Long-Term Capital Market Return Assumptions

2012 estimates and the thinking behind the numbers

GBP Edition

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J.P.Morgan
Asset Management

ABOUT J.P. MORGAN ASSET MANAGEMENT LONG-TERM CAPITAL MARKET RETURN ASSUMPTIONS

J.P. Morgan Asset Management Long-Term Capital Market Return Assumptions are developed each year by our Assumptions Committee, a multi-asset class team of senior investors from across the firm. The Committee relies on the input and expertise of a range of portfolio managers and product specialists, striving to ensure that the analysis is consistent across asset classes. The final step in the process is a rigorous review of the proposed assumptions and their underlying rationale with the senior management of J.P. Morgan Asset Management.

Our capital market assumptions are used widely by institutional investors—including pension plans, insurance companies, endowments and foundations—to ensure that investment policies and decisions are based on real-world, consistent views and can be tested under a variety of market scenarios.

ABOUT J.P. MORGAN ASSET MANAGEMENT

For more than a century, institutional investors have turned to J.P. Morgan Asset Management to skillfully manage their investment assets. This legacy of trusted partnership has been built on a promise to put client interests ahead of our own, to generate original insight and to translate that insight into results.

Today, our advice, insight and intellectual capital drive a growing array of innovative strategies that span global opportunities in equity, fixed income, real estate, private equity, hedge funds, infrastructure and asset allocation.

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Foreword

This year has kept investors on their toes—and their mobile devices and trading screens—striving to stay on top of the latest market-moving developments around the globe. Yet for our clients—and ourselves—it has never been more important to have a well-reasoned, long-term, strategic perspective on the markets and the portfolios we are entrusted with managing.

David Shairp
Global Strategist,
Global Multi-Asset Group

Anthony Werley
Chief Strategist,
Endowments & Foundations Group

Michael Feser, CFA
Head of Quantitative Research
and Portfolio Management,
Global Multi-Asset Group

For the past 15 years, we have shared our consolidated best thinking on the long-term outlook for markets through the annual release of our *Long-Term Capital Market Return Assumptions*—the result of a collaboration among our Global Multi-Asset Group, Institutional Asset Management Strategy team, Private Bank Portfolio Construction team and a wide range of investment specialists across the firm and around the world.

In its 16th year, our long-term capital market assumptions are being delivered in an expanded report format. We have taken this approach in order to provide not only ten- to 15-year return, volatility and correlation estimates, consistently derived across more than 40 traditional and alternative asset classes and strategies, but also to document and offer perspective on the analysis and assessments that go into the development of our assumptions each year.

Some things have not changed. We have maintained our building block approach to arrive at estimates for equity and fixed income returns, but have upgraded these inputs in a number of ways:

- Amended the process by which bond yields adjust to equilibrium, given the low interest rate environment that exists across much of the developed world
- Added US short duration, leveraged loans and gold to our assumptions set
- Enhanced our volatility and correlation estimation process by adjusting historical data to account for the effects of serial correlation

We recognise that users of our assumptions will want to reconcile and challenge the inputs that go into the aggregate returns. We welcome these comments and questions and believe that a clear, transparent audit trail will enhance the value of our assumptions for clients, as well as their boards and regulators.

We are grateful to many colleagues throughout the organisation who have contributed to this year's output.

We very much hope that you will find this new format useful and look forward to your suggestions for further improvement.

David Shairp

Anthony Werley

Michael Feser, CFA

Opportunities for the nimble in a choppier world

by **David Shairp,** *Global Strategist, Global Multi-Asset Group*

Welcome to a world of deleveraging, debasement and default. The next 15 years to 2026 are likely to be even more difficult to navigate for policymakers and investors than the previous 15 years. We expect the global economy to experience shorter, choppier business cycles as OECD economies seek to resolve their debt problems, both at the public and private sector levels. Having experienced just two mild recessions between the early 1980s and the most recent downturn, it is indeed possible that up to three recessions could be in store over the next decade. We have therefore revised our growth expectations lower.

