J.P. Morgan Capital Markets Outlook and Implications for Retirement Plan Management

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Asset Management

Agenda

- Long Term Capital Markets Return Assumptions
- Intermediate Economic Outlook
- Organizing Portfolios around Risk and Return Expectations

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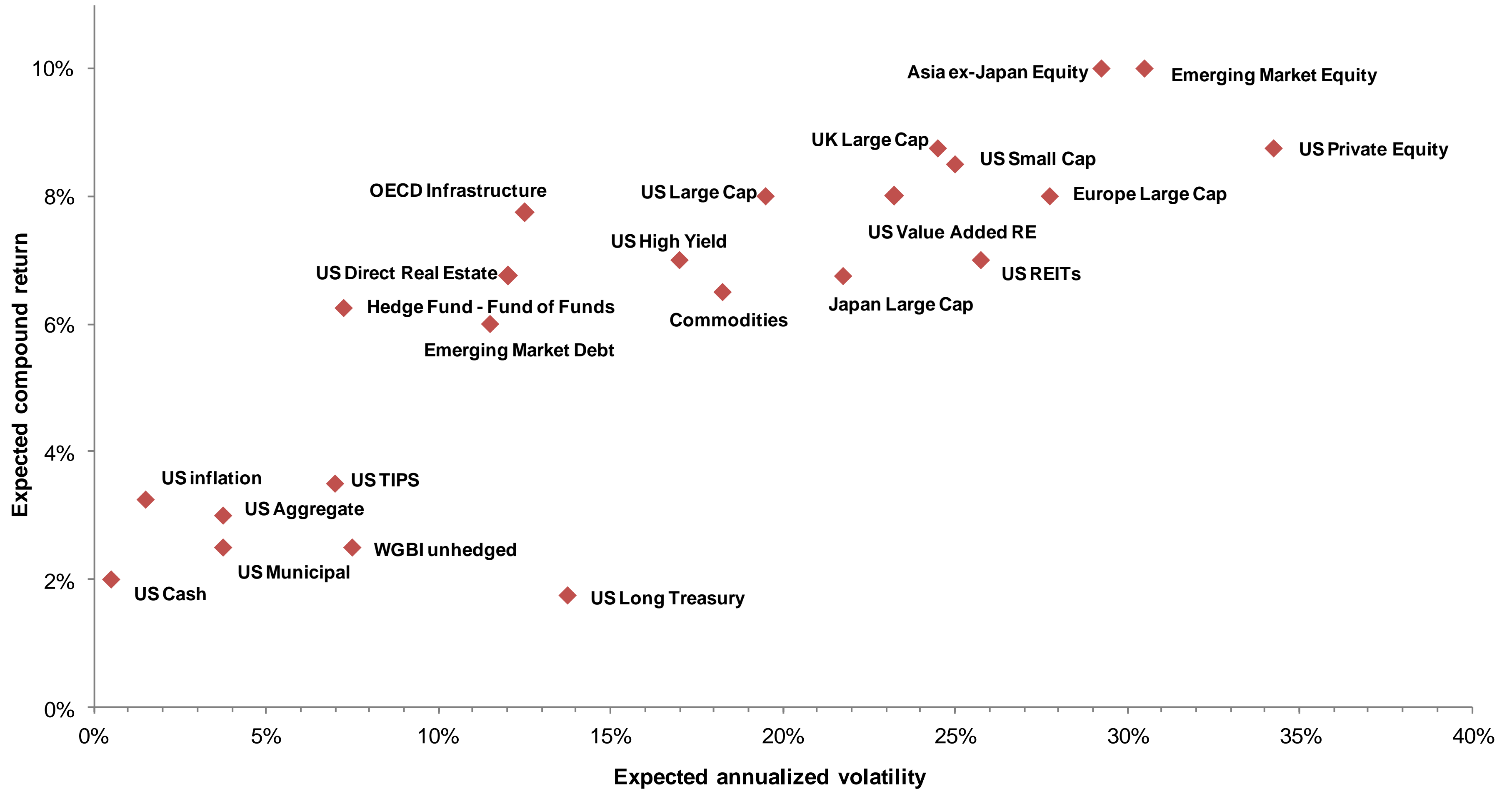
Long Term Capital Markets Return Assumptions

Long-term outlook

JPMAM 2012 long-term capital market return assumptions
(Basic risk and return expectations for various asset classes)



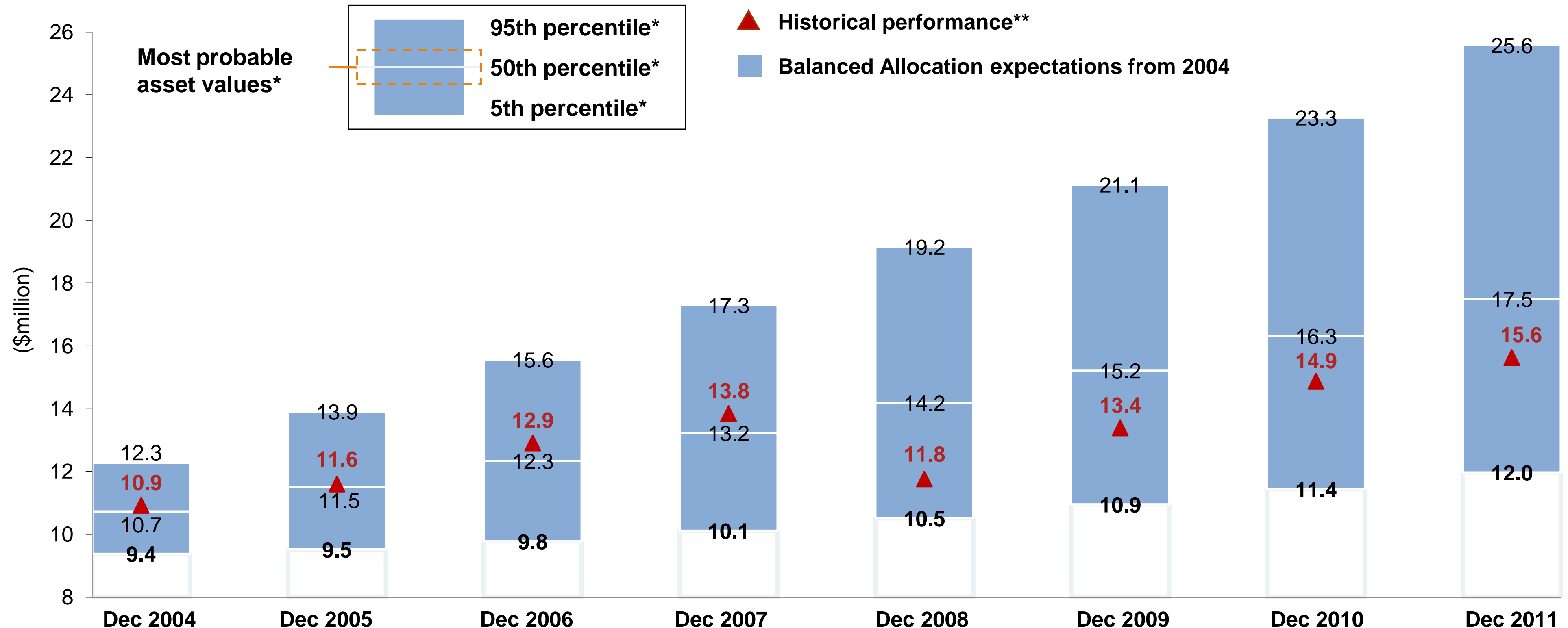
Source: J.P. Morgan Asset Management as of December 2011.

Can forward-looking assumptions add value?

2004 Capital Markets Assumptions: Balanced Allocation***

Assumptions: Initial value = $10mm, no taxes, Expected Arithmetic Return = 7.6%, Expected Volatility = 8.8%

Range of projected asset values: Balanced Allocation*



Note: This is a projection used for illustrative purposes only and does not represent investment in any particular vehicle. References to future asset values are not promises or even estimates of actual returns you may experience. **Past performance is no guarantee of future results.** It is not possible to invest directly in an index. Please see the index definitions at the end of the presentation.

* "Most probable asset values," denoted by the darkly shaded area, indicates the range in and around the 50th percentile. The "50th percentile" indicates the middle wealth value of the entire range of probable asset values. The "95th percentile" wealth value indicates that 95% of the probable asset values will be equal to or below that number; the "5th percentile" wealth value indicates that 5% of the probable asset values will be equal to or below that number. Another way of looking at it is that 90% of the probable asset values will be between those two figures.

** 2004 Historical allocation of 45% U.S. bonds; 32% U.S. large cap; 4% U.S. small cap; 4% international equity, 5% hedge fund of funds, 5% private equity, 5% real estate. Asset allocation assumes annual rebalancing, no taxes, and no cash flows. All returns are based on index data and include no manager alpha.
Indices used: Barclays Capital U.S. Aggregate Bond Index, S&P 500 Index, Russell 2000 Index, MSCI EAFE Index, HFRI Fund of Funds Diversified Index, Venture Economics U.S. Buyouts Index (proxied by S&P 500 Index after June 2011), NCREIF Property Index (proxied by NAREIT Equity REITs Index after September 2011).

*** Projection assumes annual rebalancing and no taxes. It is based upon assumptions from J.P. Morgan's nominal equilibrium assumptions in 2004.

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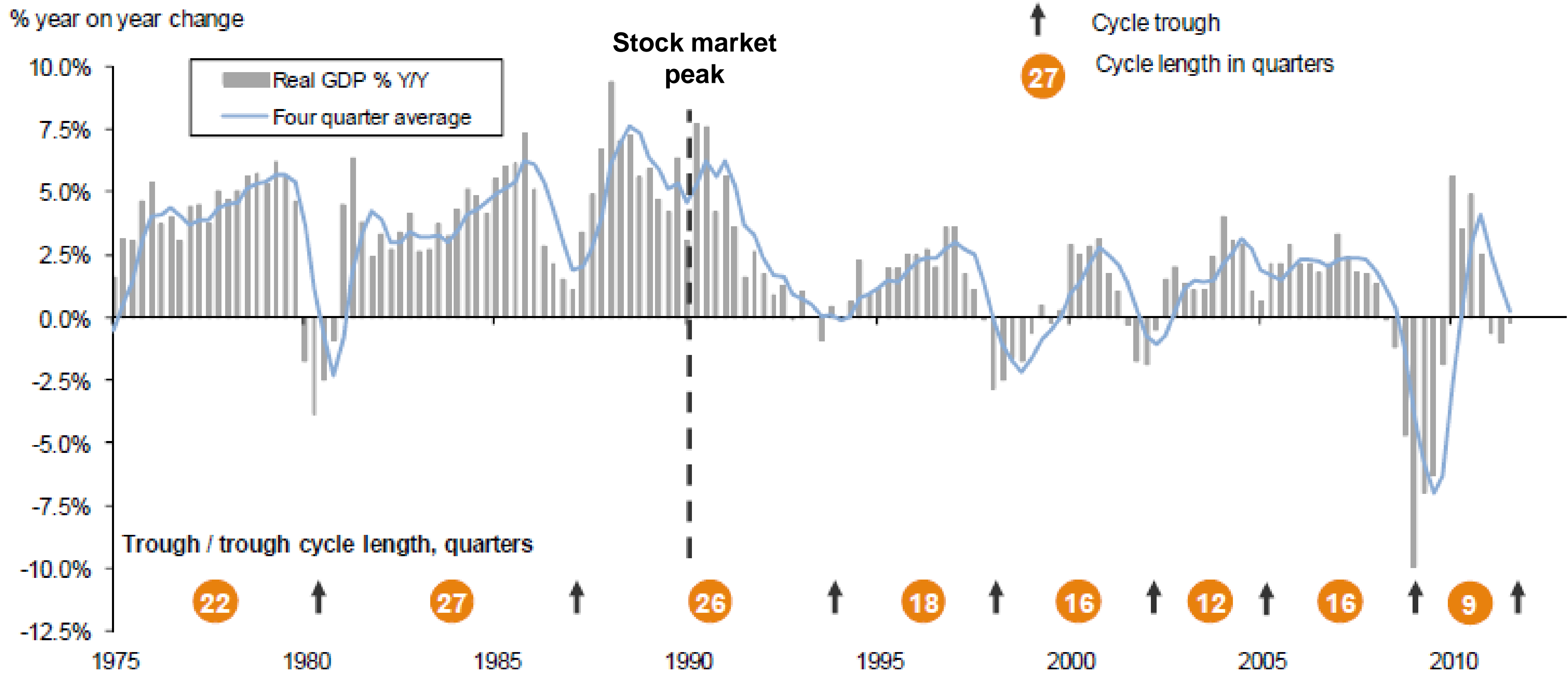
Our view is that there may be opportunities for nimble investors in what we expect to be a choppier world

- **Global economy:** Shorter, choppier business cycles and reduced growth expectations
- **Inflation:** Subdued near-term, reviving longer term, assumptions revised up
- **Fixed income returns:** Likely to be hurt as yields rise toward expected higher 'equilibrium' levels
  - longer "normalization" period expected in a zero interest rate environment
  - real returns on U.S. Treasuries expected to be negative over our investment horizon
- **Equity returns:** Set to benefit from solid earnings growth and higher dividend yields
  - emerging markets are likely to remain top performers
- **Real estate:** Strong returns expected given currently depressed valuations
- **Risks to our estimates** include economic growth, inflation, government policy actions, and other factors that are different than what we expect

Opinions, estimates, forecasts, projections and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. There can be no guarantee they will be met.

We have been here before: The lesson from Japan



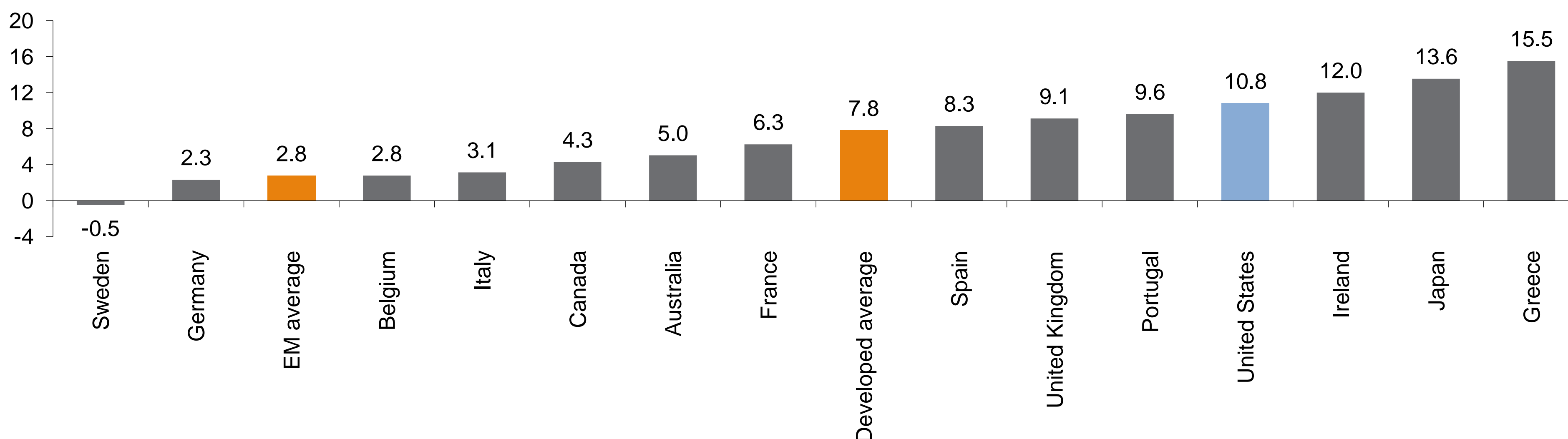
Source: Economic Planning Agency, MacData, J.P. Morgan Asset Management. Data up to Q3 2011.

