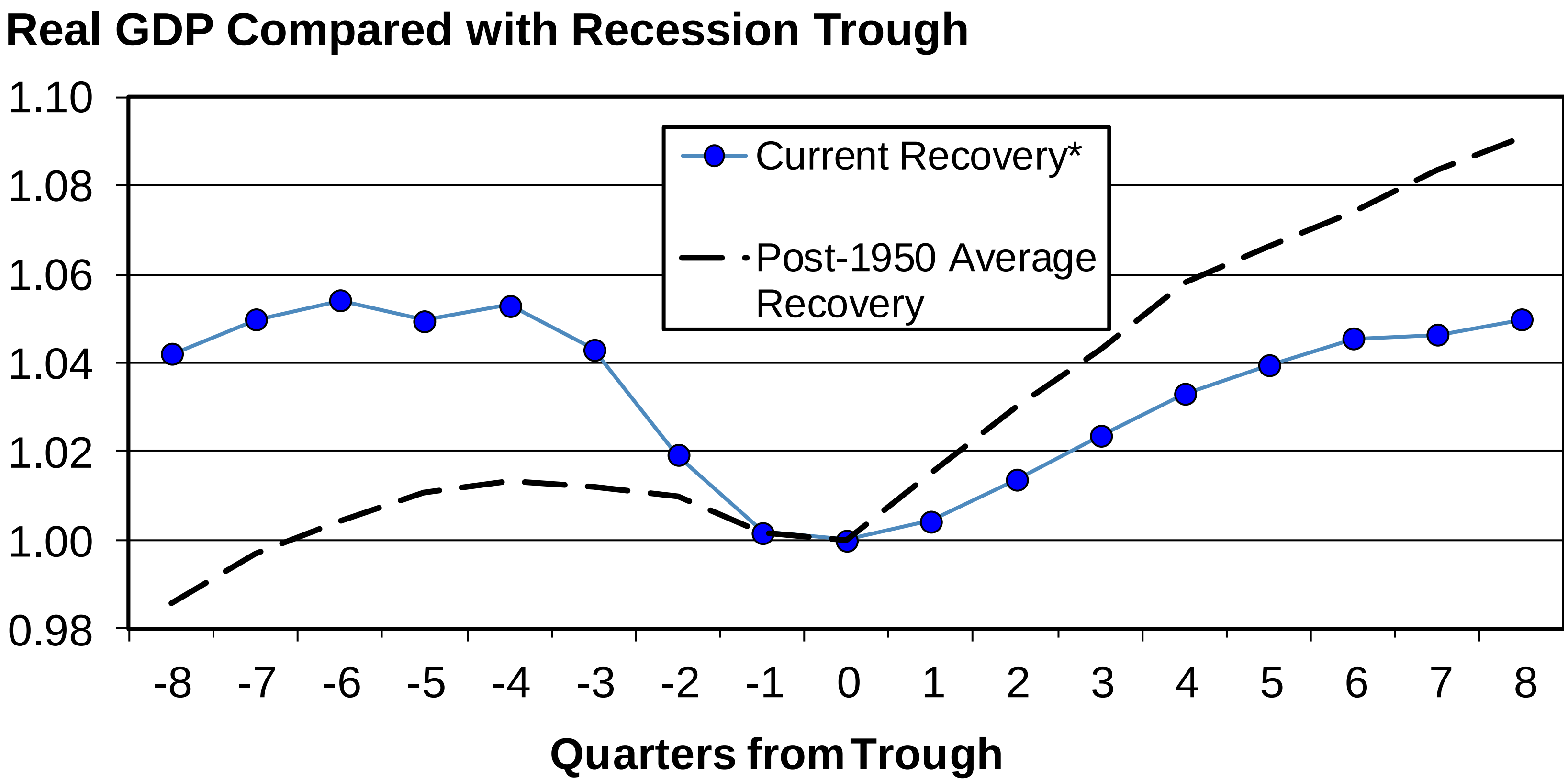


*** 2012-13 estimate - Global Insight**

Source: Global Insight

Deeper Recession, Slower Recovery

GDP Has Struggled to Regain Its Previous Peak



* 2009Q2 trough

Source: Global Insight

Will We Fall Back Into Recession?

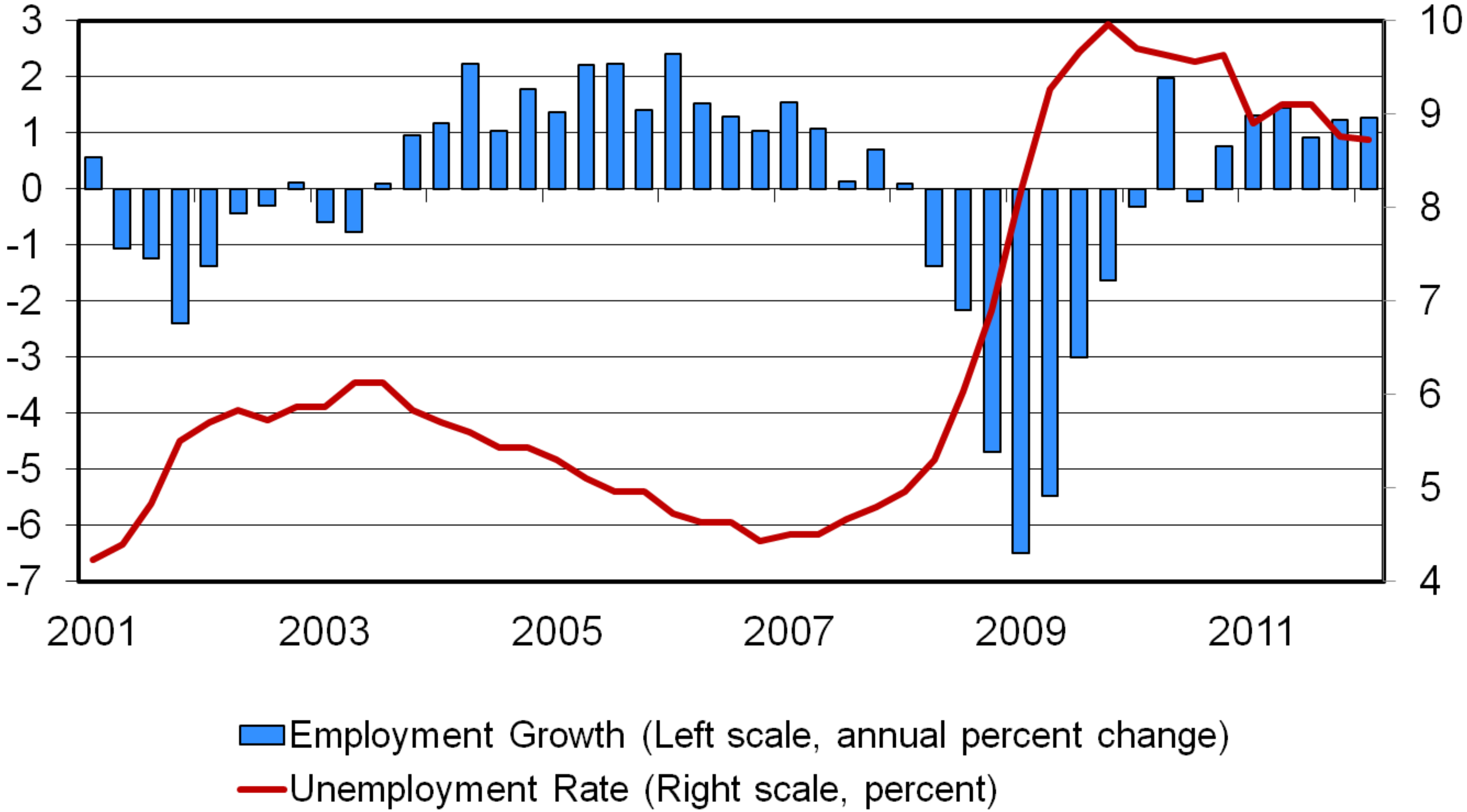
Why?