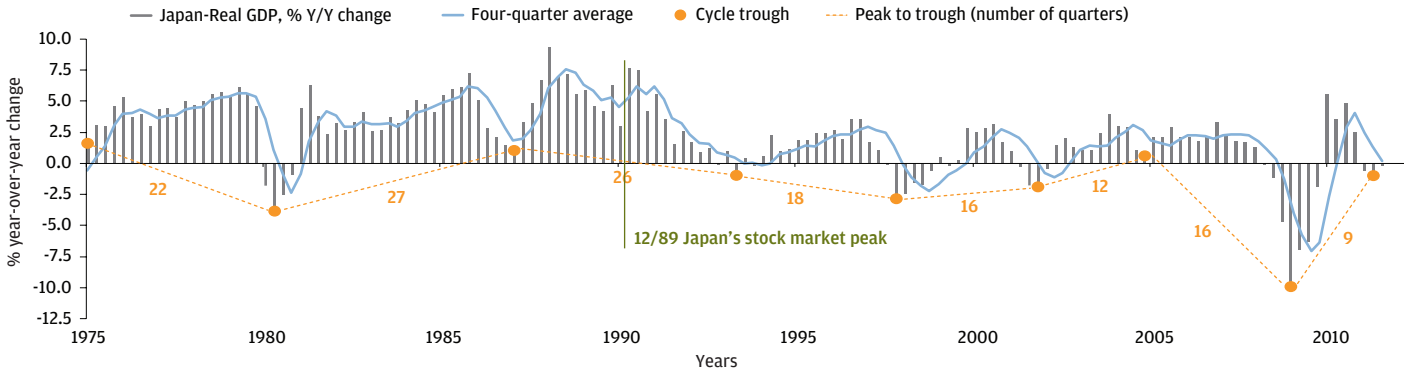
We have been here before

We envisage a greatly changed world economic order but not an altogether new one, since much of what we expect will be old hat to historians. Indeed, our outlook accommodates the message from Professors Reinhart and Rogoff's seminal work on financial crises:[1] "We have been here before." The experience of Japan

[1] Carmen Reinhart and Kenneth Rogoff, 2009, *This Time Is Different: Eight Centuries of Financial Folly.*

We've been here before—the lesson from Japan

EXHIBIT 1: SHORTER CYCLES AND MORE RECESSIONS



Sources: Economic Planning Agency, MacData, J.P. Morgan Asset Management. Data as at third-quarter 2011.

after the bursting of its bubble in 1990 endorses our expectation of shorter, shallower business cycles. As **Exhibit 1** shows, prior to the onset of Japan's banking crisis, the previous three business cycles had averaged just over six years in length. Since its stock market peaked in December 1989, the duration of cycles has dropped to less than four years.

Guiding themes

Three principal themes have helped to guide our thinking for this edition of the *Long-Term Capital Market Return Assumptions*—deleveraging, inflation and the impact of demographics on valuations:

- The theme of deleveraging could well dominate the next ten to 15 years in the markets, with OECD governments confronting potentially crushing debt and defending their credit ratings. We are anticipating slower trend rates of growth coupled with a drift toward higher inflation, as some governments seek less onerous paths to reducing real debt burdens. Emerging market growth and releveraging in a prosperous and less risk-averse developed market corporate sector could counter these trends, but only partially.
- We expect developed world consumer price inflation to remain low over the next ten to 15 years. However, emerging economy-driven international price shifts will place increasing upward pressure on commodity prices, with headline rates of inflation in the major developed markets expected to outstrip core (ie, non-food and energy) measures.
- Over the last two decades the average equity valuation, as measured by the price/earnings ratio, rose from its long-term multiple of 15x to more than 20x. Some academic studies identified favourable population dynamics since the 1970s as key drivers for this trend. Now as the baby boomer generation retires from the workforce, a possible reversal of this trend is raising concerns about a secular decline in equity valuations.

Deteriorating economic fundamentals

The upshot, we believe, is that the developed world's growth and inflation mix is likely to deteriorate over our outlook period. We have revised lower our assumptions for real GDP growth in the US and European economies, while keeping our estimate for Japan unchanged. We have increased our estimates for inflation for the US, UK and Japan, though not for Europe (**Exhibit 2**). Our thinking is influenced by the analysis undertaken in this report's feature on inflation.

Eurozone tail risk

At the time of writing, the crisis in the eurozone has intensified, with very real concerns for the viability of the European single currency. We believe that the causes of the crisis are due to three interrelated factors. The first issue is that of fiscal sustainability (which we address in a separate feature). The second relates to bank capital adequacy, while the third issue is that of competitiveness and how the countries of the eurozone

periphery can restore it and avoid deep recession, or even depression. The escalation of the crisis during the third quarter of 2011 led to a dramatic widening of bond spreads and yield levels that were incompatible with long-term fiscal solvency.