Deleveraging: A tough road ahead for much of the developed world…

- The public and private sectors may have to make significant sacrifices in order to achieve debt sustainability
- Political and electoral considerations may present additional hurdles to eliciting an effective long-term policy response
  - attempting to induce inflation may emerge as the most palatable solution for policymakers
- We believe the outlook is brighter for emerging markets given their fundamental strength

Required fiscal adjustment between 2010 and 2020 to achieve debt target by 2030

Cumulative change in cyclically adjusted primary balance (% of GDP)



Source: IMF Fiscal Monitor, September 2011.
Note: The cyclically adjusted primary balance (CAPB) is the primary balance adjusted for the effects of the economic cycle, usually expressed as a percentage of potential GDP. Averages for Emerging and Advanced economies are weighted by GDP at purchasing power parity (PPP).

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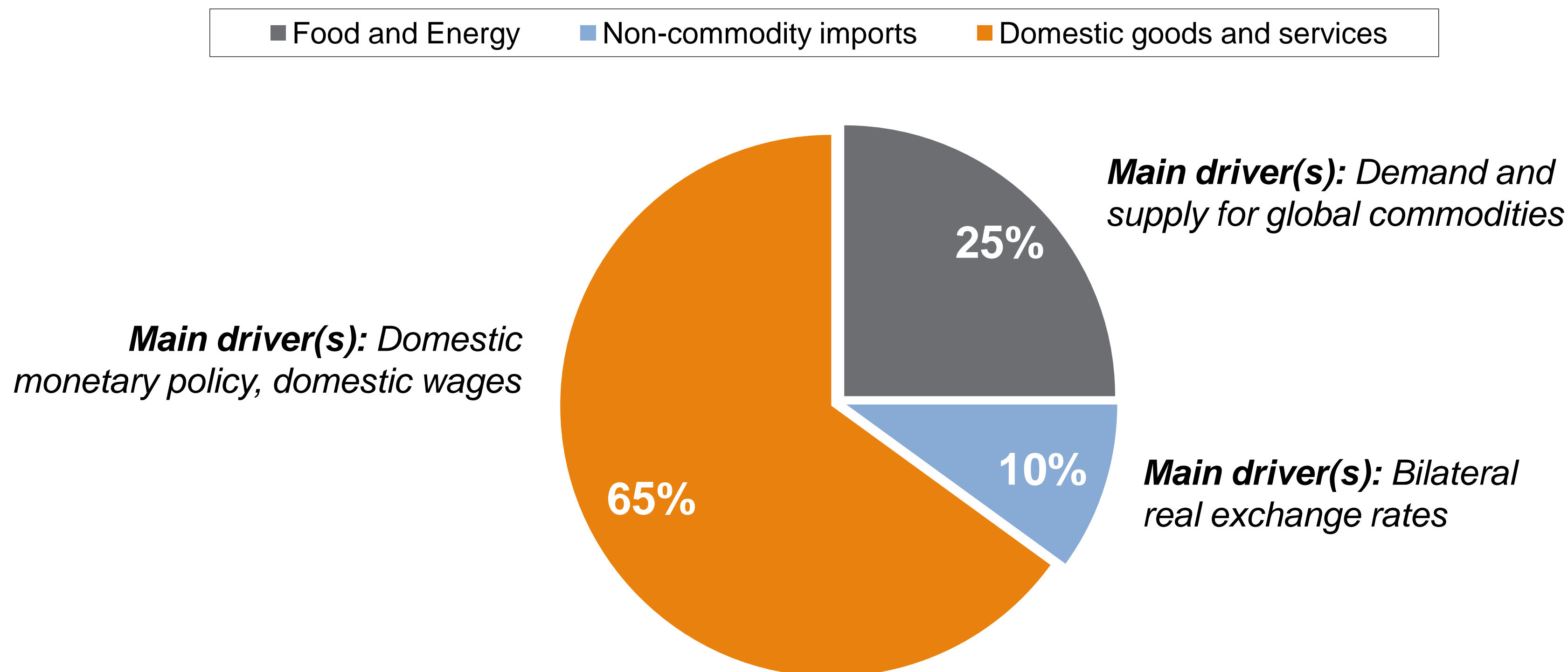
Domestic factors are the principal driver of consumer price inflation overall

Broad developed economy CPI categories
Share of total (approx.)



Source: J.P. Morgan Asset Management. Data as of 2011.
Investments in commodities and the market value of funds invested in commodities may be affected by many unpredictable factors, including (but not limited to) highly volatile commodities prices; changes in supply and demand relationships; and monetary and other governmental policies, actions and inaction. Funds significantly invested in commodities and index components that track the performance of a single commodity, or index components concentrated in a single sector, are speculative and may typically exhibit higher volatility. Investors should be aware of the risks associated with commodities before making an investment decision.

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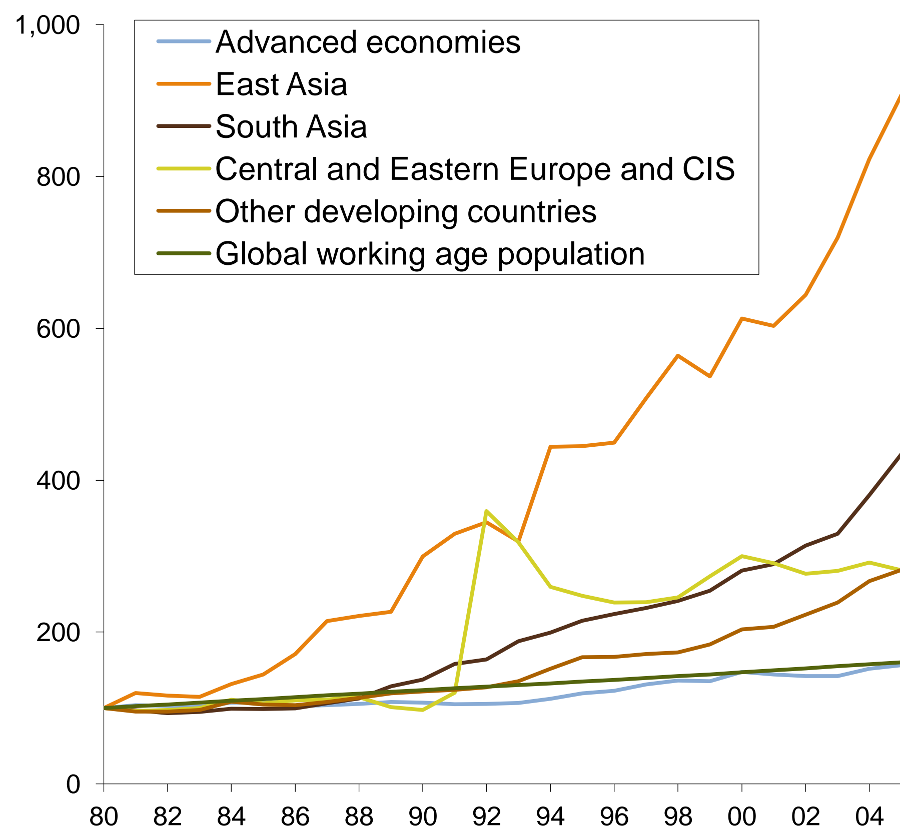
Global labor market liberalization over recent decades

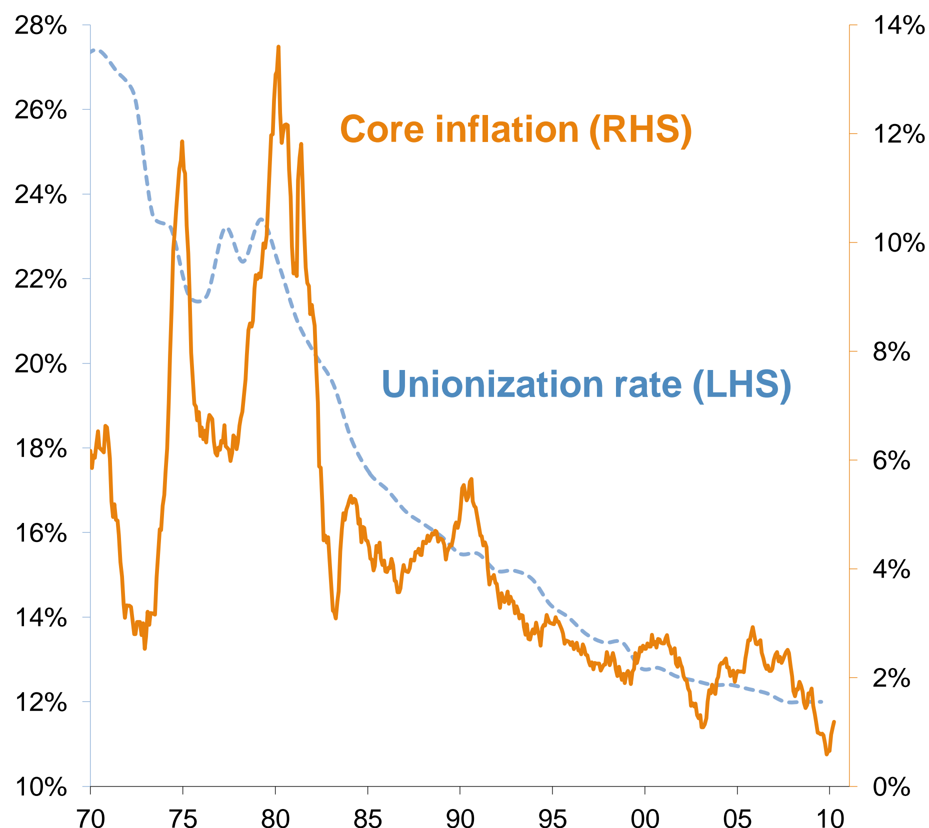
Export-weighted labor force by region

Index, 1980 = 100



Unionization rate, core inflation

Trade union density*, year-on-year



- Global labor competition and lower unionization rates to keep downward pressure on developed economy wage inflation

Source: Bureau of Labor Statistics, Federal Reserve, Census Bureau, International Monetary Fund, J.P. Morgan. *Employed trade union members divided by total number of employees. Data as of 2011.

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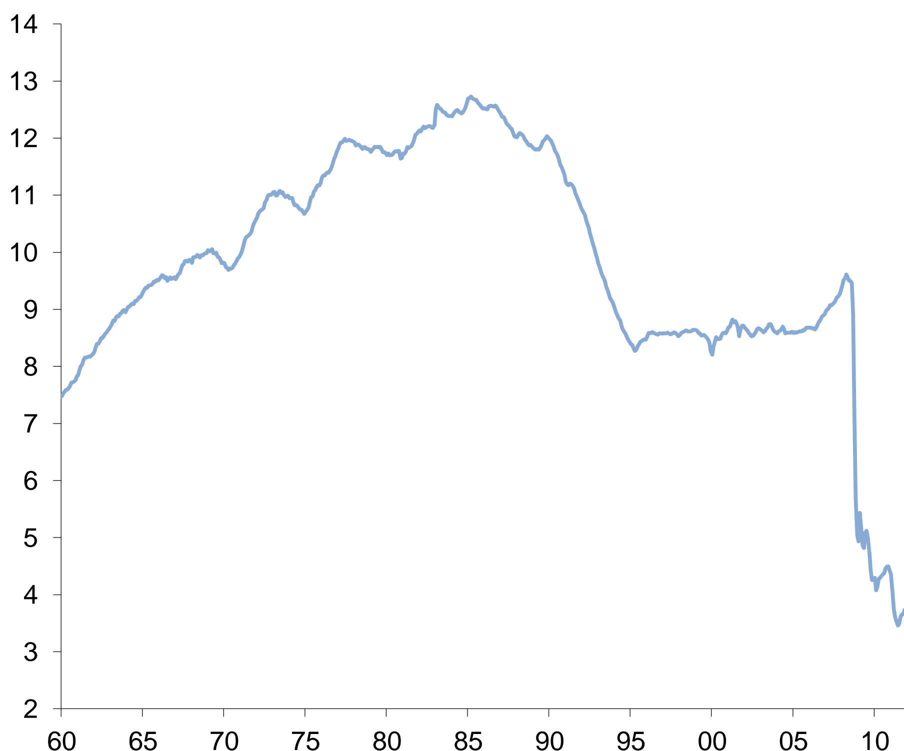
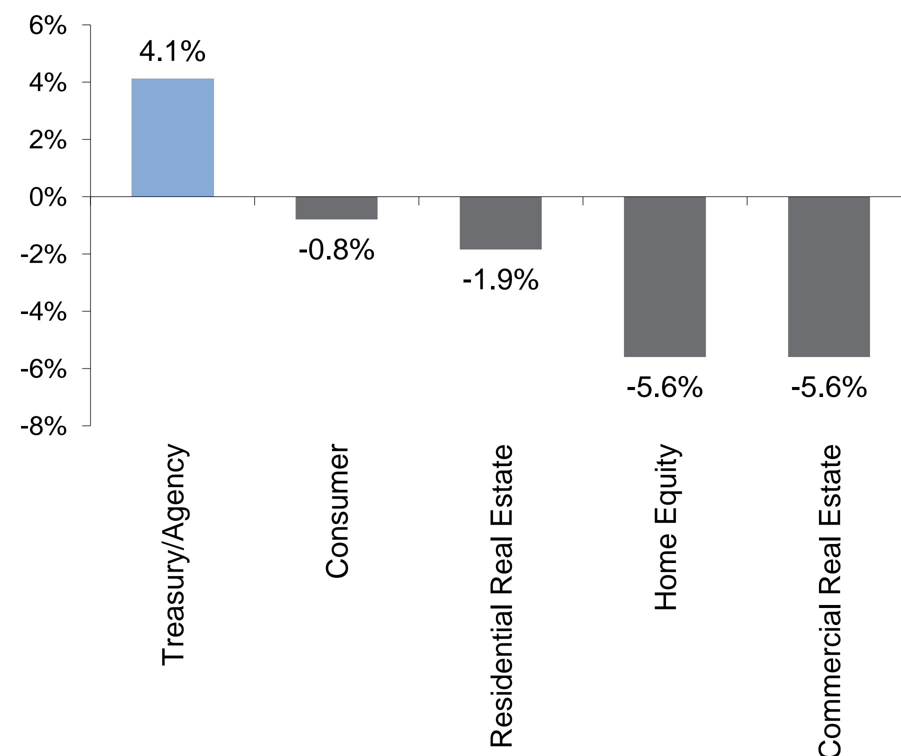
Deleveraging has lessened the effectiveness of monetary policy