- **An economy near stall speed is vulnerable to shocks.**
- **Fed can't help much.**
- **Risks of policy mistakes**
  - Premature fiscal tightening
  - Policy paralysis.
- **Eurozone is the immediate risk.**
- **Oil shocks are a perennial threat.**

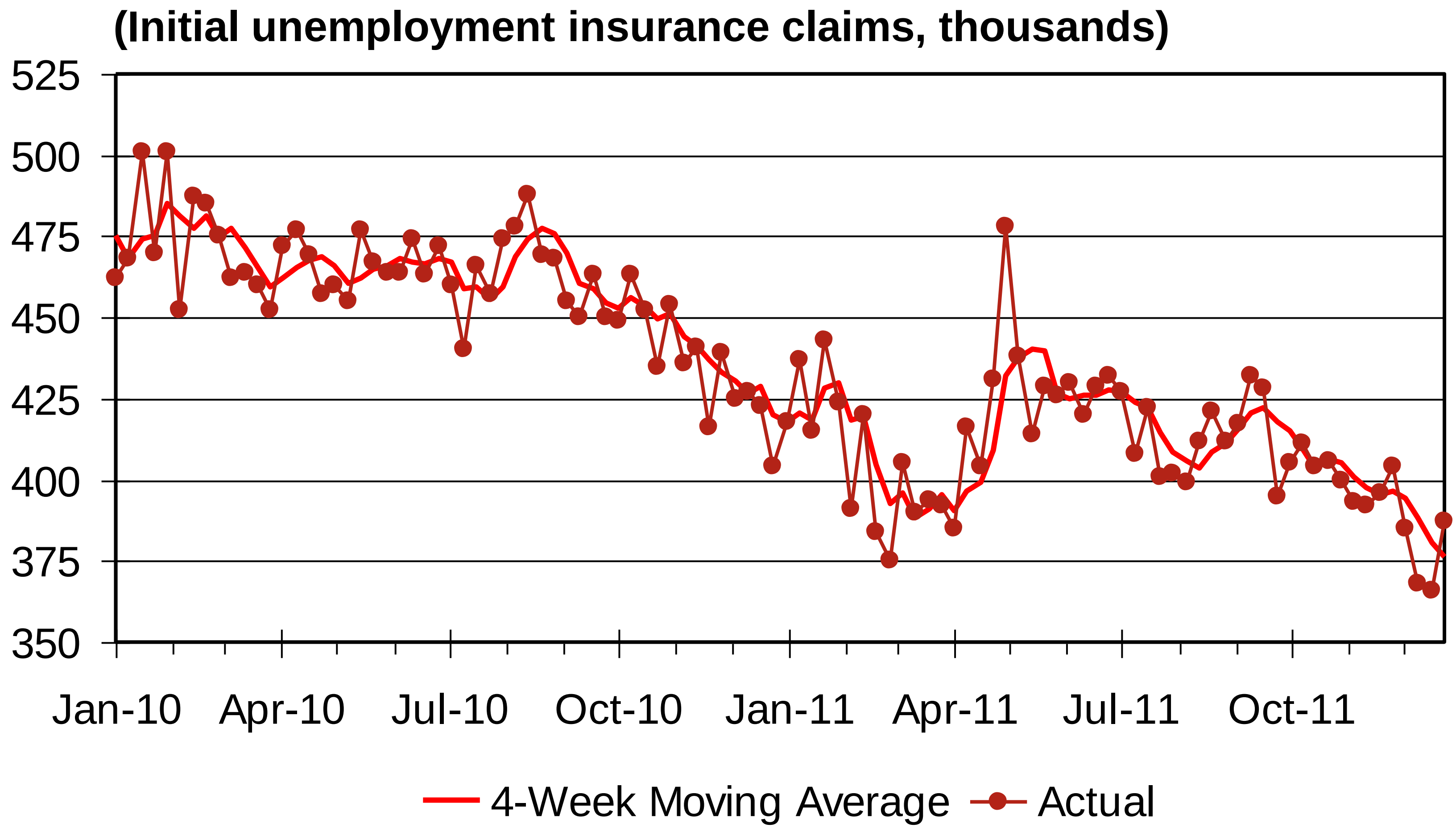
Why Not?

- **U.S. banks in better shape than 2008.**
- **Nonfinancial corporations balance sheets are strong.**
- **Exposures to Eurozone sovereign debt are better understood than were the exposures to sub-prime debt.**
- **Europe unlikely to allow a major institution to collapse similar to Lehman.**

Modest Employment Growth and High Unemployment Sapped Confidence



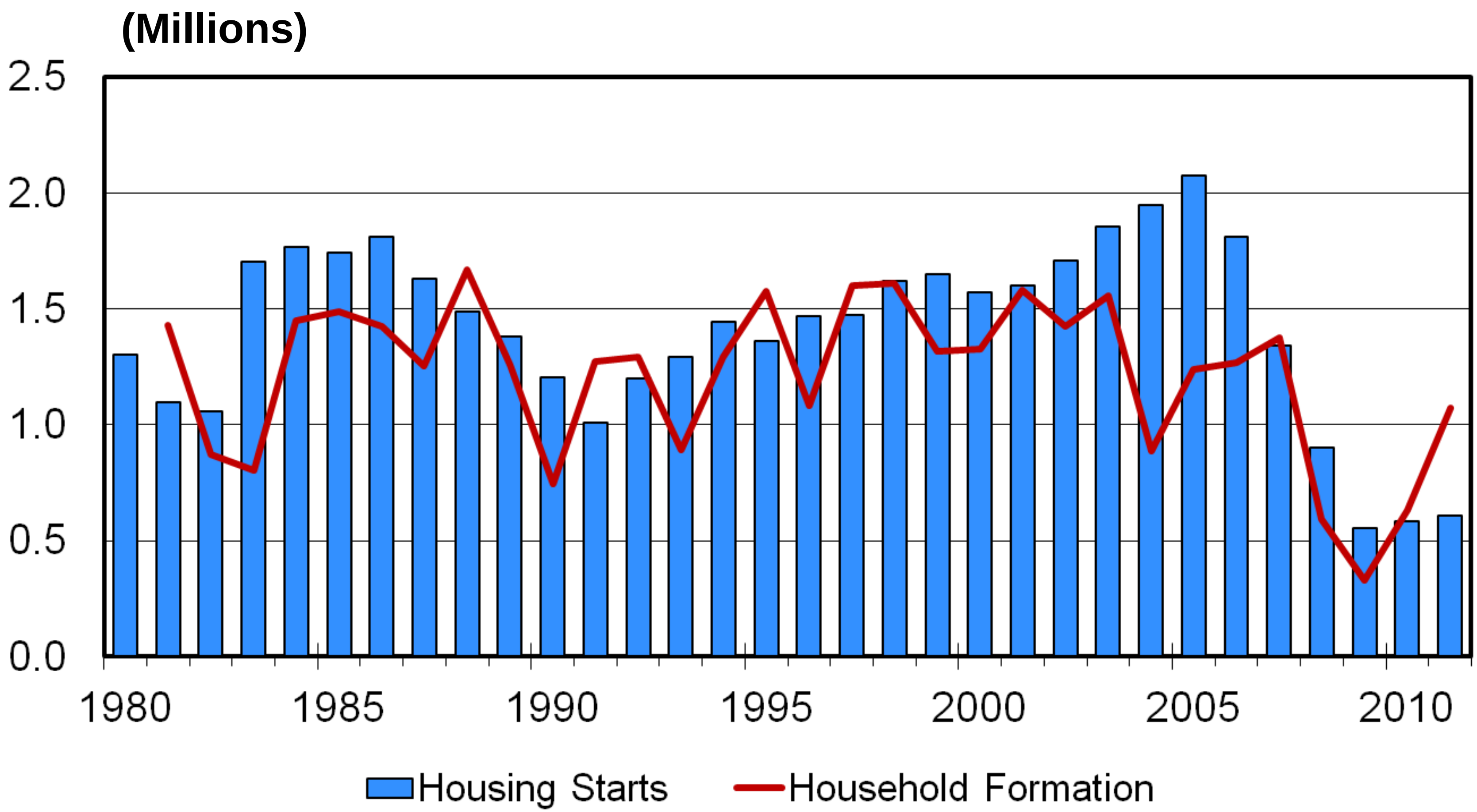
Good News: Initial Unemployment Insurance Claims Are Edging Down