We therefore recognise that tail risk has surged and that a euro break up, or a modified form of European Monetary Union (EMU) perhaps involving fewer members, is now a viable alternative scenario. The other tail risk of a deepening of the ties in Europe leading to political, regulatory and fiscal union, also remains a credible scenario. Yet our central case view is that EMU continues to exist in its current form—shaken but not stirred in (James) Bond-speak. We have sought nevertheless to reflect the heightened uncertainty in terms of higher volatility assumptions, not least in asset prices. **Exhibit 3**, a scatter chart plotting the annual volatility of GDP growth against the annual volatility of inflation in the US, indicates that the coming new world of volatility may look a lot like the old world investors knew in the years before the so-called Great Moderation—the cluster of data points in the benign lower left quadrant.

Developed market economic outlook

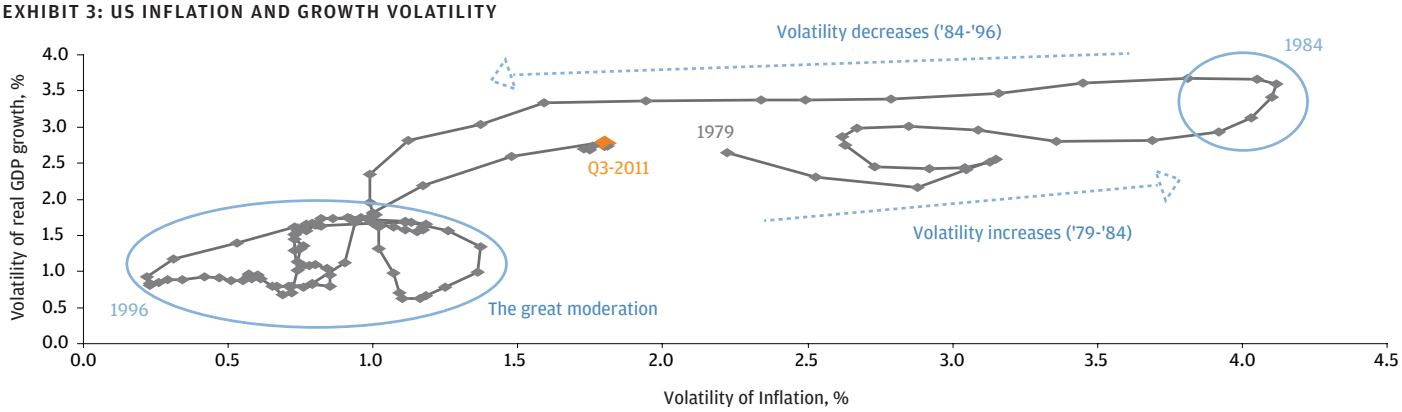
EXHIBIT 2: EXPECTED TEN- TO 15-YEAR ANNUALISED GROWTH AND INFLATION RATES

Comparison of Assumptions*	2012 (%)	2011 (%)
UNITED STATES		
Headline inflation	3.25	3.00
Core inflation	2.75	2.50
Real GDP	2.25	2.50
UK		
Headline inflation	3.00	2.75
Core inflation	2.50	2.25
Real GDP	1.75	2.00
EUROPE		
Headline inflation	2.00	2.00
Core inflation	1.75	1.75
Real GDP	1.25	1.50
JAPAN		
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.
* 2012 capital market assumptions as at 31 October 2011; 2011 assumptions as at 30 November 2010.

How the worm has turned

EXHIBIT 3: US INFLATION AND GROWTH VOLATILITY



Sources: MacData, J.P. Morgan Asset Management. Data as at third-quarter 2011.
Note: Quarterly data using five-year standard deviations of annual growth rates.

Half empty but half full as well

A challenging economic environment no doubt awaits the unwary. The propensity to volatility and compressed business cycles that we foresee could prove a difficult one for the buy-and-hold investor. The same environment may, however, hold quite different prospects for the active investor. Prepared to navigate non-conventional asset classes and follow the trend of global growth into the developing markets, the active investor with a flexible process built on a robust and transparent discipline might well be entering upon a world of opportunity.