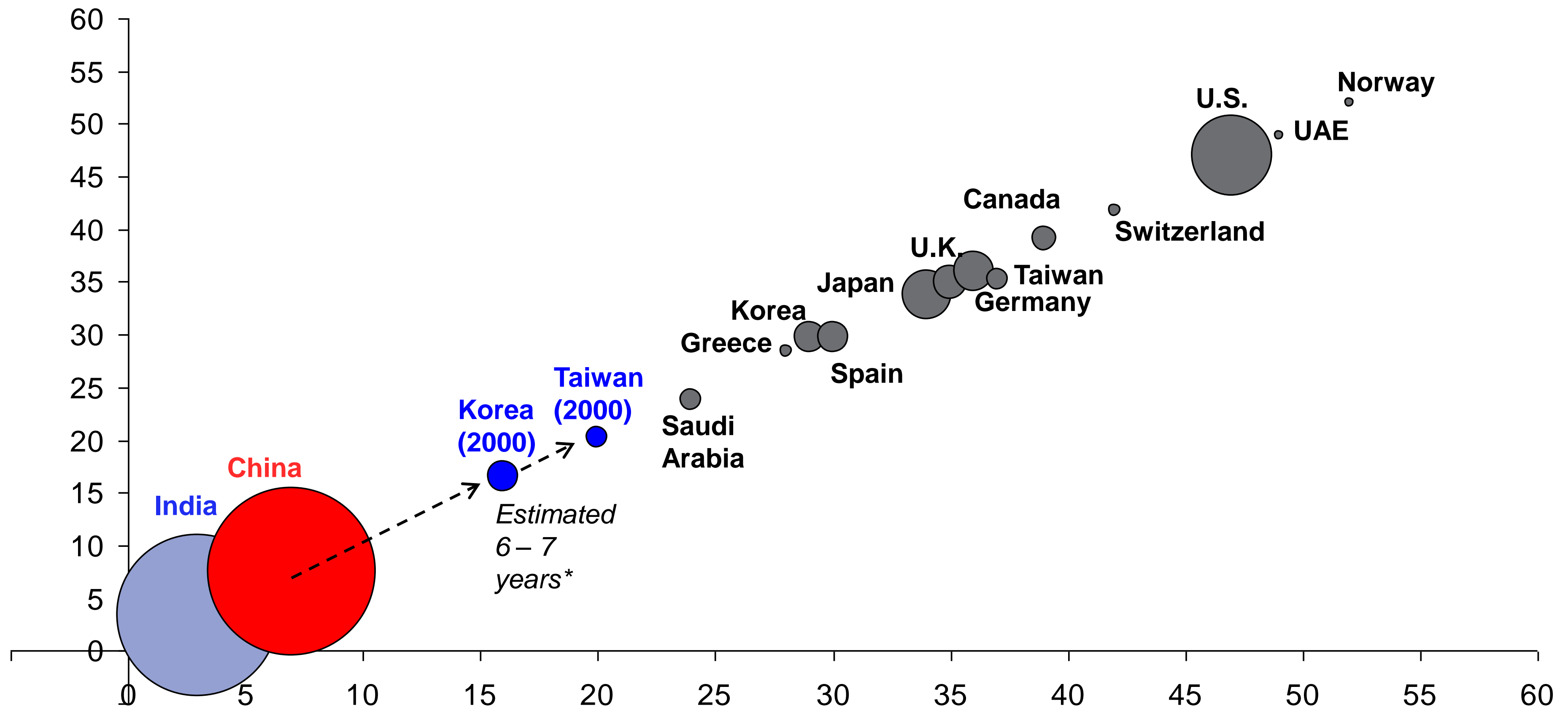
- Ongoing deleveraging to blunt the impact of interest rate cuts and quantitative easing
- Bank loan extension to private borrowers remains muted; inflation unlikely to rise materially until money multiplier returns to normal

M0 refers to notes and coins (currency) in circulation outside of depository institutions. M2 refers to M0 plus close substitutes for money including (but not limited to) demand deposits, checkable deposits, savings deposits, and small time deposits.
Source: Federal Reserve, J.P. Morgan. Data as of December 2011.

Significant commodity demand pressures to remain for several more years

GDP per capita

$U.S. thousand (PPP, both scales); size=population



Source: International Monetary Fund, J.P. Morgan. Data as of 2010. Assuming annual real GDP = 8%; inflation = 4%; nominal appreciation = 6%.

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Structural trends: Are valuations showing their age?

- Accommodating the baby boomers transition from saving to consumption may impact equity and bond valuations
- Private pension funds expected to be largest seller of equities and buyer of bonds
- The wealthy are different–little selling pressure from direct equity holdings
- Global capital flows to provide some buoyancy for asset valuations
- Expect overall demographic impact to be moderately negative for equity valuations and clearly positive for longer dated bonds

Source: J.P. Morgan Asset Management estimates.
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Developed market economic outlook: 2012 vs. 2011 long-term assumptions

Compound 10–15 year growth and inflation

United States	2012	2011
Headline inflation	3.25	3.00
Core inflation	2.75	2.50
Real GDP	2.25	2.50

Europe	2012	2011
Headline inflation	2.00	2.00
Core inflation	1.75	1.75
Real GDP	1.25	1.50

U.K.	2012	2011
Headline inflation	3.00	2.75
Core inflation	2.50	2.25
Real GDP	1.75	2.00

Japan	2012	2011
Headline inflation	1.00	0.75
Core inflation	0.50	0.50
Real GDP	1.00	1.00

Source: J.P. Morgan Asset Management estimates as of October 31, 2011.
The assumption chart is for illustrative purposes only. This chart should not be relied upon as a recommendation to buy or sell securities. Forecasts of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice.

Fixed income: Low for longer

U.S. dollar-based assumptions. Compound (IRR) 10–15 year returns

Equilibrium fixed income assumptions

	Equilibrium yields/spreads	Total returns (%)
U.S. Cash	3.00%	2.00
U.S. 10-yr Treasury	5.00%	2.00
U.S. TIPS (real yield)	1.75%	3.50
U.S. Municipal	4.00%	2.50
U.S. Corporate Bonds	125bps	4.00
U.S. High Yield Bonds	475bps	7.00
U.S. Leveraged Loans	475bps*	6.00
Emerging Market Debt	250bps	6.00
Local Sovereign EMD	7.50%	6.75
Corporate EM Debt	300bps	6.50

- U.S. fixed income
  - cash rate low for longer given economic slack, low inflation and liquidity preference
  - real cash and Treasury returns expected to be negative
  - Treasury yields expected to rise from historic lows as central bank exits zero rate policy
  - yield curve expected to flatten, especially in the ultra long end
  - risks to our assumptions include higher than expected inflation and other factors
- Corporate credit
  - expected to be increasingly attractive relative to govt. debt
  - limited excess credit buildup expected to more than offset adverse impact of shorter economic cycles
  - lower credit risk premia expected as search for yield continues
  - risks to our assumptions include higher than expected default rates and other factors
- Emerging market debt
  - external debt credit quality is strong
  - local currency yields expected to rise as inflationary pressures persist
  - risks to our assumptions include sovereign downgrades, slowing EM growth, and other factors

*Spread over Libor.
Source: J.P. Morgan Asset Management estimates as of October 31, 2011. Equilibrium fixed income yields and spreads have been rounded to the nearest 25 bps.
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U.S. Aggregate Bonds return building blocks

U.S. dollar-based assumptions. Compound (IRR) 10–15 year returns

Equilibrium U.S. Aggregate Bond return: 3.00%

Core Inflation	2.75%
+ Real Short Rate	+0.25%
Cash Yield	**3.00%**
+ Term Premium	+2.00%
10yr Treasury Yield	**5.00%**
+ Spread	+0.50%
- Maturity Adjustment	-0.50%
U.S. Agg Bond Yield	**5.00%**
- Yield Reversion	-2.00%
U.S. Agg Bond Return	**3.00%**

- Inflation + Real Short Rate
  - sum provides yield estimate for U.S. Cash
- Term premium
  - expected yield difference between a 10-year and 3-month instrument
- Spread
  - expected incremental yield due to the credit difference relative to U.S. Treasuries
- Maturity adjustment
  - adjustment to yield to account for shorter maturity of aggregate bonds
- Yield reversion
  - impact on return due to expected increase from current to equilibrium yield levels

Source: J.P. Morgan Asset Management estimates as of October 31, 2011.
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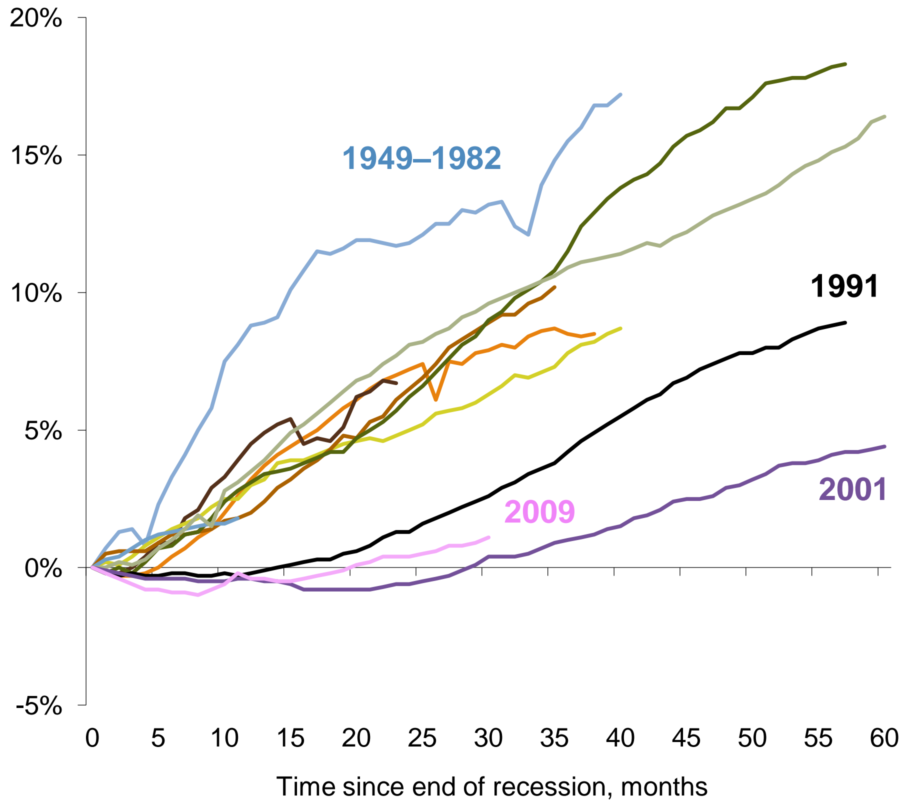
Equities: We expect a period of more normal equity returns over next 10–15 yrs

Source: Ibbotson, J.P. Morgan Asset Management. Data as of 2011.
U.S. Large Cap is represented by the S&P 500 Index.
Past performance is no guarantee of future results. It is not possible to invest directly in an index. Please see the index definitions at the end of the presentation.

Weak employment recoveries historically accompanied by strong earnings growth

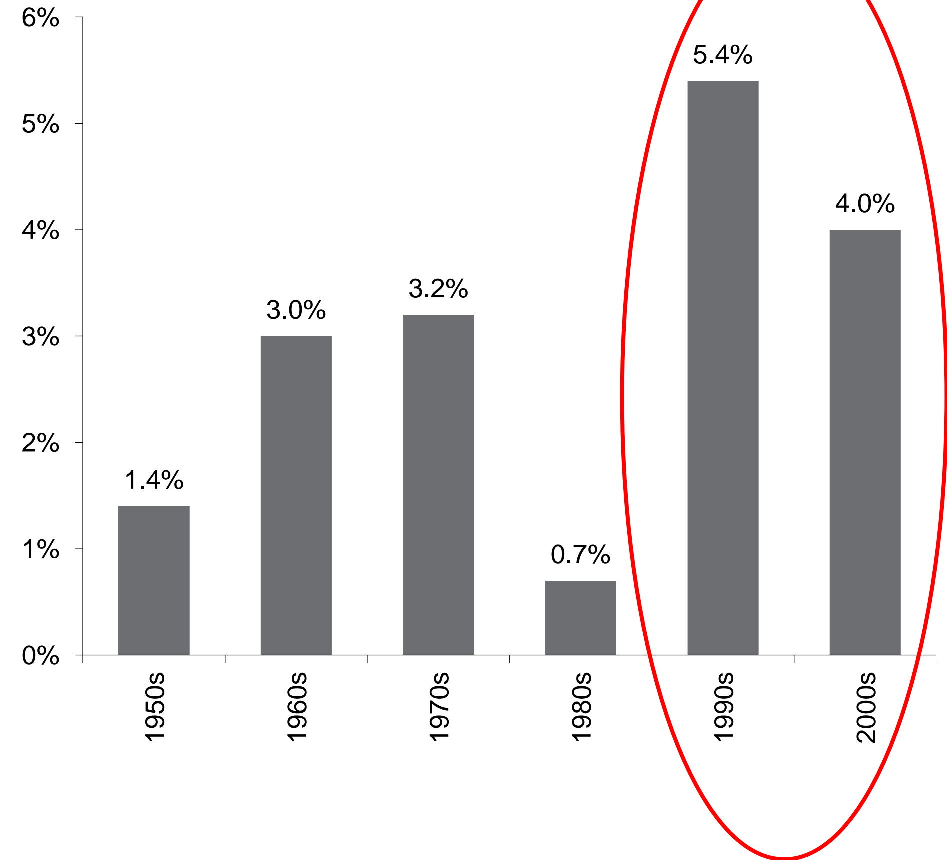
Employment growth

Cumulative growth since recession end



Real EPS growth by decade

10 year growth rate



- Employment recoveries have been sluggish since the early 1990s, but moderate growth in labor costs and rising productivity have supported real earnings growth over the same period

Source for both charts: Bureau of Labor Statistics, J.P. Morgan. Data as of 2011.