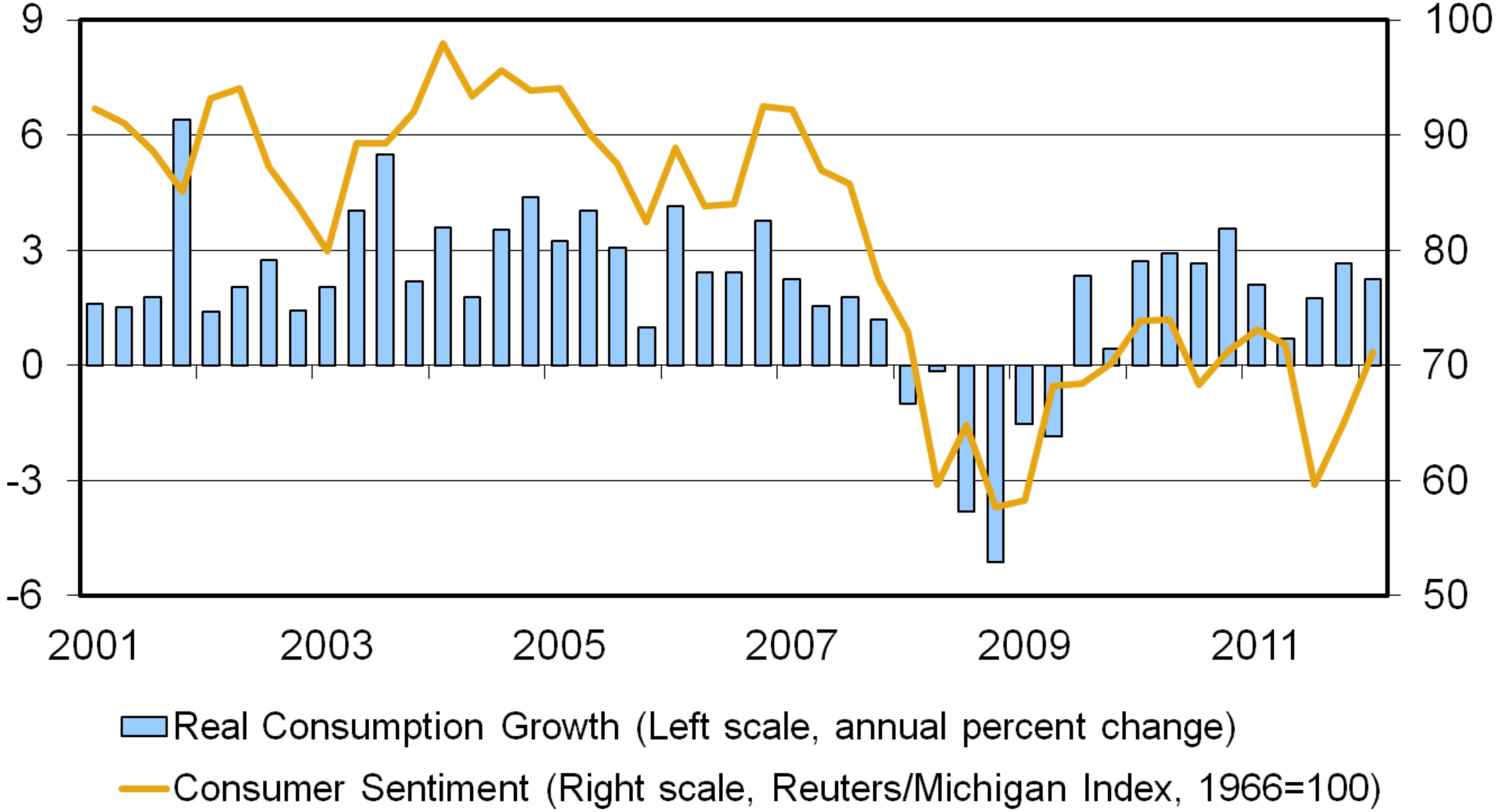
- **400,000 = "magic number" below which the job market is typically expanding.**

Source: U.S. Department of Labor

A Rebound in Household Formation Required for Recovery in Housing Starts



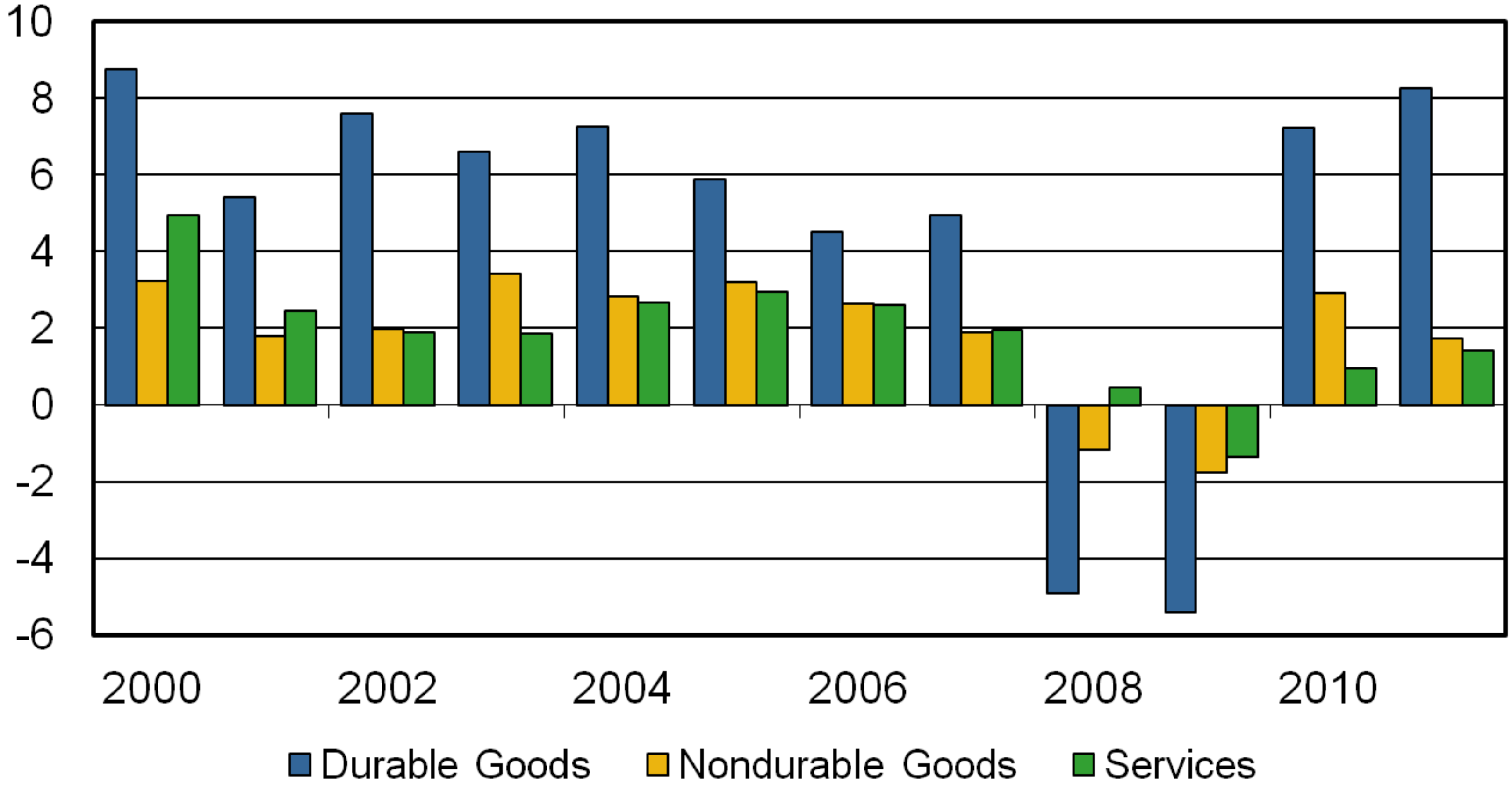
Consumers Spending Has Not Been a Strong Driver of Recovery



Source: Global Insight

Pent-up Demand for Durable Goods Drives Growth in Consumer Spending

(Percent change, real)

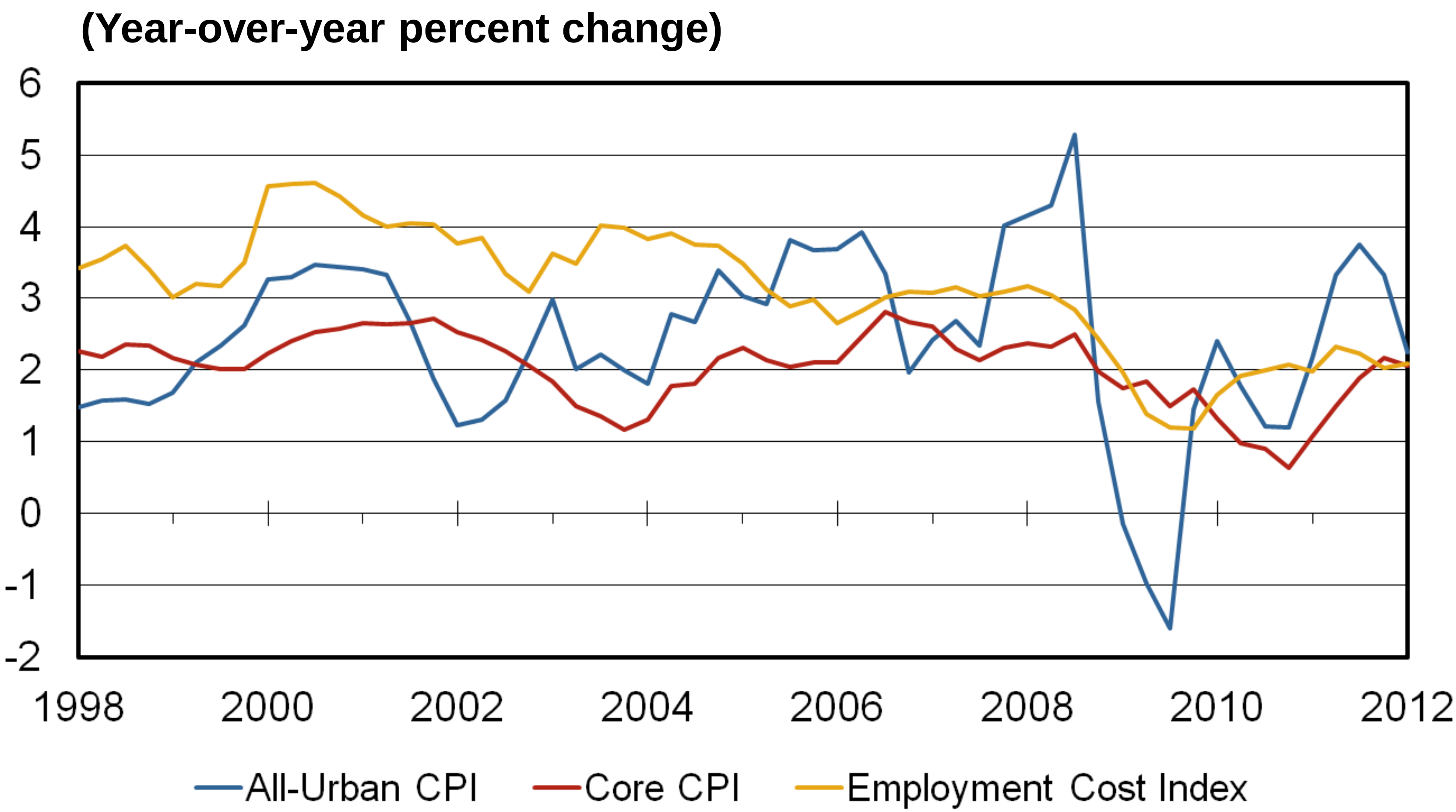


Source: Global Insight

So Is Rising Inflation an Emerging Threat?

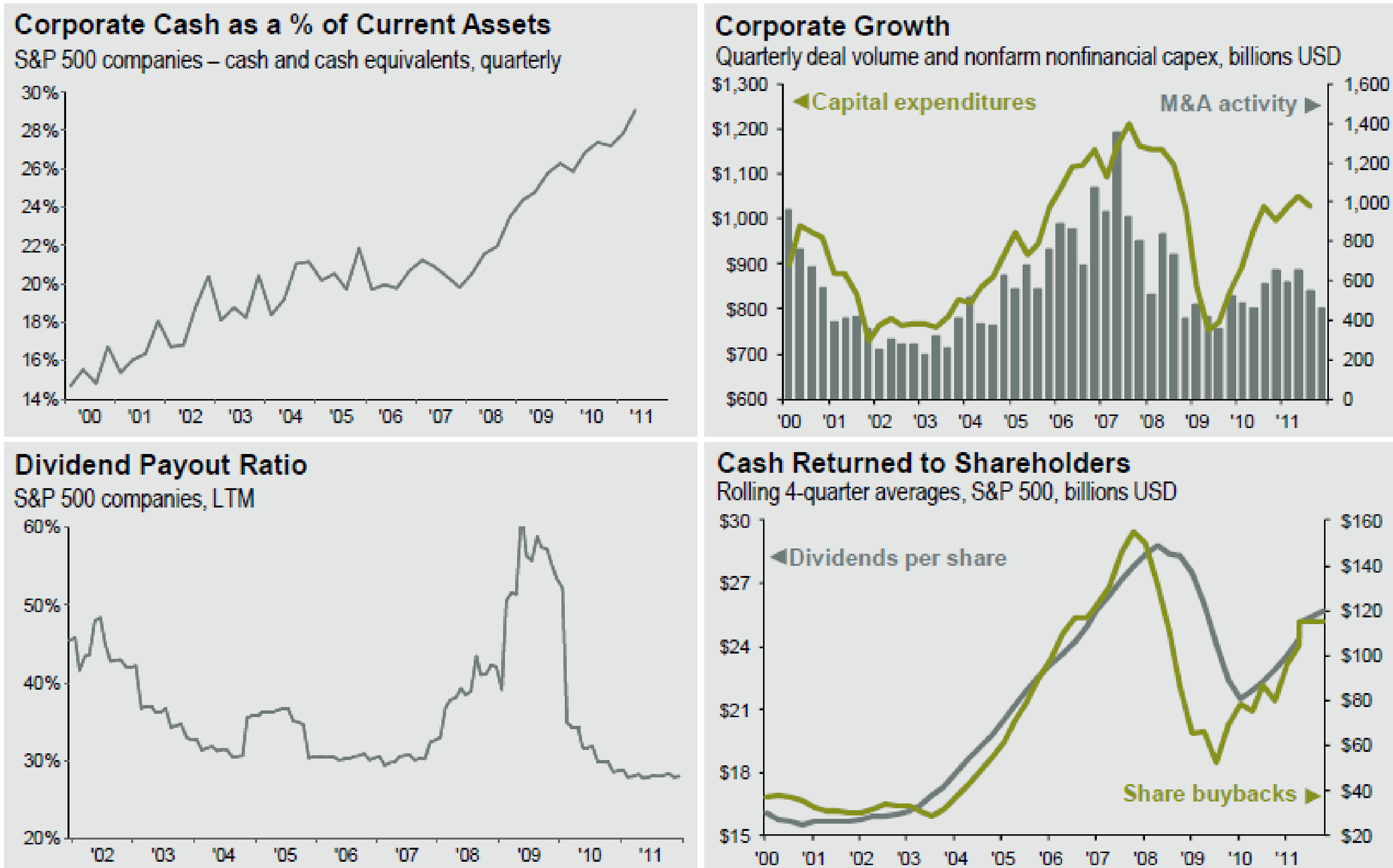
- **Economic theory says inflation HAS to take off:**
  - Unprecedented, synchronized global monetary stimulus.
    - Interest rates at historic lows.
  - Unprecedented fiscal stimulus.
    - Corresponding unprecedented federal budget deficit.
    - Inflation beneficial to debtors—moral hazard?
  - Commodity prices itching to rise at the first sign of growth.
  - Dollar must weaken, furthering pressure on inflation.
- **Practical reality:**
  - The U.S. and the rest of the world face very slow recoveries:
    - Fiscal and monetary stimulus kept us out of a longer, deeper recession, but
    - Aggregate demand is weak, no post-recession surge as fiscal stimulus fades.
    - Capacity utilization has plummeted in the U.S.; we are awash in new capacity overseas, and still importing deflationary pressure.
    - Weak job market, no wage pressures.
  - Interest rates may rise sharply without a surge in inflation.
  - Inflation a very real threat, but it may be up to five years off.
  - Commodity prices represent a wildcard threat in the shorter term, particularly a supply-side disruption.
    - Commodity spike more likely to trigger another slowdown than a general price spiral.

Consumer Price Inflation Expected to Ease in 2012



Source: Global Insight

Corporate liquidity & growth



Source: Standard & Poor's, FRB, Bloomberg, FactSet, J.P. Morgan Securities, J.P. Morgan Asset Management.