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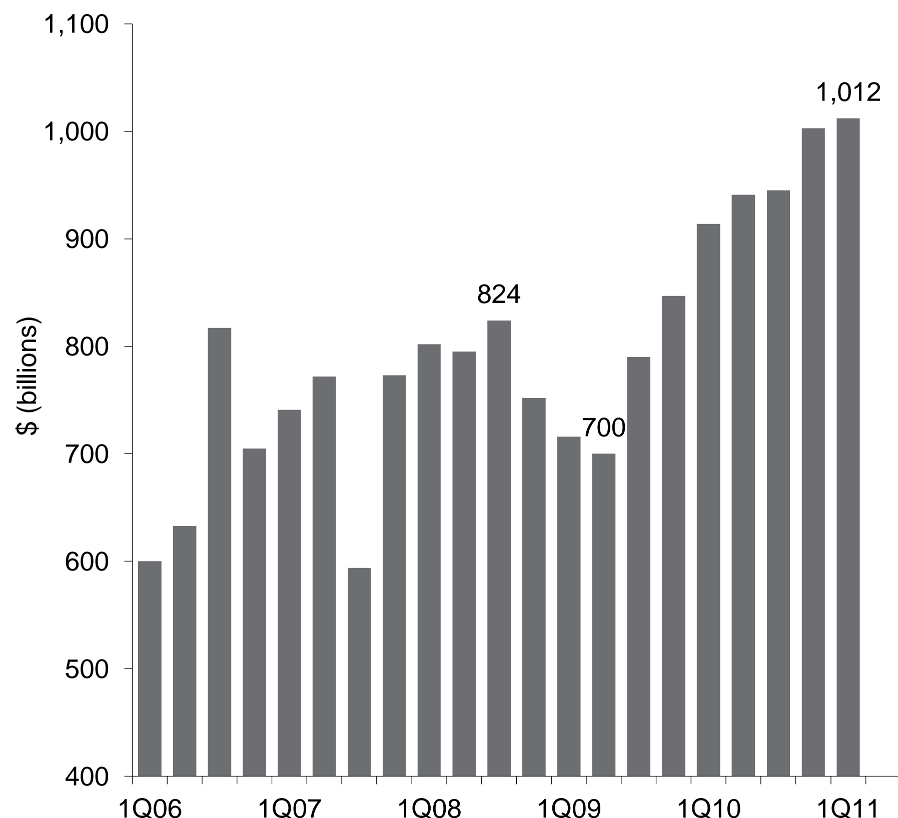
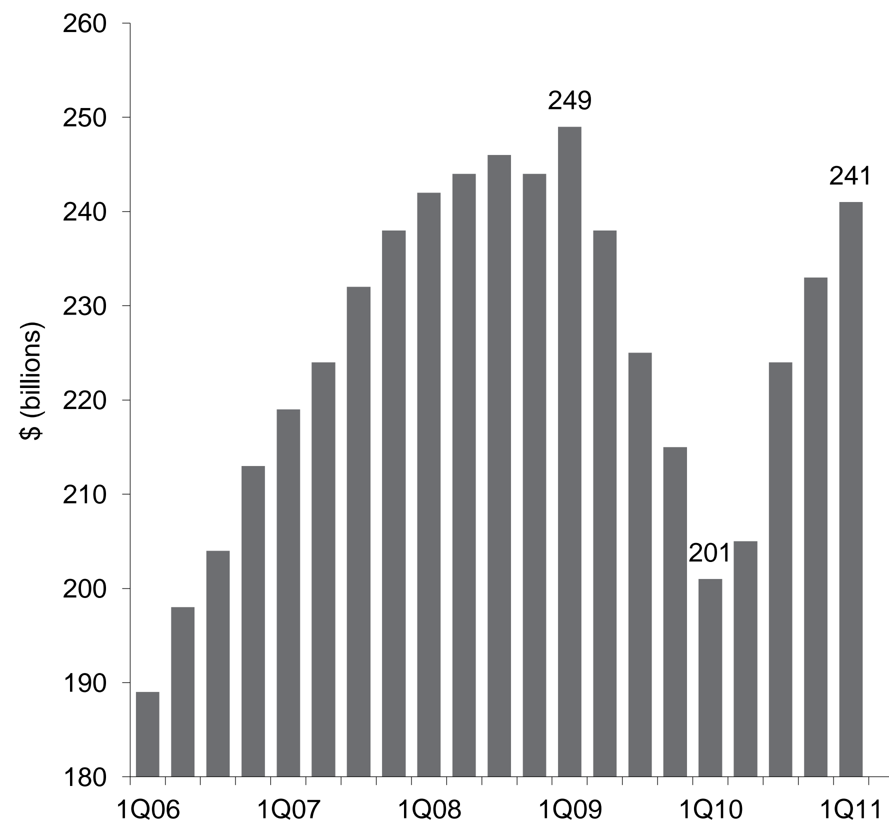
Dividend payouts have room to rise from current levels





- The recovery in dividend payouts has lagged the recovery in free cash flow and earnings; dividend yields should have room to rise as companies look to deploy their cash reserves

Source: FactSet, Bloomberg, J.P. Morgan. Data as of 1Q 2011.
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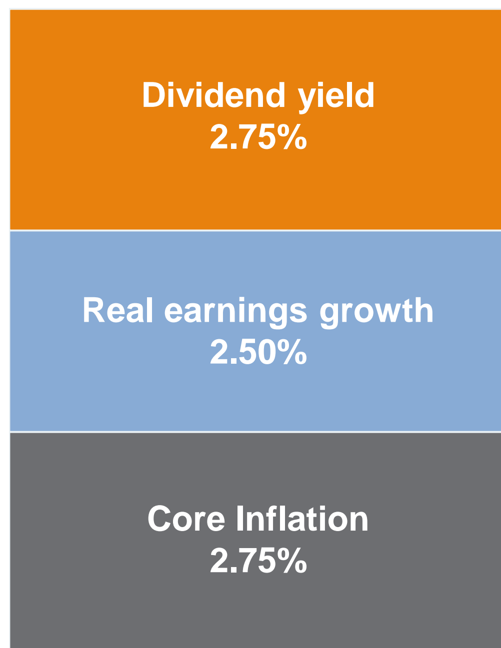
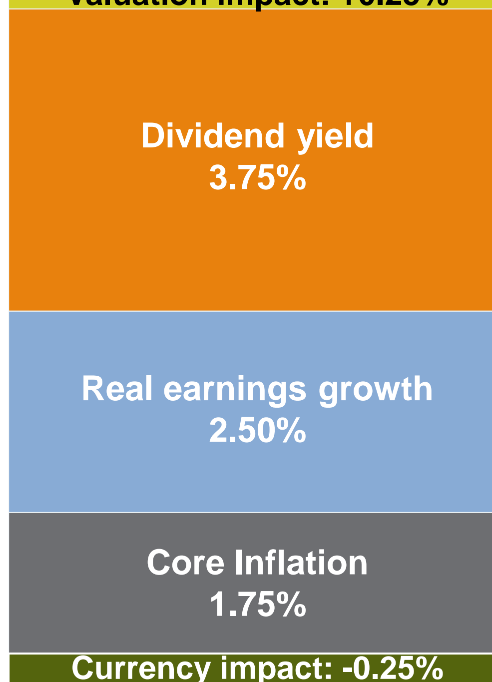
Equities: Stronger returns expected despite weaker economies

U.S. dollar-based assumptions. Compound (IRR) 10–15 year returns.

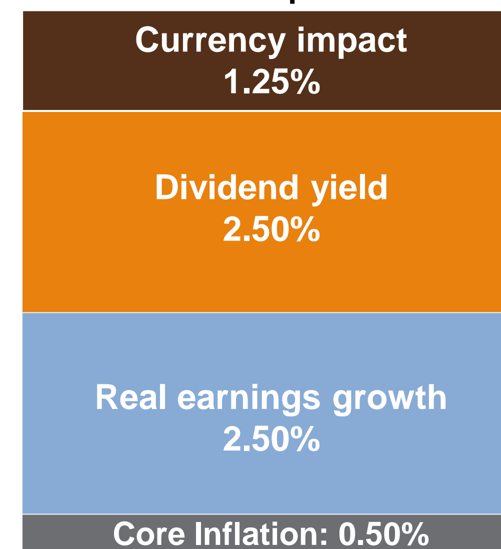
U.S. Large Cap Equity
Equilibrium Return: 8.00%



Europe ex-U.K. Equity
Equilibrium Return: 8.00%



Japanese Equity
Equilibrium Return: 6.75%



Yield as a percentage of expected local total return:

U.S. Large Cap Equity	Europe ex-U.K. Equity	Japanese Equity
34%	45%	45%

Source: J.P. Morgan Asset Management estimates as of October 31, 2011.

Currency effect calculated using covered interest rate parity. Expected appreciation in the foreign currency is equal to the difference foreign and domestic cash returns. Building Blocks include dividend yields, real earnings growth, & inflation calculated in local currency terms along with currency effect in order to obtain the USD figure. See the appendix "Definitions" for the indexes used. Equity returns are quoted in compounded terms. Opinions, estimates, forecasts, projections and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. There can be no guarantee they will be met.

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Equities: Stronger returns expected despite weaker economies

Compound (IRR) 10–15 year returns

Equity returns	(%)
U.S. Core Inflation	2.75
U.S. Real GDP	2.25
U.S. Large Cap	**8.00**
U.S. Small Cap	8.50
Eafe (USD)	**7.75**
Europe ex-U.K. (local)	8.25
Japan (local)	5.50
U.K. (local)	8.25
Emerging Markets (USD)	**10.00**

- U.S. equity
  - EPS growth expected slightly above nominal GDP
  - small rise in dividend yields expected from current levels
  - zero valuation contribution given expected higher future inflation and protracted deleveraging
  - risks to our assumptions include lower than expected EPS growth or dividends, and other factors
- Non-U.S. equity
  - Europe, Japan, U.K. EPS growth expected to be above nominal GDP
  - Europe expected to benefit from valuation and large foreign-sourced revenues
  - Japanese local returns limited by expected low nominal economic growth
  - emerging markets expected to outperform on stronger fundamentals and portfolio inflows
  - risks to our assumptions include lower than expected EPS growth or dividends, and other factors

Source: J.P. Morgan Asset Management estimates as of October 31, 2011.
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Alternative assets and strategies:
Composite assumptions understate top manager returns

U.S. dollar-based assumptions. Compound (IRR) 10–15 year returns.

Alternative assets (%)	
Private equity*	8.75
Hedge funds	
Event Driven	7.25
Long Bias	7.75
Relative Value	5.25
Macro	7.50
Diversified	6.25

- Private equity returns
  - assumed to return similar to mid cap equities
  - expect wide differentials between managers
  - risks to our assumption include unfavorable manager execution, regulatory considerations, and other factors
- Hedge fund returns
  - **Data:** Historical monthly returns of hedge fund managers from PerTrac and internal J.P. Morgan databases grouped into HF strategies as defined by HFRI definitions
  - **Stale Pricing:** Unsmoothing of returns time-series applied at manager level using Fisher-Geltner-Webb's methodology* to address positive serial correlation of HF returns
  - **Outliers:** Cross-sectional Winsorization at 10% level used to handle outliers in manager samples
  - **Equilibrium Returns:** Winsorized mean (of each HF strategy) is regressed in the Factor Model and significant betas multiplied by forward-looking factor premia to derive equilibrium returns
  - **Risks** to our assumption include unfavorable manager execution, regulatory considerations, and other factors

Source: J.P. Morgan Asset Management estimates as of October 31, 2011.
*Private Equity: PE are unlike other asset classes shown above, in that there is no underlying investible index. The return estimates shown above are equal to our estimates of mid cap equity returns.
Unsmoothing: Fisher, J.D., D.M. Geltner, and R.B. Webb. 1994. Value Indices of Commercial Real Estate: A Comparison of Index Construction Methods. Journal of Real Estate Finance and Economics. 9: 137-164.
Given the complex risk-reward tradeoff in these assets, we advise clients to rely on judgment rather than quantitative optimization approaches in setting strategic allocations to these asset classes. Opinions, estimates, forecasts, projections and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. There can be no guarantee they will be met.

Real assets

U.S. dollar-based assumptions. Compound (IRR) 10–15 year returns

Real assets	(%)
REITs	7.00
U.S. direct real estate (unlevered)	6.75
U.S. value added real estate	8.00
European direct real estate (unlevered)	6.25
Global infrastructure	7.75
Commodities	6.50
Gold	6.75

- Real assets
  - REITs are trading near underlying NAV suggesting potential moderate outperformance of direct due to leverage
  - real estate and infrastructure returns typically less than equity, more than fixed income but U.S. property valuations remain relatively depressed
  - value added expected to be boosted by improvements in property operating performance
  - European property values closer to peak with lower expected growth
  - infrastructure expected to benefit from exposure to regulated utilities and leverage
  - risks to our assumptions include lower than expected economic growth, inflation, and other factors
- Commodities
  - returns expected in line with global nominal GDP
  - risks to our assumptions include lower than expected demand growth, greater than expected supply, and other factors

Source: J.P. Morgan Asset Management estimates as of October 31, 2011.

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Concluding comments

- Economic recovery is under severe pressure and **multi-year deleveraging** in the developed world is likely to keep global growth below prior trend rates
  - Markets expected to deliver moderate real returns vs. history, despite depressed starting levels
- Today's high levels of **spare economic capacity** are likely to persist for years, keeping inflation and interest rates low
  - Aggressive central bank stimulus should eventually push inflation and yields higher as global economy conditions normalize
- **Emerging economies** expected to remain on a strong secular growth trend, with emerging markets expected to outpace developed markets by a wide margin
- **Alternative investments** and real assets are important for their diversification benefits, and their potential to produce high Sharpe ratios, relative to traditional assets
- Return assumptions need be considered in light of the **elevated volatility assumptions** of each asset class. Each return and risk assumption is considered independently and within the context of all other asset classes.
  - Generating assumptions sensitive to a precise statistical optimization is outside the purview of our Capital Markets Assumptions process. The assumptions should be considered as any input into a process with an important degree of judgment apart from the pure statistics

Opinions, estimates, forecasts, projections and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. There can be no guarantee they will be met. Diversification does not guarantee investment returns and does not eliminate the risk of loss.

Intermediate Economic Outlook

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Investment strategy

Economic outlook

- The U.S. continues to show some resilience in recent economic data and we expect an economy-wide growth rate of ~2.25%
- We believe that the labor market will recover modestly in line with the overall economy, though the pace of growth may remain sluggish
- The Fed has committed to further monetary stimulus and will keep rates exceptionally low until the end of 2014, but the economy is less sensitive to lower rates
- The housing market shows signs of life, but is not contributing much of a boost due to negative pricing and massive shadow inventory
- The biggest uncertainty in the U.S. continues to be around the government's debt level and how these issues might be addressed going forward. If Congress fails to reach an agreement on further deficit reduction, the debt burden will not be stabilized, with the 2012 budget deficit projected to be 6-8%
- For now, the ECB has relieved sovereign and bank financing pressures, the speed of deleveraging, and the EU recession. But Europe still has plenty of problems: undercapitalized banks, heavy austerity in the face of recession in the periphery, and the possibility that investors will sell everything they own to the ECB and other non-economic buyers
- We are optimistic on Asia for the long haul. The region will be impacted by monetary tightening, credit tightening and slower growth in Europe. But due to growing consumption in China, a long history of current account surpluses, and high saving rates, we expect 2012 to be an improvement over 2011, even at lower growth rates

Asset allocation

- Given the complicated macro environment around the globe, we carry less equity risk in our portfolios today than we normally would given the private sector backdrop of high profit margins, low price-to-earnings multiples and strong corporate earnings
  - The emerging world slowdown and the debt crisis in Europe are cause for a regional bias towards the United States in our equity allocation and we prefer large cap stocks. Europe remains our largest regional underweight
- Instead, we look to less volatile asset classes for additional exposure to corporate profits. Our expectation is that alternative assets and extended credit will enhance portfolios' risk-adjusted returns
  - We carry an overweight to hedge funds and recommend allocating across multiple strategies. We especially favor macro and event driven hedge funds
  - In a world with extremely low interest rates, we are underweight core fixed income (government bonds) and instead choose high yield, leveraged loan, and private credit investments
- We view private equity as a long-term complement to our public equity allocation
- Real estate and hard assets are important contributors of inflation protection in our portfolios
- We recommend long-term dollar diversification primarily through emerging market currencies and local debt
- Our cash position allows flexibility to opportunistically add risk if macro overhangs fade away

Source: J.P. Morgan Asset Management

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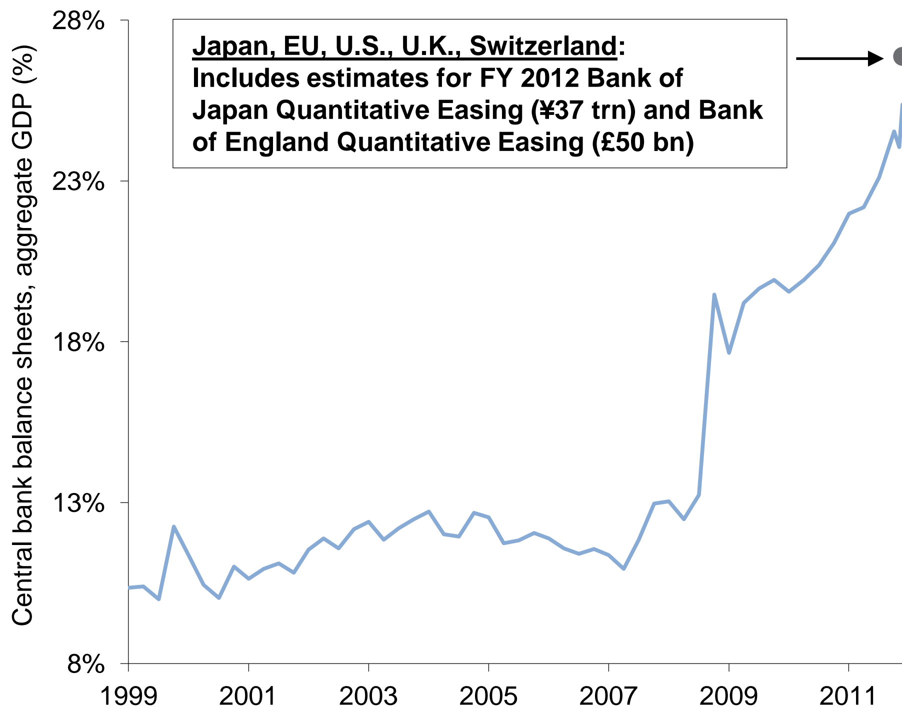
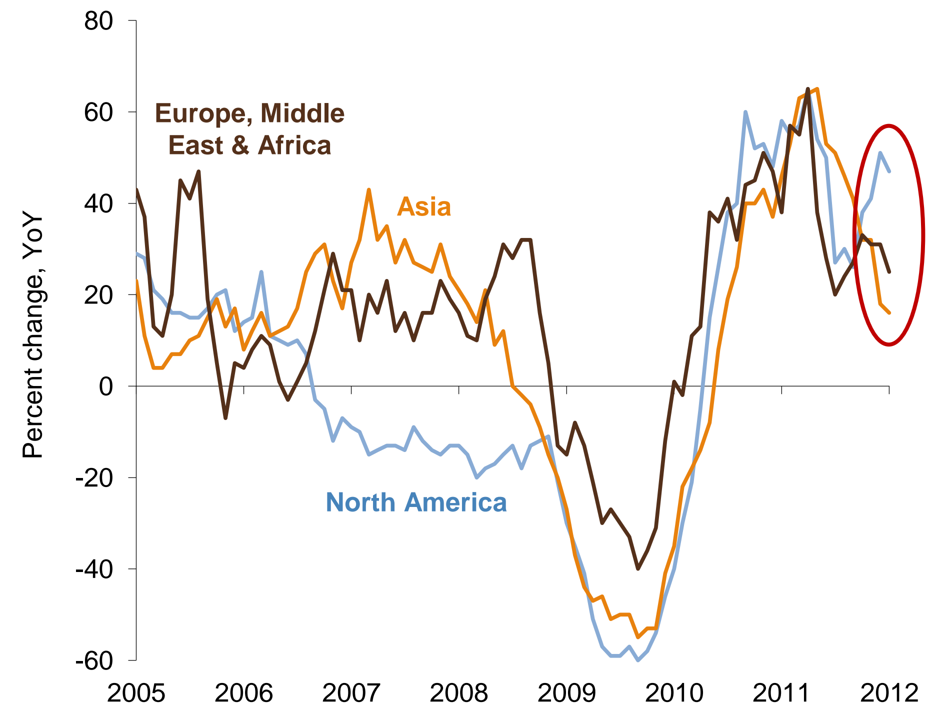
The U.S. continues to strengthen, while signs in Europe and Asia point more to a slowdown

Nothing else matters: Global central bank balance sheets continue to rise



Source: Country sources. Includes February ECB LTRO. Data as of February 2012.

Caterpillar dealer reported machine sales show the U.S. leading the pack



Source: Bloomberg. Data as of January 2012.

Past performance not indicative of future results. It is not possible to invest directly in an index. See definition of indices for more information.

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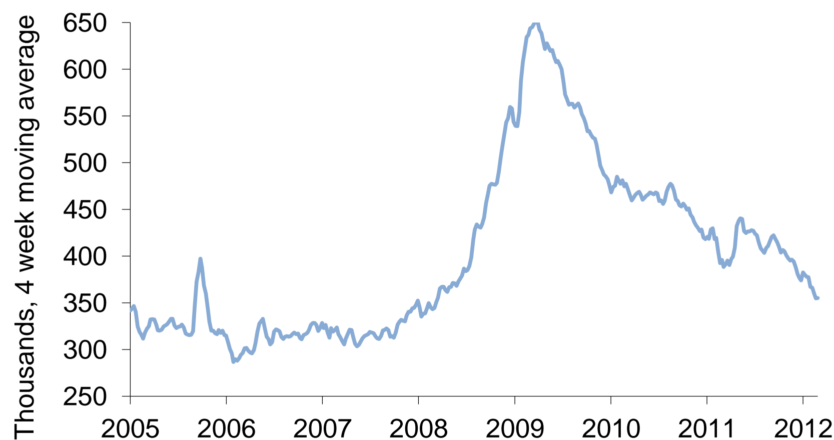
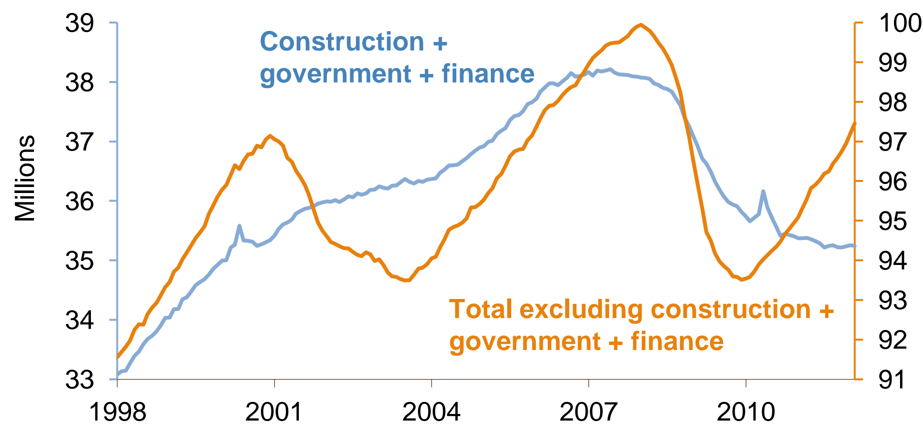
Jobs data is steadily improving, but the labor market remains a structural headwind

Initial jobless claims are trending downward



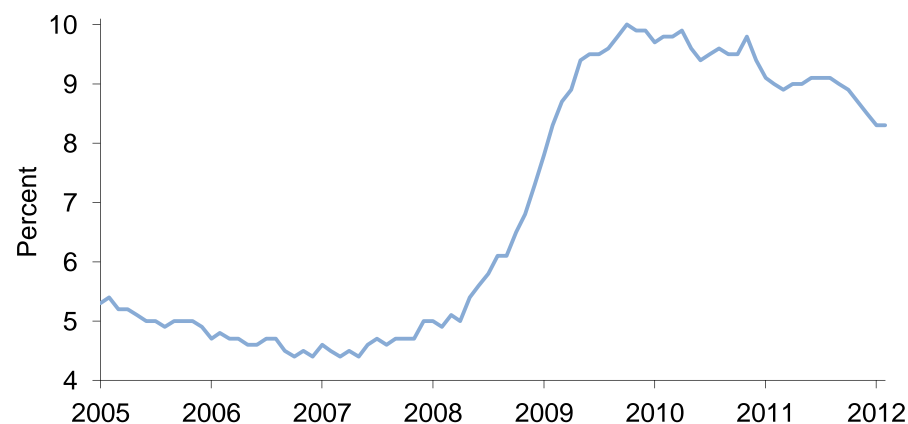
Source: Department of Labor. Data as of 03/09/2012.

Bipolar labor market



Source: Bureau of Labor Statistics. Data as of 03/09/2012.

The unemployment rate remains high



Source: Bureau of Labor Statistics. Data as of 03/09/2012.

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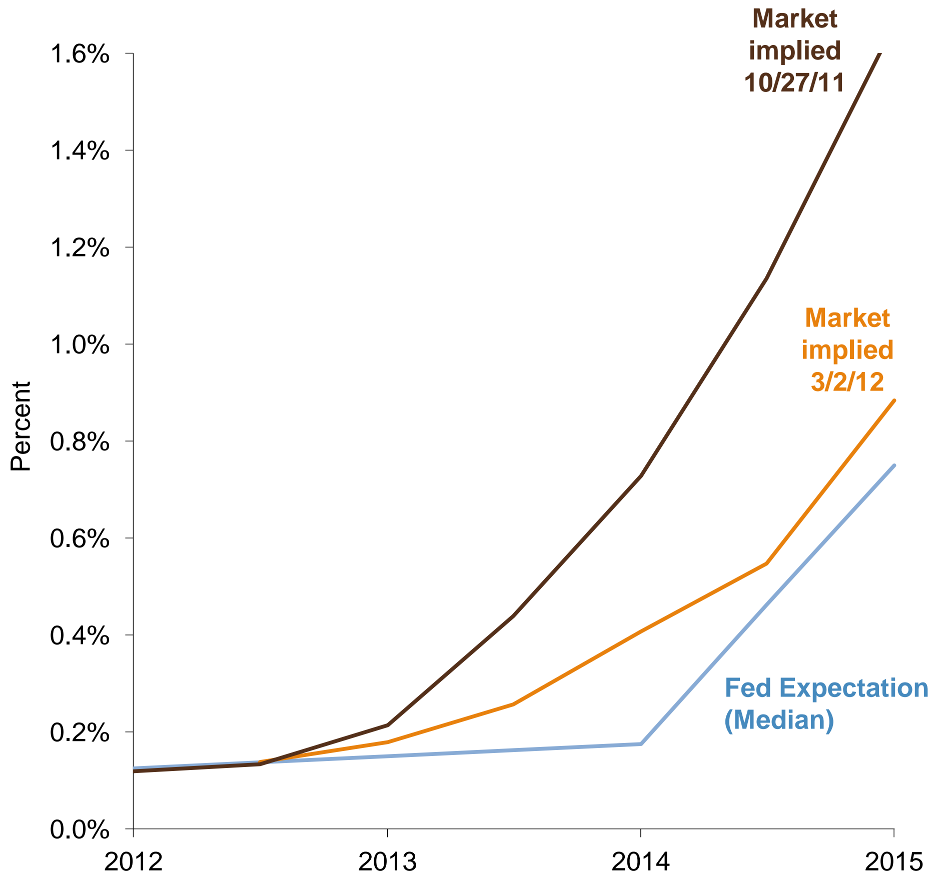
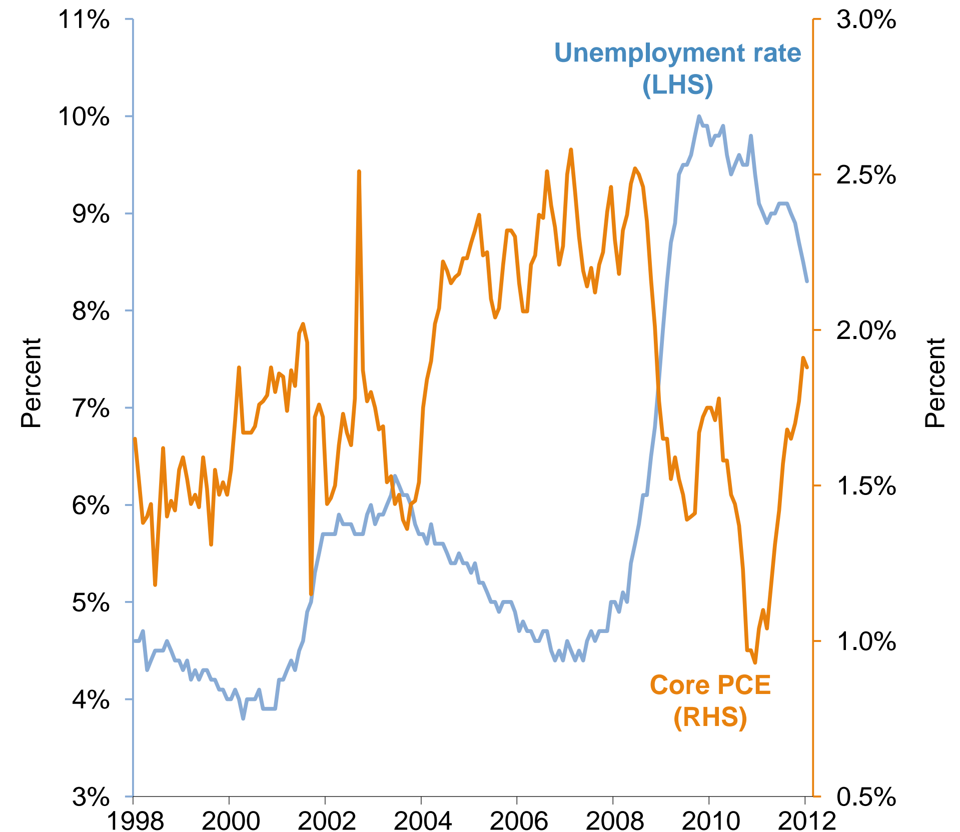
The Fed will remain growth-friendly and is committed to ensuring a recovery, though the economy is less sensitive to lower rates

Fed funds curve



Source: Federal Reserve, Bloomberg. Data as of 3/2/2012.

The Fed's "dual mandate"



Source: Bureau of Labor Statistics. Data as 01/31/2012.