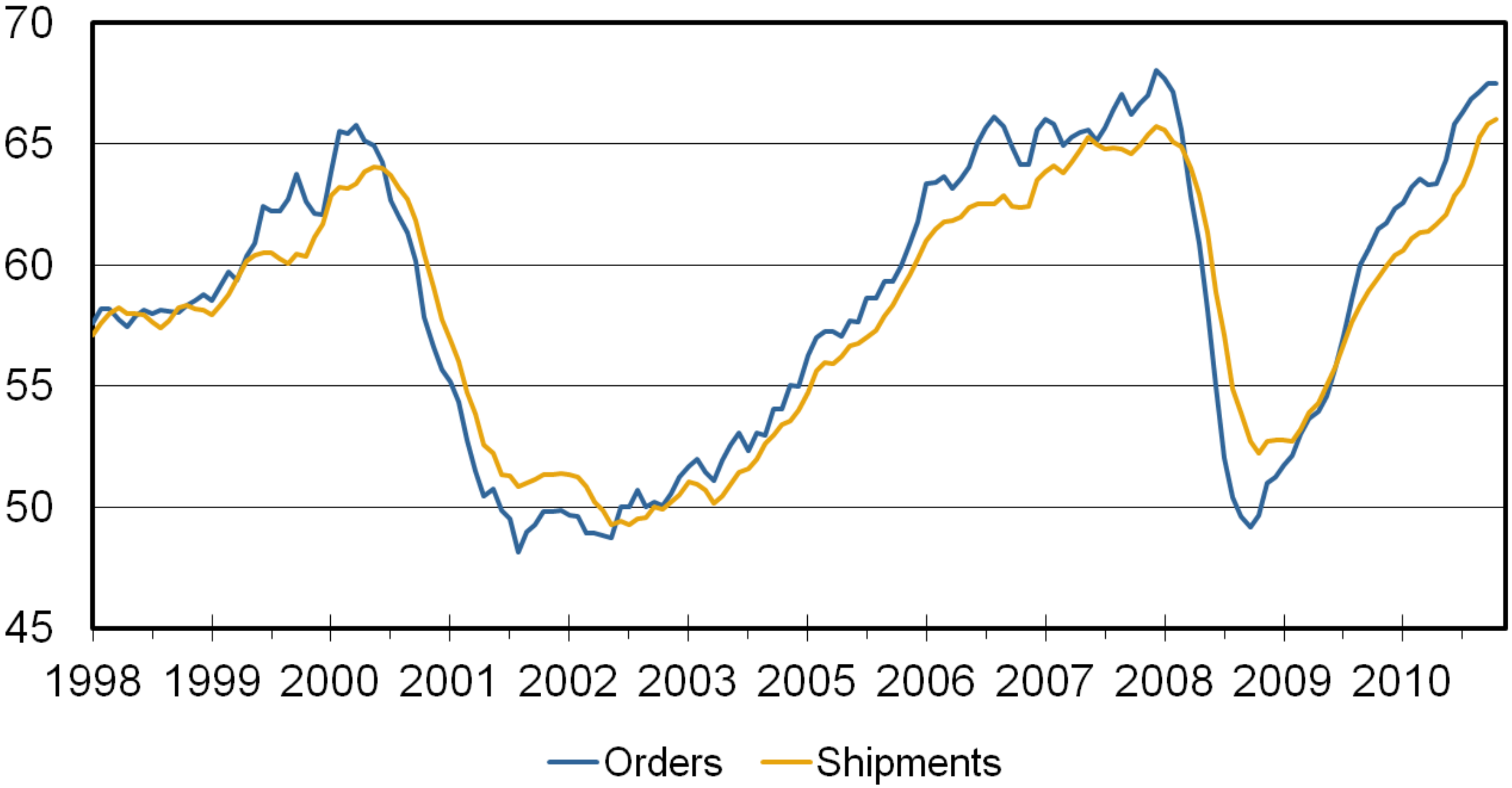
(Top left) Standard & Poor's, FactSet, J.P. Morgan Asset Management. (Top right) M&A activity is quarterly number of deals of any value and capital expenditures are for nonfarm nonfinancial corporate business. (Bottom left) Standard & Poor's, FactSet, J.P. Morgan Asset Management. (Bottom right) Standard & Poor's, Compustat, FactSet, J.P. Morgan Asset Management. Data are most recent as of 12/31/11.

J.P.Morgan Asset Management

- This graph reproduced from J.P. Morgan Guide to Markets Q1 2012

Business Equipment Demand Is Strengthening

(Nondefense capital goods excl. aircraft, 3-month moving average, billions $



Source: Global Insight

U.S. Economic Growth by Sector

Annual Percentage Change

	12/31/2006 Share of GDP	12/31/2011 Share of GDP	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Direction of Change
Real GDP	100.0%	100.0%	1.8	2.5	3.5	3.1	2.7	1.9	-0.3	-3.5	3.0	1.8	Slowing
Consumption	70.3%	71.1%	2.7	2.8	3.3	3.4	2.9	2.3	-0.6	-1.9	2.0	2.2	Above total GDP growth
Residential Investment	5.1%	2.2%	5.3	8.2	9.8	6.2	-7.3	-18.7	-23.9	-22.2	-4.3	-1.7	Light on the horizon?
Bus. Fixed Investment	11.3%	10.4%	-7.9	1.4	6.2	6.7	8.0	6.5	-0.8	-17.9	4.4	8.7	Healthy growth
Federal Government	6.9%	8.1%	7.3	6.6	4.1	1.3	2.1	1.2	7.2	6.0	4.5	-1.8	End of stimulus
State & Local Govt.	11.6%	11.7%	3.3	-0.1	-0.2	-0.2	0.9	1.4	0.0	-0.9	-1.8	-2.2	See "Federal Government"
Exports	11.3%	13.9%	-2.0	1.6	9.5	6.8	9.0	9.3	6.1	-9.4	11.3	6.9	Continued bright spot
Imports	16.6%	17.5%	3.4	4.4	11.1	6.1	6.1	2.4	-2.7	-13.6	12.5	4.8	Consumption or energy prices?

- **GDP hit bottom in Q2 2009. After inventory and stimulus boost, economy was fully expected to slow in second half of 2010 and through 2011, but the bottom seemed to fall out of economic growth, particularly during the first half of 2011.**
- **As confidence deteriorated with the European debt crisis and the US budget impasse over the summer, concerns rose for a return to recession,**
- **However, data on the U.S. economy began to surprise, notching solid growth in the 3rd and 4th quarters. Indicators ranging from orders to jobs to consumer spending all strengthened in direct contrast to depressed reports on consumer and business confidence.**
- **Note: Imports are a negative number in the calculation of GDP.**