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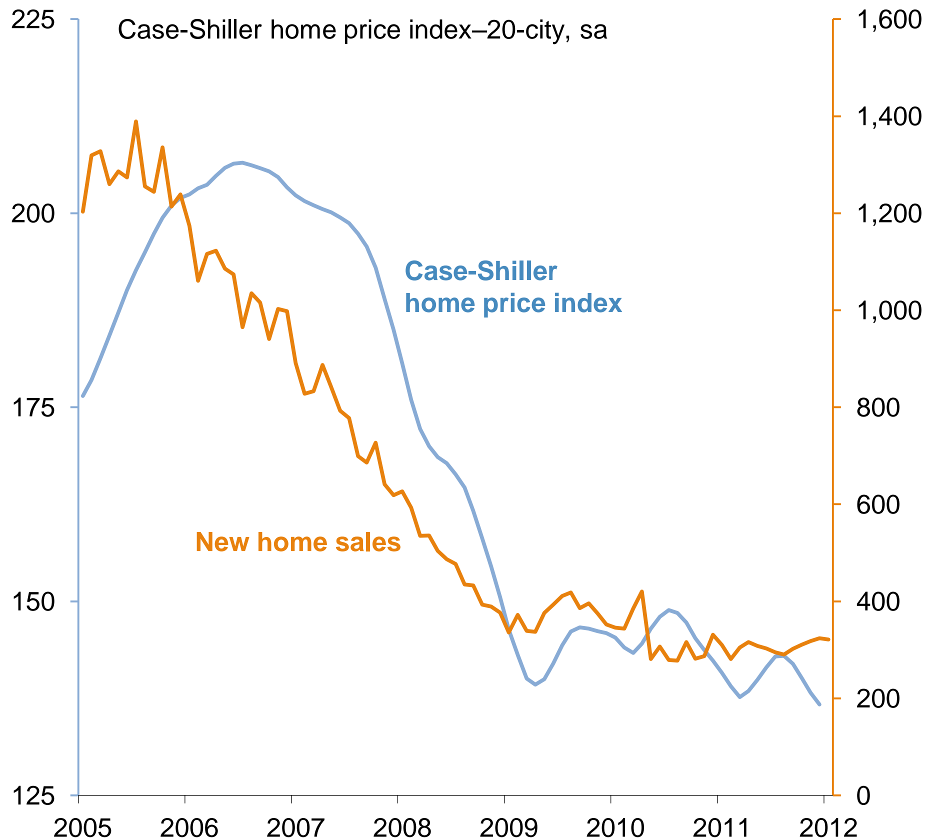
The housing market shows signs of life, but is not contributing much of a boost

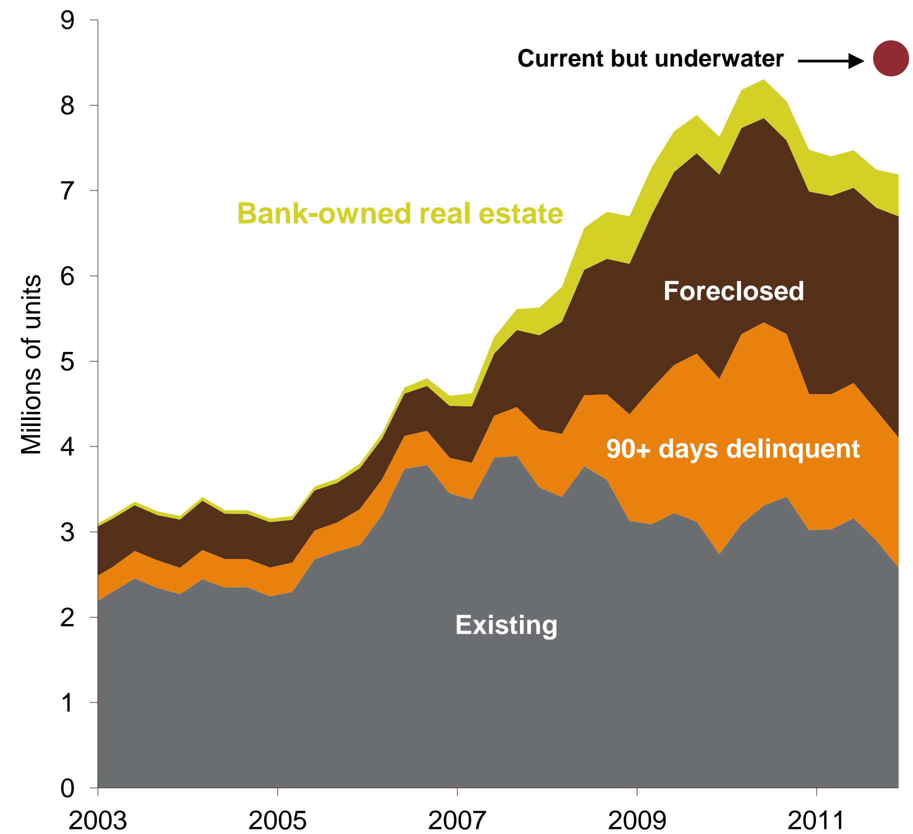
Home prices still near the lows



Source: Federal Reserve, S&P/Case-Shiller. Data as of 11/30/2011.

Past performance not indicative of future results.
It is not possible to invest directly in an index. See definition of indices for more information.

The existing inventory does not tell the whole story



Source: National Association of Realtors, J.P. Morgan Securities LLC, Amherst Securities, Mortgage Bankers Association. Data as of Q4 2011.

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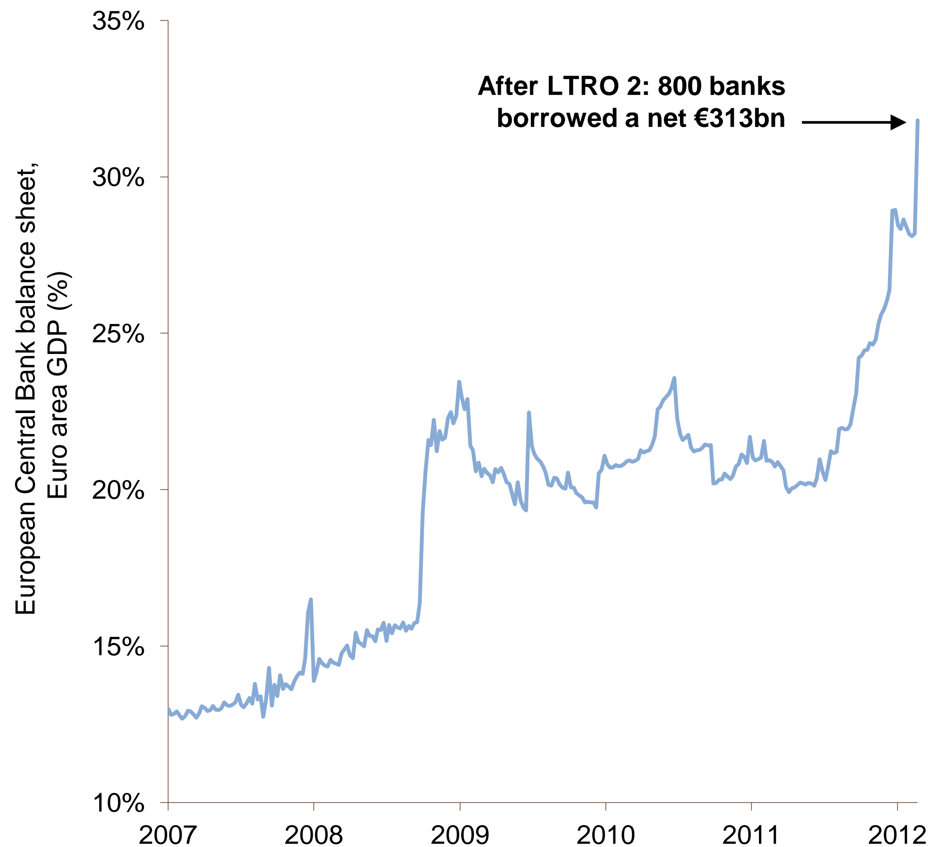
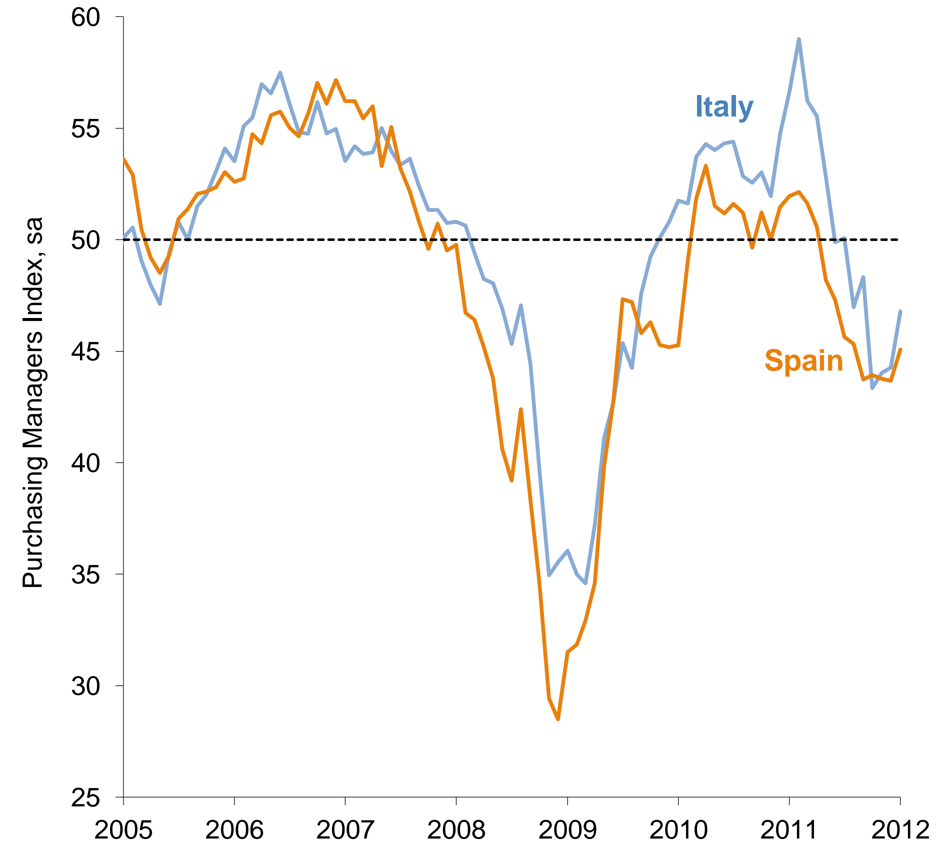
For now, the ECB has relieved sovereign and bank financing pressures, the speed of deleveraging, and the EU recession

ECB funding support at all-time highs



Source: European Central Bank. Data as of February 29, 2012.

Better, but still contracting



Source: Markit. Data as of January 2012.

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J.P.Morgan
Asset Management

Organizing Portfolios around Risk and Return Expectations

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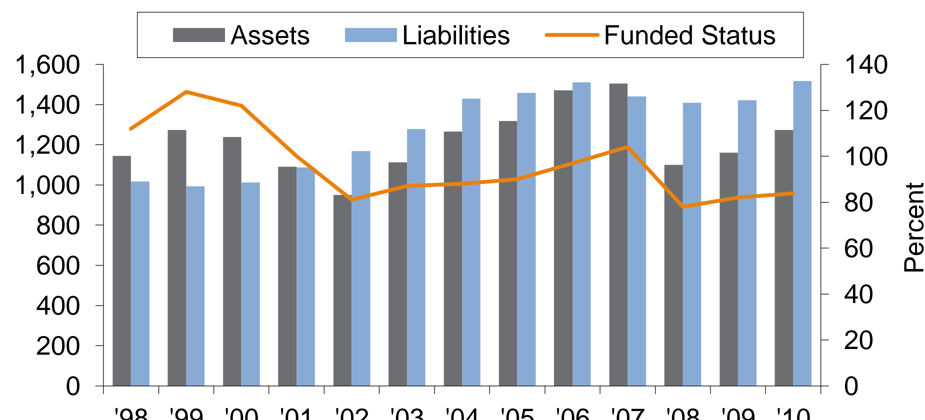
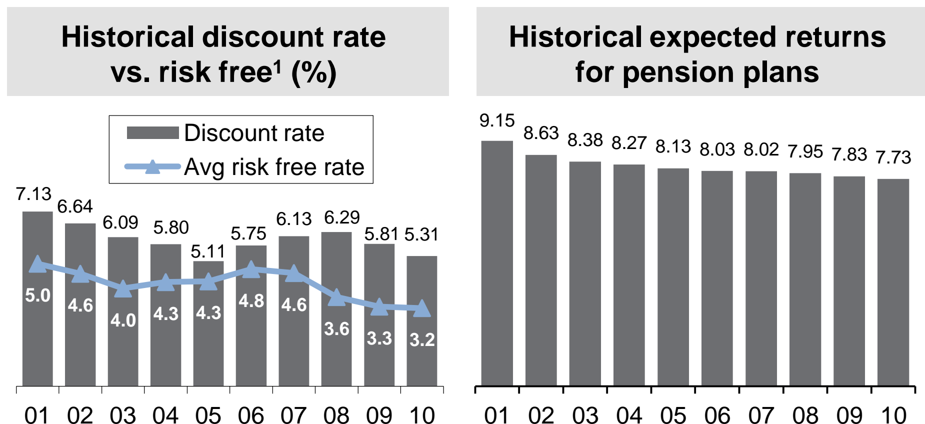
Pension landscape: Rough terrain

- How much risk is appropriate?
  - big decline in funded status since 104% peak in 2007
  - the gap between assets and liabilities getting harder to close in today's environment
- Liability valuation and pension plan returns assumptions
  - average discount rates had risen since 2005 from 5.11% to 6.29% before dropping to 5.31% in 2010
  - pension plan returns assumptions have steadily decreased since 2001, arriving at 7.73% in 2009
- De-risking[2] asset allocations
  - 41% of corporate plans are looking to increase fixed income duration[3]
  - corporate plans are looking to increase their allocation to fixed income by 2% over the next 2–3 years[3]

S&P 500 assets vs. PBO liabilities



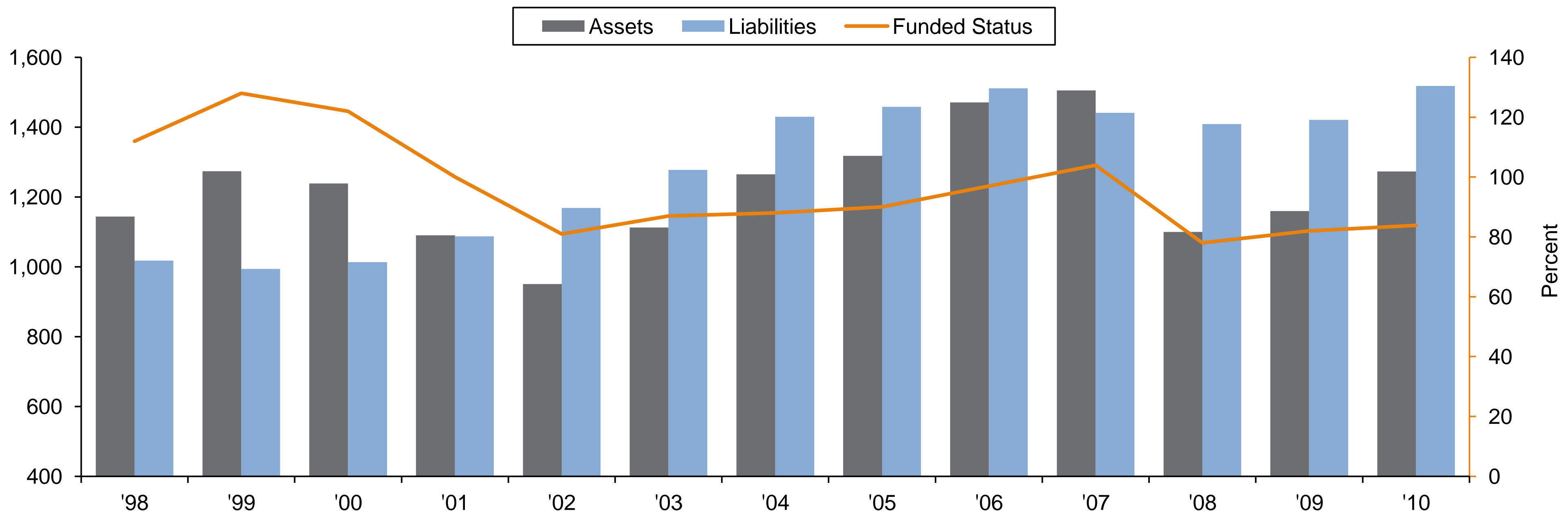
S&P 500



Source: Historical data for 1997–2010 is based on the "S&P 500 2009: Pensions and Other Post Employment Benefits (OPEB)" article published by S&P in May 2011.
[1] Average risk-free rate using 10-year note. Data from Morgan Markets.
[2] De-risking: In asset/liability management, is a general term referring to strategies that better match the interest rate sensitivity of assets to liabilities; however, the term in no way implies the removal of risk.
[3] J.P. Morgan 2010 Alternative Asset Survey.