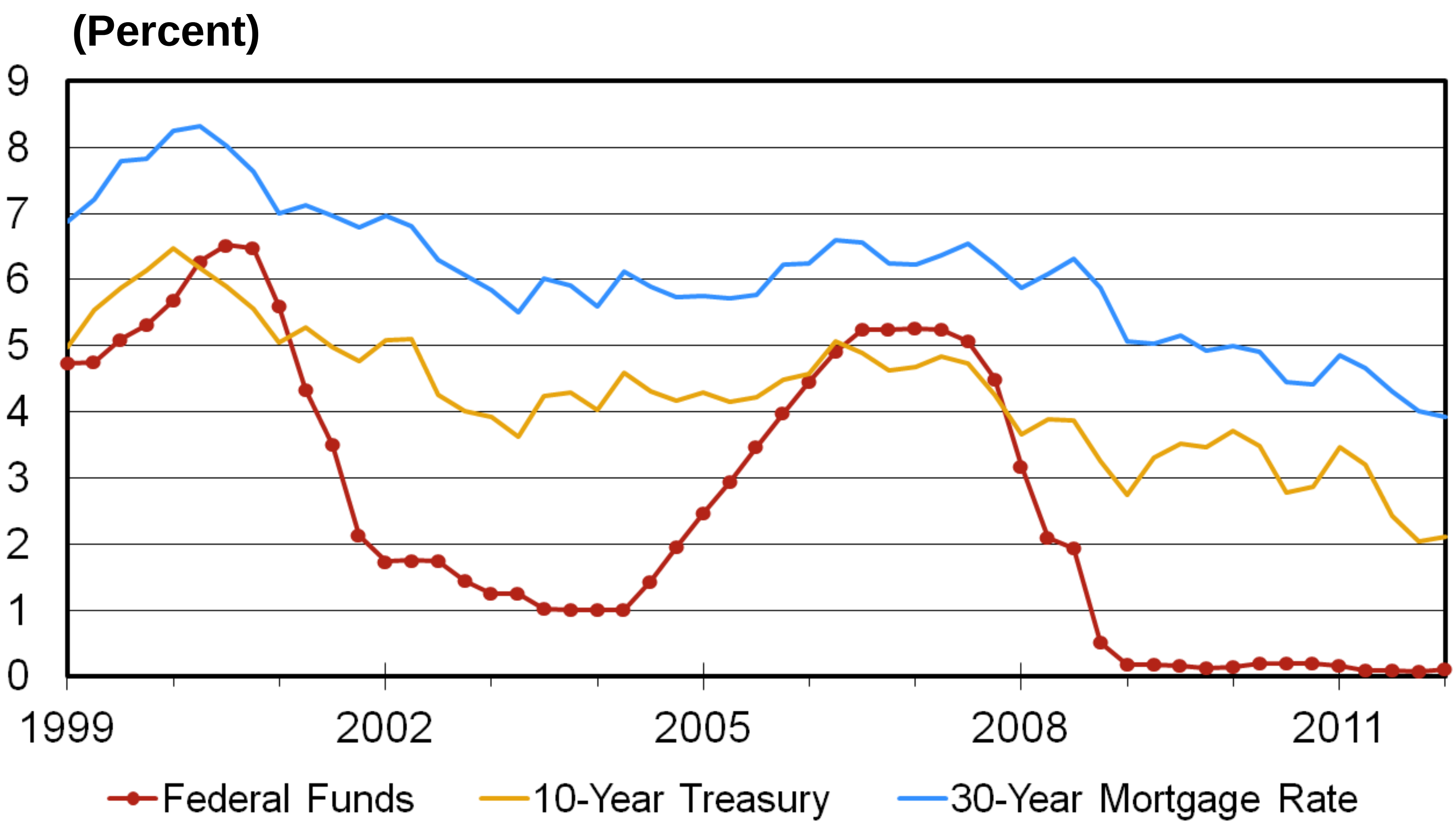
Source: Global Insight

What Will The Fed Do?

- The Fed is worried; it had expected 2.7%-2.9% growth for 2011, 3.3%-3.7% for 2012.
- 2011 came in at 1.8%.
- Global Insight (and consensus) forecast now: 2.0% (2012), 2.4% (2013).
- Fed has used its prime ammunition already.
- No rate hike till mid-2013 “promised”.
- Market assumes no hike before 2014.
- Hurdle for QE III is high – but we may clear it.

Federal Funds Rate Near Zero Until 2014

Long Rates Will Also Stay Low; Steep Yield Curve



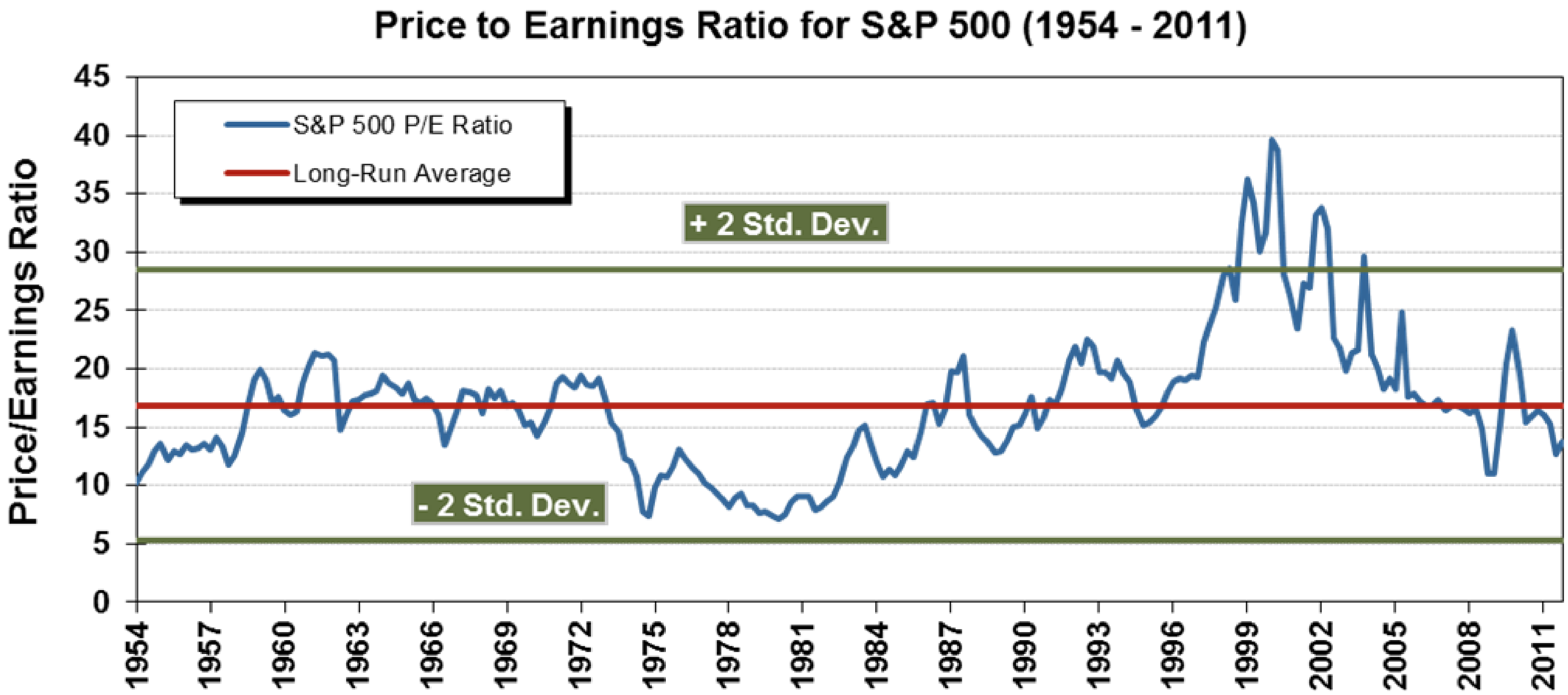
Source: Global Insight

The Economy and the Capital Markets

- **The economy was fully expected to meander through a weak recovery, as the combination of recession, financial crisis and deleveraging required time to work through the system.**
  - GDP growth was expected to slacken in 2011, but events and emotions combined to spur investors into a series of risk on/risk off trades that drove market volatility.
  - Economic data suggest the economy continues to grow, but such growth will remain modest.
  - Double-dip recession is possible, but not the expected outcome.
- **Callan's outlook:**
  - Inflation will likely drift higher, but not immediately. Painfully low interest rates will persist, now that the Fed has "guaranteed" low rates through 2013. We expect interest rates to rise gradually after 2013.
  - Historic nominal return averages will be hard to achieve over the short, medium and even the longer run.
  - Stocks rallied in the fourth quarter of 2011, saving the results for the year. However, prospects for above-trend growth are weak; companies are strong enough to attain trend profit growth, but not a lot more.
  - The housing market has yet to truly hit bottom, despite mortgage rates at an all-time low. The "shadow inventory" of homes yet to foreclose still hangs over the market.
  - The chance that we could see another leg down on housing is the greatest risk to the economy, and to a deflationary spiral.
  - The dollar should face substantial downward pressure as a result of U.S. policy. The problem, of course, is what other currency can take the dollar's place?
  - **The path to a rational set of long-term capital market outcomes is likely through an ugly shorter term period of rising interest rates, capital losses in fixed income, and volatile equity markets.**

Equity Is More Reasonably Priced

Trailing P/E Below Its Long Run Average



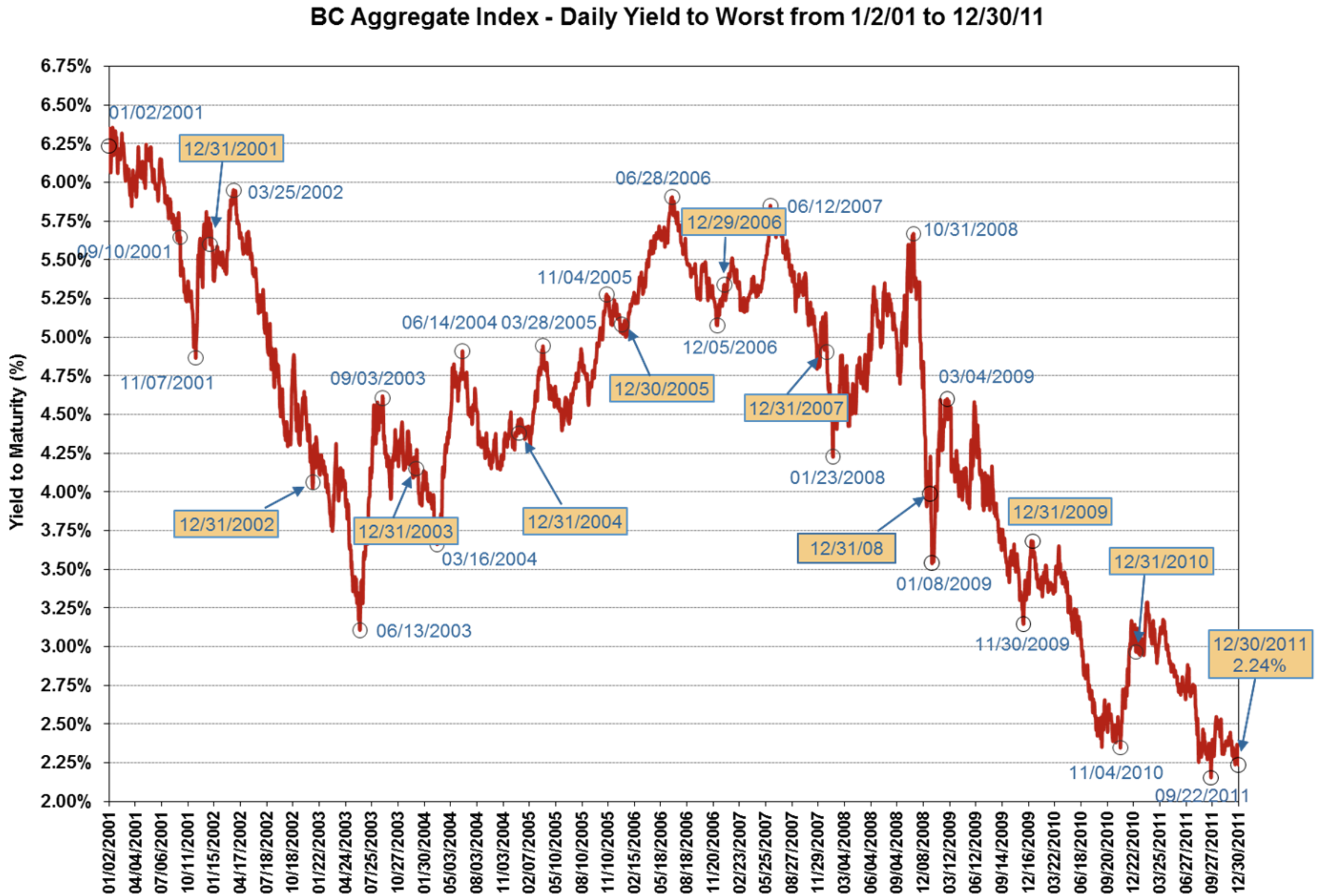
Trailing earnings as reported for the fiscal year; includes negative earnings from 1998 onward.
Source: Standard & Poor's and Callan.

Building US Equity Expectations

- **Dividend Yields Likely to Stay Near Current Levels.**
  - Financing uncertainty continues so cash unlikely to be returned to investors.
  - Fixed income yields expected to remain low.
- **Equity Valuations Currently Moderate to Attractive After Market Angst During 2010 and 2011.**
- **Corporate Profits Near Long-Term Growth Rate.**
  - Companies may be able to sustain trend or above trend profit growth even in a weak recovery.
- **Company Balance Sheets Are Strong, But No One is Eager to Spend. Large Cash Holdings a Drag on ROE.**
- **Consumption Still Dominates Economic Growth.**
  - Unemployment high but finally declining,
  - Wealth depleted,
  - Deleveraging continues,
  - Savings replenished.
- **Exports Remain Strong, in Spite of Strengthening Dollar but Impact Muted by Size of Economy.**
- **Have We Entered a New Era of Lower Trend Growth in GDP?**

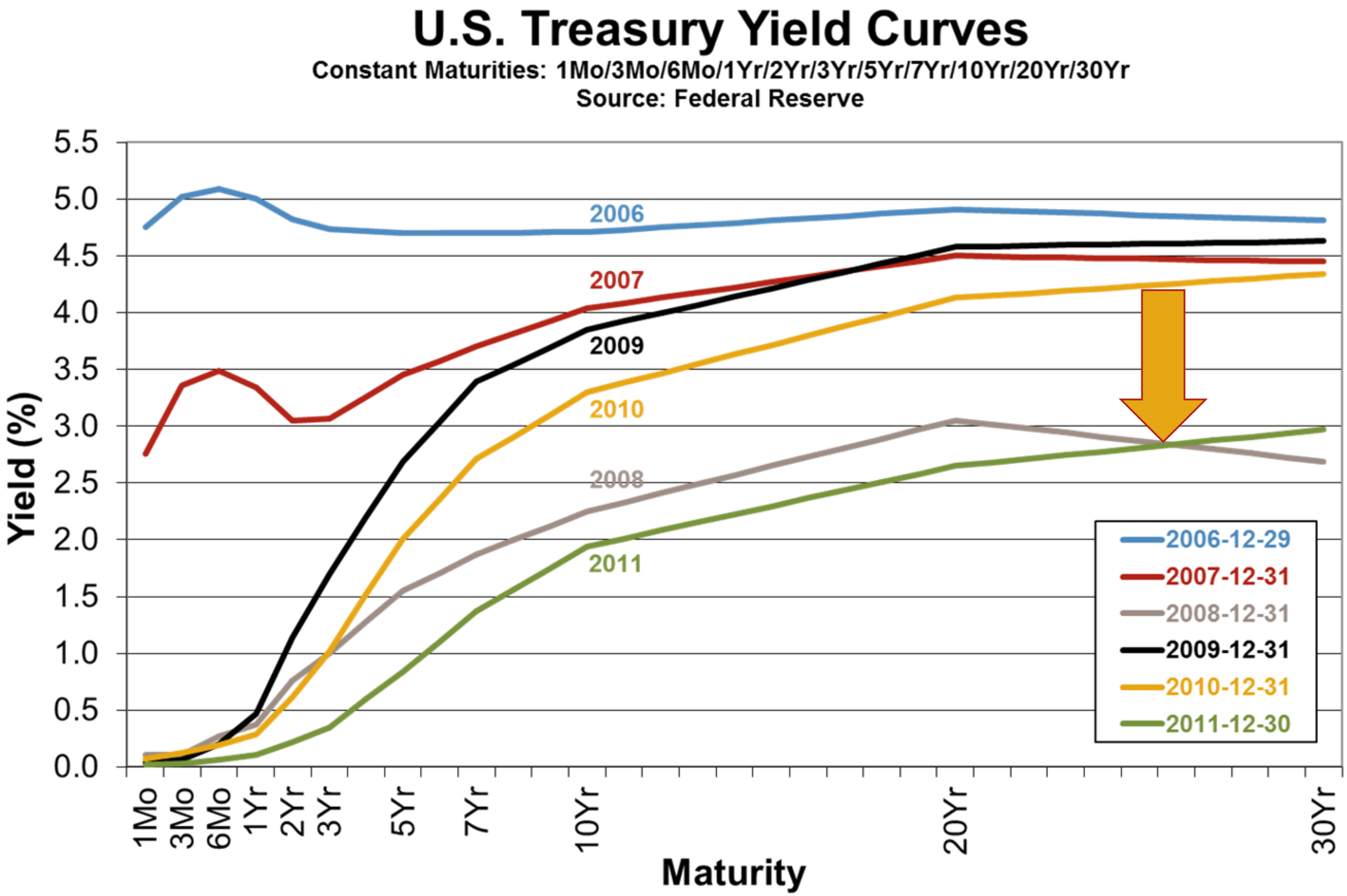
Current Yield is Exceptionally Low

We Can Go Lower; Uncharted Waters Going Forward



Source: Barclays Capital and Callan

Treasury Rates Fell With Fears of a Faltering Recovery



Source: Federal Reserve and Callan

Building Fixed Income Expectations

- **2011 results yet another surprise – interest rates fell, broad market generated 7.8% return (BC Aggregate).**
  - Credit event of 2011: downgrade of U.S. Treasury debt by S&P.
  - Result of downgrade: a flight to quality. Treasuries rallied. The market speaks.
- **The path to future return matters:**
  - Inflation
  - Composition of the market
  - Expected spreads and risk premiums
  - Current yields – level, slope of the yield curve.
- **Hard to be enthusiastic about fixed income returns given current yields, environment and likely economic path to growth.**
  - Calling the bottom of the “long term” interest rate cycle has been perilous. Nevertheless, the risk that rates will move higher is likely greater than the potential for rates to move lower.