Trends in U.S. corporate pension plans funded status

- The corporate pension marketplace
  - 2007: S&P 500 DB assets peak at $1.5trn
  - 2008: Assets fell to $1.1trn while liabilities remained unchanged at $1.4trn
  - 2009: Assets rebounded but liabilities increased as well, resulting in only modest improvement in funded status
  - 2010: Rates were expected to rise, but have actually decreased, leaving funded status only moderately higher



Source: Historical data for 1997–2009 is based on the "S&P 500 2010: Pensions and Other Post Employment Benefits (OPEB)" article published by S&P in May 2011.
Past performance is not indicative of future results.

Critical considerations for managing risk in 2012

- Clients seek strategic asset allocation solutions with decreased surplus risk
- Key considerations for risk reduction efforts include:
  - plan funded status
  - liability profile
  - market yields
  - plan sponsor risk tolerance
  - regulatory factors
- Duration decision can be considered external to the stock/bond decision
  - using a duration overlay can/may allow for investing in risky assets to preserve expected return
  - implementing a duration strategy is essential
- Changes to governance process can facilitate the timely decision making needed to reach ultimate plan objectives

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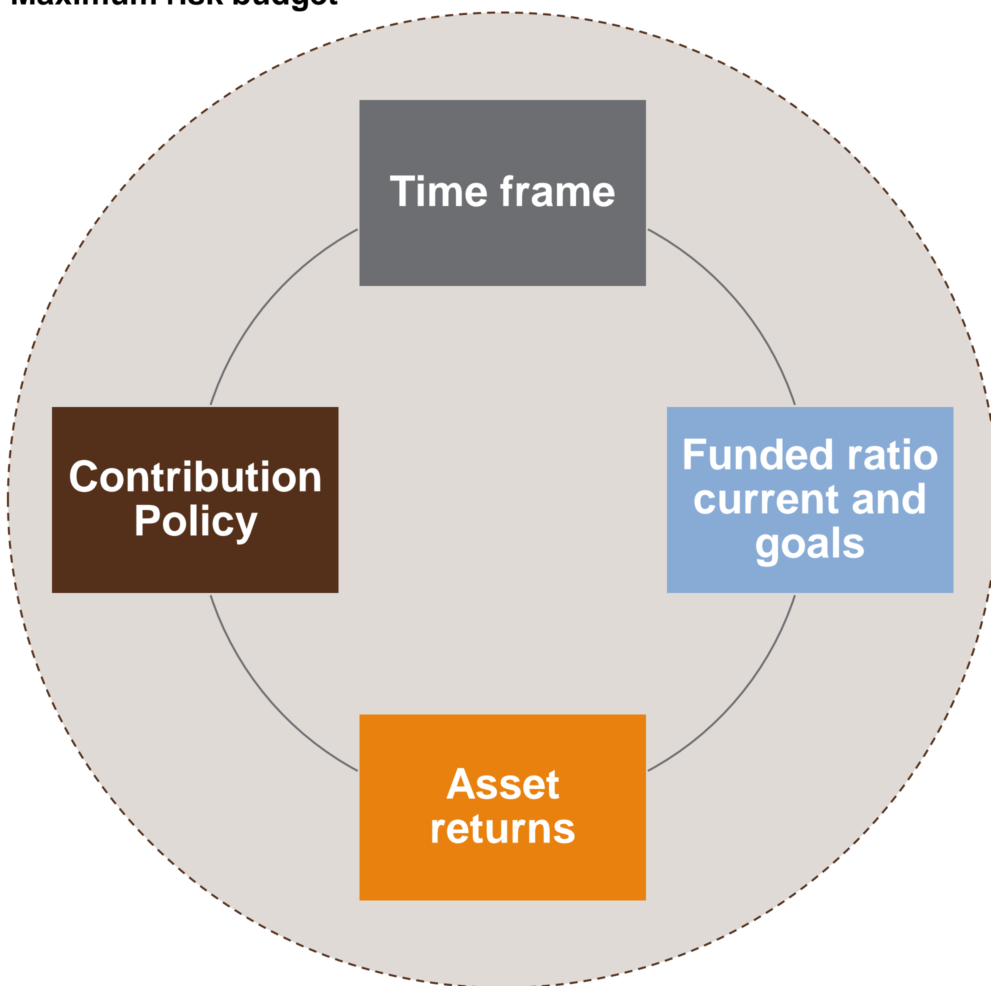
De-risking decision making process: Key inputs/variables

Risk parameter:
Maximum risk budget



Key questions to ask…

I. What is the **ultimate funded ratio target**?

II. What is the **adequate time frame**?

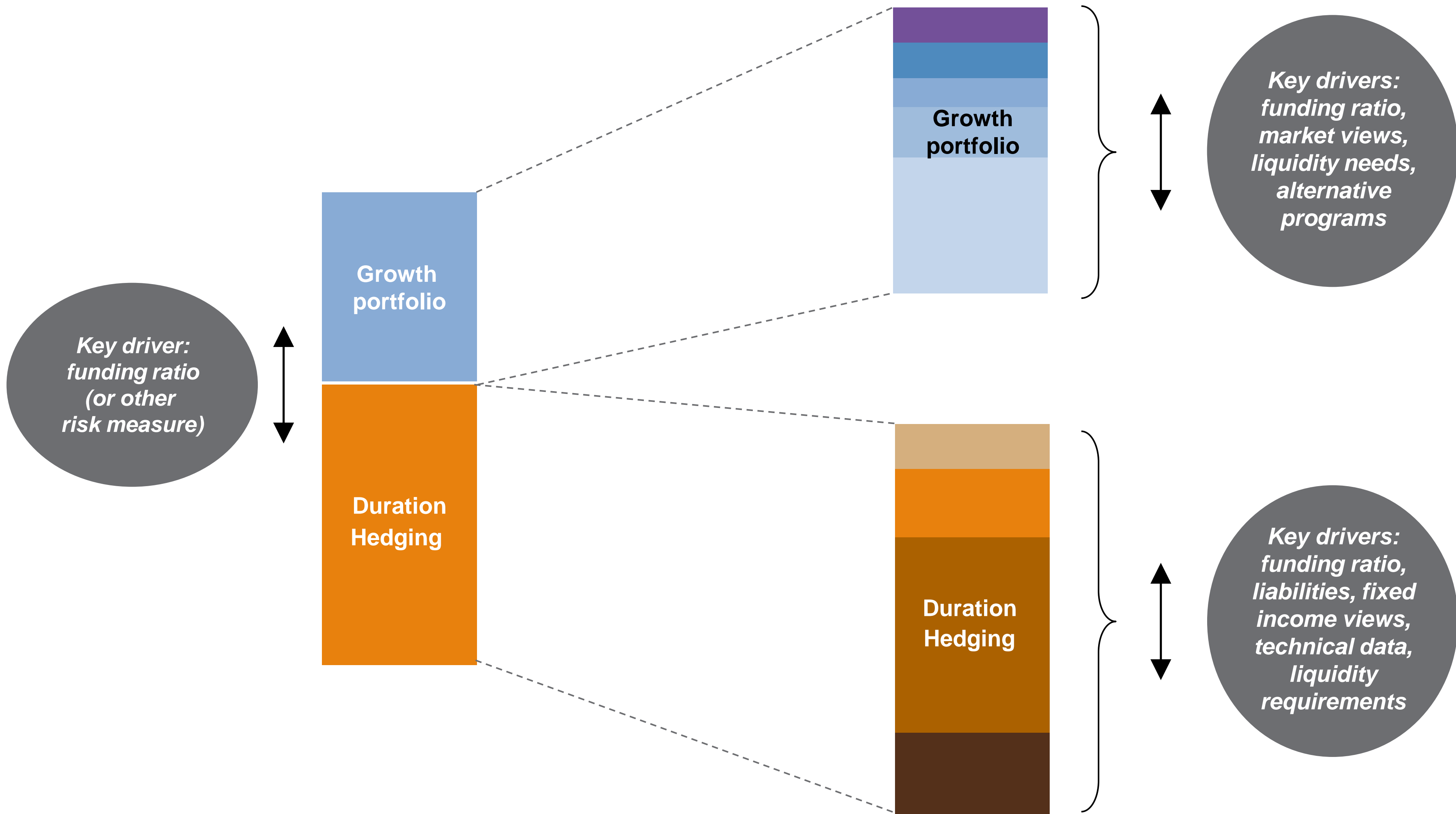
III. What is the **reasonable return expectation**?

IV. What is the allowable **maximum risk budget**?

V. What is the planned contribution policy?
Is there a **funded ratio "floor"**?

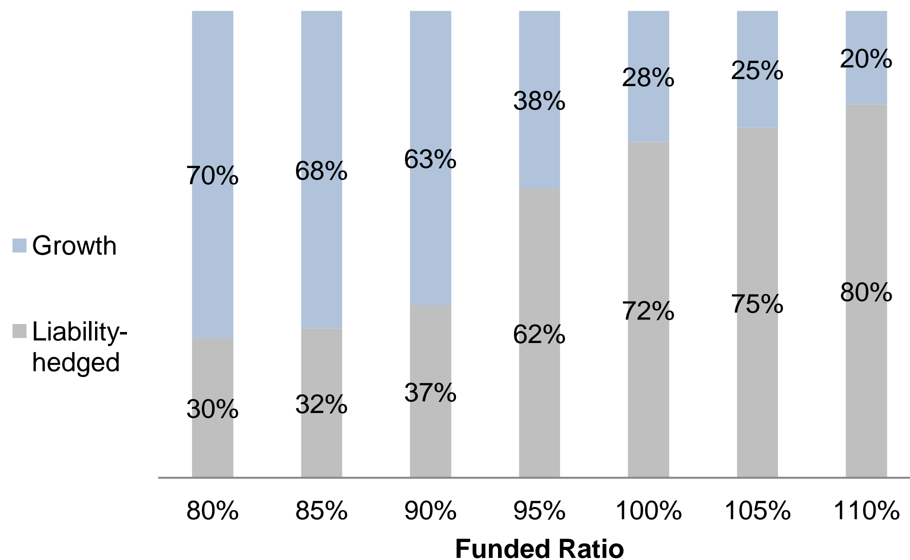
De-risking means the manager seeks to reduce the amount of risk, all investments bear some risk. The manager seeks to achieve the stated objectives. There can be no guarantee the objectives will be met.

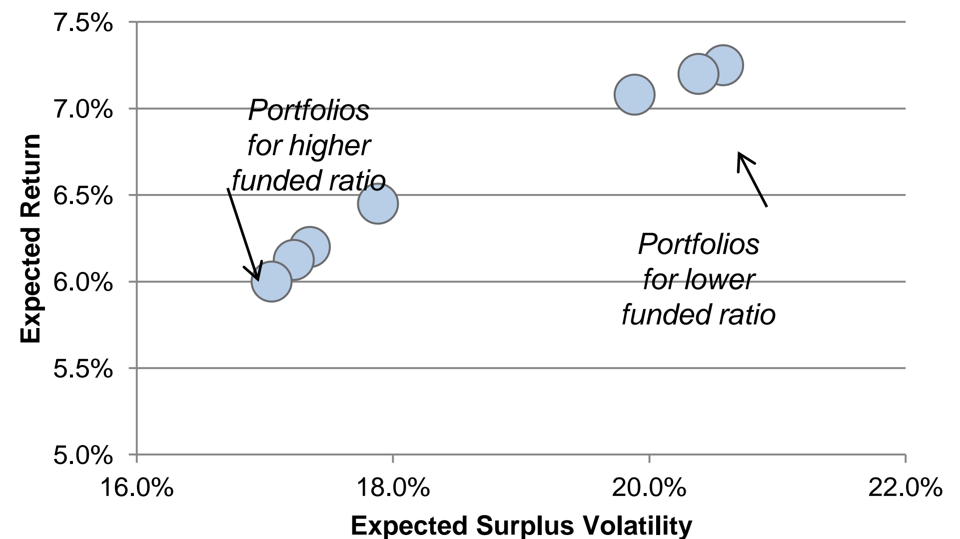
Need for dynamism in the portfolio construction process



Sample client glide path: as funded status changes, growth/hedge mix changes

- Our framework called for an initial 70% Growth / 30% Liability-hedged portfolio
- The glide path will invest in two categories of assets:
  1. **Growth** (Equity, High yield bonds, Emerging market bonds, REITs,)
  2. **Liability-hedged** (Long duration fixed income with futures overlay)
- Low (high) funded ratios necessitates a high (low) target rate of return with a high (low) allocation to “Growth” assets and a low (high) allocation to “Liability-hedged” assets
- The glide path we have developed uses the funded ratio as a trigger for making changes in the asset allocation according to the schedule on the left





Information above is from a representative account, actual account information will differ.
Source: J.P. Morgan Asset Management

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J.P.Morgan Asset Management

J.P.Morgan
Asset Management

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Understanding “equilibrium” estimates

Our investment management research incorporates our proprietary projections of the “equilibrium” returns and volatility of each asset class over the long term, as well as equilibrium estimates of the correlations among asset classes. Clearly, financial firms cannot predict how markets will perform in the future. But we do believe that by analyzing current economic and market conditions and historical market trends, and then, most critically, making projections of future economic growth, inflation, and real yields for each country, we can estimate the “equilibrium” performance for an entire asset class. The “equilibrium” return is simply the central tendency over a very long period of time around which market returns will tend to fluctuate, because it represents the value inherent in that market. It is possible – indeed, probable – that actual returns will vary considerably from this equilibrium, even for a number of years. But we believe that market returns will always at some point return to the equilibrium trend. We further believe that these kinds of forward-looking assessments are far more accurate than historical trends in deciding what asset class performance will be, and how best to determine an optimal asset mix.

In reviewing this material, please understand that all references to expected return are not promises, or even estimates, of actual returns one may achieve. The assumptions are not based on specific products and do not reflect fees, such as investment management fees, oversight fees, transaction costs or other expenses that could reduce return. They simply show what the equilibrium return should be, according to our best estimates. Also note that actual performance may be affected by the expertise of the person who actually manages these investments, both in picking individual securities and possibly adjusting the mix periodically to take advantage of asset class undervaluations and overvaluations caused by market trends.