2012 Capital Market Expectations

- Bond returns reduced to 3.25%. We expect interest rates to rise, likely after 2013, resulting in capital loss before higher yields kick in. We expect cash yields to reach 3.0% and 10-year Treasury yields to reach 5% over the ten-year projection.
- Project an upward sloping yield curve, with a slim risk premium for bonds over cash (1.0%).
- Building equity returns from long-term fundamentals, we find it hard to get to 8%: 2.5-3.0% real GDP growth, which means 5-5.5% nominal earnings growth, 2% dividend yield. Nothing expected from the “buyback yield”. Equity suffered in the broad flight to quality in 2011, particularly outside the U.S., and looks reasonably priced, but is it “cheap”? Broad U.S. equity expectations are reduced 25 bps, from 8.0% to 7.75%. Broad non-U.S. equity returns are decreased by a similar amount.
- Real estate return reduced to 6.4% from 6.75%, reflecting income returns holding up at 5-6% but reduced expectations for appreciation.
- Hedge fund expectations of T-bill plus 2.75% suggests a return of 5.5%.

2012 Capital Market Expectations

Return and Risk

Summary of Callan's Long-Term Capital Market Projections (2012 - 2021)

		Projected Return			Projected Risk		2011	
Asset Class	Index	1-Year Arithmetic	10-year Geometric *	Real	Standard Deviation	Projected Yield	10-year Geometric *	Standard Deviation
Equities								
Broad Domestic Equity	Russell 3000	9.20%	7.75%	5.25%	18.70%	2.00%	8.00%	18.10%
Large Cap	S&P 500	8.95%	7.60%	5.10%	18.00%	2.20%	7.85%	17.25%
Small/Mid Cap	Russell 2500	10.25%	7.90%	5.40%	23.00%	1.20%	8.25%	23.00%
International Equity	MSCI EAFE	9.30%	7.60%	5.10%	20.00%	2.00%	7.85%	19.75%
Emerging Markets Equity	MSCI EMF	11.50%	8.00%	5.50%	27.75%	0.00%	8.35%	27.50%
Global ex-US Equity	MSCI ACWI ex-US	9.85%	7.90%	5.40%	21.15%	1.70%	8.20%	20.90%
Fixed Income								
Defensive	BC Govt 1-3	3.00%	3.00%	0.50%	2.50%	3.00%	3.25%	2.50%
Domestic Fixed	BC Aggregate	3.30%	3.25%	0.75%	4.25%	3.30%	3.75%	4.50%
TIPS	BC TIPS	3.10%	3.00%	0.50%	5.60%	3.10%	3.50%	5.90%
Long Duration	BC Long Govt/Credit	4.10%	3.45%	0.95%	11.80%	4.10%	4.00%	11.15%
High Yield	BC High Yield	6.00%	5.35%	2.85%	12.50%	6.00%	5.60%	11.55%
Non-US Fixed	Citi Non-US Govt	3.25%	2.85%	0.35%	9.50%	3.25%	3.35%	9.70%
Other								
Real Estate	Callan Real Estate	7.65%	6.40%	3.90%	16.95%	5.00%	6.75%	16.35%
Private Equity	VE Post Venture Cap	13.05%	8.90%	6.40%	30.60%	0.00%	9.00%	30.00%
Hedge Funds	Callan Hedge FoF	5.90%	5.55%	3.05%	10.00%	0.00%	5.90%	10.00%
Commodities	DJ-UBS	4.75%	3.25%	0.75%	17.90%	3.00%	3.75%	24.00%
Cash Equivalents	90-day T-bill	2.75%	2.75%	0.25%	0.90%	2.75%	3.00%	0.90%
Inflation	CPI-U	2.50%	2.50%		1.40%		2.50%	1.40%

** Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).*

Source: Callan

2012 Capital Market Expectations

Largely Unconstrained Asset Mix Return and Risk

Absolute Return Capped at 5%

Asset Mix Alternatives
Optimization Set: 2012 Broad Equity

Portfolio Component	Min	Max	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5	Mix 6
Broad Domestic Equity	0%	100%	19%	22%	26%	29%	33%	35%
Global ex-US Equity	0%	100%	14%	17%	20%	23%	26%	29%
Private Equity	0%	100%	2%	3%	5%	6%	7%	10%
Domestic Fixed	0%	100%	39%	31%	23%	16%	7%	0%
High Yield	0%	100%	6%	6%	6%	7%	7%	6%
Non US Fixed	0%	100%	3%	4%	4%	4%	5%	4%
TIPS	0%	100%	7%	6%	3%	1%	0%	0%
Real Estate	0%	100%	5%	6%	8%	9%	10%	11%
Absolute Return	0%	5%	5%	5%	5%	5%	5%	5%
Totals			100%	100%	100%	100%	100%	100%
Projected Arithmetic Return			6.00%	6.60%	7.20%	7.80%	8.40%	9.00%
Projected Standard Deviation			8.59%	10.30%	12.06%	13.85%	15.66%	17.49%
5 Yr. Geometric Mean Return			5.77%	6.24%	6.68%	7.08%	7.45%	7.78%
10 Yr. Geometric Mean Return			5.77%	6.23%	6.66%	7.06%	7.42%	7.74%
10 Yr. Simulated Sharpe Ratio			0.32%	0.31%	0.30%	0.29%	0.28%	0.27%

ARMB's current policy has an expected arithmetic return of 7.9%
The expected 10-year geometric mean return is 7.1%.

Source: Callan

Fallout of 2012 Capital Market Expectations

- **What happened in 2011? The economic recovery appeared to lose steam, investors lost faith, the equity market took beating through Q3, and interest rates fell sharply, from already-low levels. Strong fourth quarter pushed U.S. equities back up, but only enough to end the year flat sharply; non-U.S. markets were not so fortunate. Bonds recorded yet another (unexpected) stellar year as interest rates dropped in the flight from risk.**
- **Bond returns going forward– not a lot of room for optimism. Interest rates have no where to go but up, right?**
- **Cash cannot sustain a negative real yield over the longer term. Or can it? We project an upward sloping yield curve, with very a slim risk premium for bonds over cash.**
- **Building equity returns from long-term fundamentals:**
  - Earnings growth – **outlook now in jeopardy.**
  - Real GDP – **how slow can we go?**
  - Dividends & other returns on free cash flow – **can dividends surpass Treasury yields? For how long?**
  - Valuation – **cheaper, but cheap enough?**
- **How to make investors very unhappy in 3 easy numbers:**
  - Bonds = 3%, or less
  - Stocks = 8%, or less
  - 60/40 = 7%, or less…
  - Our 2012 numbers reflect our ***optimism*** for the economy, for inflation, and for the capital markets.
  - The challenge: to refrain from translating these expectations into a need to take on more risk in pursuit of return.
  - How does one keep invested in fixed income – a prudent investor’s anchor to windward -when we all KNOW it’s going to lose money while interest rates rise?

Appendix

10-Year vs. 30-Year Capital Market Expectations

- **Over a 30-year time horizon, our capital market expectations would reference long-term historical mean results, with an overlay of informed judgment. Key elements to consider:**
  - Nominal returns
  - Inflation
  - Real returns
  - Risk premia – bonds over cash, stocks over bonds, long duration over short
  - Long term underlying economic growth (real GDP).
- **Current expectations:**
  - Stocks: 7.75% nominal, 5.25% real, 4.50% premium over bonds
  - Bonds: 3.25% nominal, 0.75% real, 0.50% premium over cash
  - Cash: 2.75% nominal, 0.25% real
  - Inflation: 2.5%
  - Underlying economic growth (real GDP) – 2 to 3% per year.
- **Long-term (30-year) expectations:**
  - Stocks: 9.5% nominal, 6.5% real, 4.5% premium over bonds
  - Bonds: 5% nominal, 2% real, 1% premium over cash
  - Cash: 4% nominal, 1% real
  - Inflation: 3.0%
  - Underlying economic growth (real GDP) – 3 to 3.5% per year.

10-Year vs. 30-Year Capital Market Expectations

- **Under Callan's current 5-10 year expectations, a typical institutional policy target mix is not expected to generate an annual return anywhere near 8.0%; even 7.0% will be a challenge.**
  - Assumed returns for pension valuations and endowment/foundation spending are usually between 7% and 8%.
- **Substantially greater exposure to risk assets than the typical policy mix would be required to generate an 8% return over the 5-10 year horizon, potentially in conflict with many investors' expressed tolerance for risk.**
- **Appealing to expectations with a 30-year time horizon, a typical institutional policy mix may indeed be expected to generate an 8% return. However, long-term perspective must be maintained. The path to a long-term 8% return will include extended periods of returns above the 8% (the 1990s, 2003-2007) and periods below the 8%.**