Definitions

Indices

The MSCI All Country World Index (ACWI) is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global developed and emerging markets. (source: MSCI Barra)

The MSCI World Index is a free float-adjusted market capitalization weighted index designed to measure the equity market performance of developed markets. (source: MSCI Barra)

The S&P 500 Index, widely regarded as the best single gauge of the U.S. equities market, includes a representative sample of 500 leading companies in leading industries of the U.S. economy. Although the S&P 500 focuses on the large-cap segment of the market, with 75% coverage (based on total stock market capitalization) of U.S. equities, it is also an ideal proxy for the total market. (source: Standard & Poor's)

The Russell 1000 Value Index measures the performance of the large-cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower expected growth values. The index is constructed to provide a comprehensive and unbiased barometer for the large-cap value segment. The Index is completely reconstituted annually to ensure new and growing equities are included and that the represented companies continue to reflect value characteristics. (source: Russell Indexes)

The Russell 1000 Growth Index measures the performance of the large-cap growth segment of the U.S. equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values. It is constructed to provide a comprehensive and unbiased barometer for the large-cap growth segment. The Index is completely reconstituted annually to ensure new and growing equities are included and that the represented companies continue to reflect growth characteristics. (source: Russell Indexes)

The Russell Midcap Index measures the performance of the mid-cap segment of the U.S. equity universe. The Russell Midcap Index is a subset of the Russell 1000® Index. It includes approximately 800 of the smallest securities based on a combination of their market cap and current index membership. The Russell Midcap Index represents approximately 31% of the total market capitalization of the Russell 1000 companies. The index is constructed to provide a comprehensive and unbiased barometer for the mid-cap segment. The Index is completely reconstituted annually to ensure larger stocks do not distort the performance and characteristics of the true mid-cap opportunity set. (source: Russell Indexes)

The Russell 2000 Index measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 Index is a subset of the Russell 3000® Index representing approximately 10% of the total market capitalization of that index. It includes approximately 2000 of the smallest securities based on a combination of their market cap and current index membership. The index is constructed to provide a comprehensive and unbiased small-cap barometer and is completely reconstituted annually to ensure larger stocks do not distort the performance and characteristics of the true small-cap opportunity set. (source: Russell Indexes)

The MSCI EAFE Index (Europe, Australasia, Far East) is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. & Canada. As of June 2007 the MSCI EAFE Index consisted of the following 21 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom. (source: MSCI Barra)

The MSCI Europe Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of the developed markets in Europe. As of June 2007, the MSCI Europe Index consisted of the following 16 developed market country indices: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. (source: MSCI Barra)

The MSCI Europe Small Cap Index is a free float-adjusted market capitalization weighted index that is designed to represent the business activities of small cap companies in developed Europe. As of June 2007, the MSCI Europe Index consisted of the following 16 developed market country indices: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the U.K. MSCI selects the most liquid securities relative to their market capitalization, and targets for index including 40% of the full market capitalization of the eligible small cap universe within each industry group, within each country. (source: MSCI Barra)

The MSCI United Kingdom Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of the U.K. developed market. (source: MSCI Barra)

The MSCI Europe ex-UK Index is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in the Europe-UK region. The MSCI Europe ex-UK Index consists of the following 15 developed market country indices: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland. (source: MSCI Barra)

The MSCI Japan Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of the Japanese developed market. (source: MSCI Barra)

The MSCI AC (All Country) Asia ex Japan Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of Asia, excluding Japan. As of March 2008 the MSCI AC Asia ex Japan Index consisted of the following 11 developed and emerging market country indices: China, Hong Kong, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Singapore, Taiwan, and Thailand. (source: MSCI Barra)

The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of November 2008 the MSCI Emerging Markets Index consisted of the following 24 emerging market country indices: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey. (source: MSCI Barra)

The HFRI Hedge Fund of Funds Diversified Index includes multiple managers through funds or managed accounts. The strategy designs a diversified portfolio of managers with the objective of significantly lowering the risk (volatility) of investing with an individual manager. The Fund of Funds manager has discretion in choosing which strategies to invest in for the portfolio. A manager may allocate funds to numerous managers within a single strategy, or with numerous managers in multiple strategies. The minimum investment in a Fund of Funds may be lower than an investment in an individual hedge fund or managed account. The investor has the advantage of diversification among managers and styles with significantly less capital than investing with separate managers. (source: HFRI)

The HFRI Event-Driven Index includes investment managers who maintain positions in companies currently or prospectively involved in corporate transactions of a wide variety including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance or other capital structure adjustments. Security types can range from most senior in the capital structure to most junior or subordinated, and frequently involve additional derivative securities. Event Driven exposure includes a combination of sensitivities to equity markets, credit markets, and idiosyncratic, company specific developments. Investment theses are typically predicated on fundamental characteristics (as opposed to quantitative), with the realization of the thesis predicated on a specific development exogenous to the existing capital structure. (source: HFRI)

The HFRI Equity Hedge Index includes investment managers who maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. EH managers would typically maintain at least 50%, and may in some cases be substantially entirely invested in equities, both long and short. (source: HFRI)

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Definitions (cont'd)

The HFRI Relative Value Index includes investment managers who maintain positions in which the investment thesis is predicated on the realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types. Fixed income strategies are typically quantitatively driven to measure the existing relationship between instruments, and in some cases, identify attractive positions, in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager. RV positions may be involved in corporate transactions also, but as opposed to ED exposures, the investment thesis is predicated on realization of a pricing discrepancy between related securities, as opposed to the outcome of the corporate transaction. (source: HFRI)

The HFRI Macro Index includes investment managers which trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets. Managers employ a variety of techniques, both discretionary and systemic analysis, combinations of top down and bottom up theses, quantitative and fundamental approaches and long and short term holding periods. Although some strategies employ RV techniques, Macro strategies are distinct from RV strategies in that the primary investment thesis is predicated on future movements in the underlying instruments, rather than realization of a valuation discrepancy between securities. In a similar way, while both Macro and equity hedge managers may hold equity securities, the overriding investment thesis is predicated on the impact movements in underlying macroeconomic variables may have on security prices, as opposed to EH, in which the fundamental characteristics of the company are the most significant to investment theses. (source: HFRI)

The Dow Jones Wilshire Micro-Cap Index is a cap-weighted index that includes a subset of all stocks in the Dow Jones Wilshire 5000 ranked 2,500+ by market capitalization-or all stocks in the DJ Wilshire 5000 beyond large caps and small caps. As of Dec 2007, the largest company in the DJ Wilshire Micro-Cap Index had a float-adjusted market capitalization of $221 million. (source: Dow Jones Indexes)

The Merrill Lynch BB Debt Index is an unmanaged market-capitalization-weighted index of all BB-rated domestic and Yankee high-yield bonds, including deferred interest bonds and payment-in-kind securities, and is not an investment vehicle. Issues included in the index have maturities of one year or more. (source: Merrill Lynch)

The FTSE/NAREIT Equity Index is a free float adjusted market capitalization weighted index that includes all tax qualified REITs in the NYSE, AMEX and NASDAQ markets. (source: NAREIT)

The FTSE EPRA/NAREIT Developed Europe REIT Index consists of all companies qualifying for REIT status and domiciled in developed European countries according to their latest published annual accounts. (source: FTSE)

The NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. Index rules include 1) Operating properties only (must be 60% occupied), 2) apartments, hotels, industrial properties, office buildings, retail only, 3) wholly owned or in a joint venture structure, 4) investment returns are reported on a non-leveraged basis (while there are properties in the NPI that have leverage, returns are reported as if there is no leverage), 5) must be owned/controlled by a qualified tax-exempt institutional investors or its designated agent. (source: NCREIF)

The FTSE EPRA/NAREIT Developed Europe Index has been designed to provide a diversified, representative portfolio of equity property investments. (source: FTSE)

The Dow Jones-UBS Commodity Spot Index measures price movements of the commodities included in the DJ-UBSCI and select subindexes. The DJ-UBS Commodity Spot Index provides a general estimate of trends in commodity prices. It does not account for the effects of rolling futures contracts or the costs associated with actually holding physical commodities, and is thus not replicable with positions in the underlying commodity futures contracts. (source: Dow Jones Indexes)

The Barclays Capital Municipal Bond Index is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. To be included in the index, bonds must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be investment-grade. They must have an outstanding par value of at least $7 million and be issued as part of a transaction of at least $75 million. The bonds must be fixed rate, have a dated-date after December 31, 1990, and must be at least one year from their maturity date. Remarketed issues, taxable municipal bonds, bonds with floating rates, and derivatives, are excluded from the benchmark. The index has four main sectors: general obligation bonds, revenue bonds, insured bonds (including all insured bonds with a Aaa/AAA rating), and prerefunded bonds. This is the general definition for the Barclays Capital Municipal Bond Index. We benchmark against the 1-17 year component of the index described. (source: Barclays Capital)

The Barclays Capital U.S. Aggregate Index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. Index Rules include: (1) Must have at least one year to final maturity regardless of call features; (2) Must have at least $250 million par amount outstanding. Asset-backed securities must have at least $500 million deal size and $25 million tranche size. For commercial mortgage-backed securities, the original transaction must have a minimum deal size of $500 million, and a minimum tranche size of $25 million; the current outstanding transaction size must be at least $300 million to remain in the index; (3) Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be investment-grade; (4) Must be fixed rate, although it can carry a coupon that steps up or changes according to a predetermined schedule; (5) Must be dollar-denominated and non-convertible; (6) Must be publicly issued. However, 144A securities with Registration Rights and Reg-S issues are included. (source: Barclays Capital)

The Barclays Capital Euro-Aggregate Index consists of bonds issued in the euro or the legacy currencies of the 16 sovereign countries participating in the European Monetary Union (EMU). All issues must be investment grade rated, fixed-rate securities with at least one year remaining to maturity. The Euro-Aggregate Index excludes convertible securities, floating rate notes, perpetual notes, warrants, linked bonds, and structured products. German Schuldscheine (quasi-loan securities) are also excluded because of their trading restrictions and unlisted status, which results in illiquidity. The country of issue is not an index criterion, and securities of issuers from outside the Eurozone are included if they meet the index criteria. The minimum outstanding amount for all bonds in the index is €300 million equivalent. Barclays Capital uses both issue and issuer ratings by three agencies (Moody's Investors Service, Standard & Poor's Ratings Group, and Fitch Ratings) to determine if a bond is investment grade (Baa3/BBB- and above) and therefore eligible for inclusion. The major sectors of the Euro-Aggregate Index are the government, credit, and collateralized indices. (source: Barclays Capital)

The Barclays Capital Global Aggregate Index provides a broad-based measure of the global investment grade fixed-rate debt markets. The Global Aggregate Index contains three major components: the U.S. Aggregate (USD 300mn), the Pan-European Aggregate (EUR 300mn), and the Asian-Pacific Aggregate Index (JPY 35bn). In addition to securities from these three benchmarks (94.1% of the overall Global Aggregate market value as of December 31, 2009), the Global Aggregate Index includes Global Treasury, Eurodollar (USD 300mn), Euro-Yen (JPY 25bn), Canadian (USD 300mn equivalent), and Investment Grade 144A (USD 300mn) index-eligible securities not already in the three regional aggregate indices. The Global Aggregate Index family includes a wide range of standard and customized subindices by liquidity constraint, sector, quality, and maturity. A component of the Multiverse Index, the Global Aggregate Index was created in 1999, with index history backfilled to January 1, 1990. (source: Barclays Capital)

Definitions (cont'd)

The Citigroup World Government Bond Index (WGBI) includes the 22 government bond markets of Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, Norway, Poland, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Market eligibility is determined by market capitalization and investability criteria. A market's eligible issues must total at least US$20 billion, €15 billion, and ¥2.5 trillion for three consecutive months for the market to be considered eligible for inclusion. Once a market satisfies these criteria, it is added to the WGBI beginning with the next month's profile. With the advent of EMU, the Euro-bloc is treated as a single market and individual EMU government debt markets are not subject to market size criteria. The non-US dollar WGBI includes all WGBI countries except the United States and is stated in U.S. dollar terms. (source: Citigroup)

The Barclays Capital U.S. Corporate Index covers USD-denominated, investment-grade, fixed rate, taxable securities sold by industrial, utility, and financial issuers. It includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specific maturity, liquidity, and quality requirements. Securities in the index roll up to the U.S. Credit and U.S. Aggregate Indices. (source: Barclays Capital)

The Barclays Euro-Aggregate Corporate Index contains fixed-rate, investment grade Euro-denominated securities from industrial, utility, and financial issuers only. Inclusion is based on the currency of the issue, and not the domicile of the issuer. Securities in the index are also part of the Euro-Aggregate, Pan-European Aggregate, and the Global Aggregate Indices. (source: Barclays Capital)

The Merrill Lynch U.S. High Yield Master II Index tracks the performance of below investment grade U.S. dollar-denominated corporate bonds publicly issued in the U.S. domestic market. "Yankee" bonds (debt of foreign issuers issued in the U.S. domestic market) are included in the Index provided the issuer is domiciled in a country having an investment grade foreign currency long-term debt rating (based on a composite of Moody's and S&P). (source: Merrill Lynch)

The Barclays Capital Pan-European High Yield Index covers the universe of fixed-rate, sub-investment-grade debt denominated in euros or other European currencies (except Swiss francs). This index includes only euro-and sterling-denominated bonds, because no issues in the other European currencies now meet all the index requirements. To be included, the bonds must be rated high-yield (Ba1/BB+ or lower) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be high-yield. Bonds must have at least one year to maturity and an outstanding par value of at least EUR50 million. The index does not include non-rated bonds, and it excludes debt from entities in countries that are designated as emerging markets. (source: Barclays Capital)

The J.P. Morgan EMBI Global Composite Index tracks total returns for U.S. Dollar denominated debt instruments issued by emerging market sovereign and quasi sovereign entities. This includes Brady bonds, loans, Eurobonds, and external debt instruments. (source: J.P. Morgan)

The J.P. Morgan GBI-EM Index is the first comprehensive, global local Emerging Markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure. (source: J.P. Morgan)

The J.P. Morgan CEMBI/CEMBI Broad Index series was created in response to investor demand for a liquid global emerging market corporate benchmark and the rapid increase in corporate issuance. A diversified version for CEMBI/CEMBI Broad is also available, providing a more evenly distributed weighting among the countries, decreasing larger countries and increasing that smaller ones. The CEMBI defines emerging market countries with a combination of World-Bank-defined per capita income brackets and relevant OECD status. The CEMBI Broad is a more inclusive global corporate benchmark and serves to expand upon CEMBI. (source: J.P. Morgan)

The Barclays Capital U.S. TIPS Index consists of Inflation-Protection securities issued by the U.S. Treasury. Index Rules include: (1) Must have at least one year to final maturity; (2) Must have at least $250 million par amount outstanding; (3) Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be investment-grade; (4) Must be fixed rate; (5) Must be dollar-denominated and non-convertible; (6) Must be publicly issued; (7) Must be a U.S. Treasury Inflation Note. (source: Barclays Capital)

The Barclays Capital U.S. Treasury 7-10 Year Index consists of securities in the Treasury Index (i.e., public obligations of the U.S. Treasury) with a maturity from 7 up to (but not including) 10 years. Index Rules include: (1) Must have at least one year to final maturity regardless of call features; (2) Must have at least $250 million par amount outstanding; (3) Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be investment-grade; (4) Must be fixed rate, although it can carry a coupon that steps up or changes according to a predetermined schedule; (5) Must be dollar-denominated and non-convertible; (6) Must be publicly issued; (7) Must be a U.S. Treasury security. (source: Barclays Capital)

The Barclays Capital U.S. Treasury 20+ Year Index consists of securities in the Treasury Index (i.e., public obligations of the U.S. Treasury) with a maturity of 20 years or more. Index Rules include: (1) Must have at least one year to final maturity regardless of call features; (2) Must have at least $250 million par amount outstanding; (3) Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be investment-grade; (4) Must be fixed rate, although it can carry a coupon that steps up or changes according to a predetermined schedule; (5) Must be dollar-denominated and non-convertible; (6) Must be publicly issued; (7) Must be a U.S. Treasury security. (source: Barclays Capital)

The Barclay Currency Traders Index is an equal weighted composite of managed programs that trade currency futures and/or cash forwards in the inter bank market. In 2009 there are 124 currency programs included in the index. (Source: BarclayHedge)

The Citigroup 3-Month U.S. Treasury Bill Index tracks the performance of U.S. Treasury bills with a remaining maturity of three months. Returns are calculated on a monthly basis only. (source: Citigroup)

All indices are denominated in U.S. Dollars.

Statistical Measures

Volatility: As measured by standard deviation is a measure of return dispersion. To estimate this dispersion it is necessary to have a representative sample of observations.

Value-at-Risk (VaR): Assuming a normal distribution, the VaR indicates the return for which there is a 95% or 99% chance that the allocation will not perform worse than that return.

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