Asset class implications

Fixed income

Bond yields are likely to rise significantly from today's levels, although not for a while. Fixed income returns are likely to fall as yields rise toward expected higher equilibrium levels, although the period of normalisation is likely to be extended as central banks keep policy rates lower for longer. Real returns on US Treasuries are expected to be negative over our investment horizon, given an assumed annual core inflation rate of 2.75% in the US. This is symptomatic of a new era of financial repression. Indeed, any exercise that assumed a pattern of mean reversion of returns over a ten-year period suggests that real returns would be negative for US bonds, barring a stagnant economy with average inflation declining to less than 2% (see **Exhibit 4A**).

Equity

Equity returns are likely to benefit from higher dividend yields, though we expect only marginal or even no boost in returns from revaluation. And while domestic growth prospects may have dimmed, we continue to look for western companies to benefit from fast growing markets overseas. Emerging stock markets are expected to remain the top performers.

Nominal US equity returns of 8% equate to average annual real returns of 5.25%, after subtracting our core inflation estimate. While at first blush those real returns appear rich, they are below the historical long-term average of 6.2% dating back to 1850, a stretch that includes a mix of bull and bear markets, and takes in two world wars, the Great Depression and a secular bear market (see **Exhibit 4B**).

Real Assets

The outlook for real estate returns remains promising Capitalisation rates have compressed over the past year, but property prices remain depressed and operating fundamentals are likely to strengthen. In the case of global infrastructure, exposure to government regulated sectors should limit the return downside, while leverage, modest exposure to fast-growing emerging markets and a likely increase in privatisations should boost returns. Commodity returns are still expected to outstrip inflation, but are likely to ease slightly given the projected moderation in global growth (see **Exhibit 4C**).

Alternatives

With the slight improvement assumed for risk assets in public markets overall, median hedge fund returns are also expected to rise, particularly for more directional strategies. Median manager private equity returns should also benefit as public markets revive (see **Exhibit 4D**).

Methodology

As in previous years, we have used a building block approach to arrive at our assumptions. We believe that this provides clarity and transparency for readers and enables them to challenge and reconcile the inputs that go into these estimates. The building blocks are as follows:

Fixed income return

Expected future yields +/- change in bond prices

Equity return

Inflation + real earnings growth + dividend yield +/- impact of valuation changes

Alternative asset returns

Historical analysis/investor judgment about relationship to public markets

Volatility and correlations

In our view, investors should allow and adjust for the effects of serial correlation of asset returns on volatility/risk estimates. These effects may lead to a significant underestimation of risk at the asset class, strategy and/or portfolio levels, which may result in excessive risk taking and suboptimal asset allocation decisions. In our *Long-Term Capital Market Return Assumptions*, we therefore test for serial correlation and adjust our volatility estimates accordingly, based on quantitative techniques in addition to a qualitative review for reasonableness and consistency. We believe that these risk estimates represent improved—albeit not perfect—inputs into an asset allocation process.

Selected Long-Term (ten- to 15-Year) Capital Market Return Assumptions

EXHIBIT 4A: FIXED INCOME

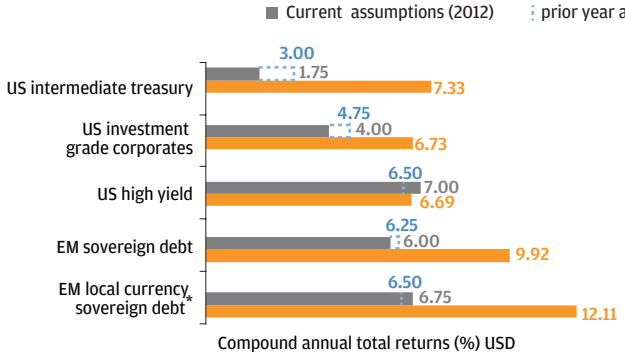


EXHIBIT 4B: EQUITY

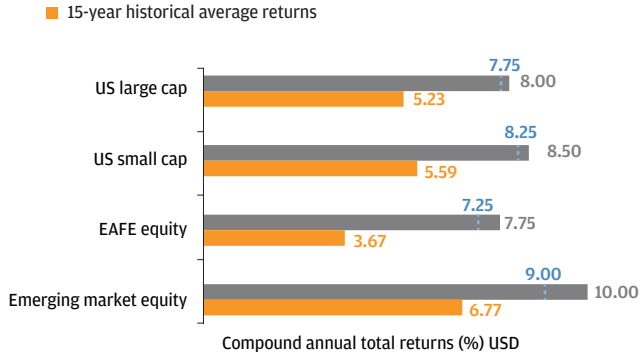


EXHIBIT 4C: REAL ASSETS

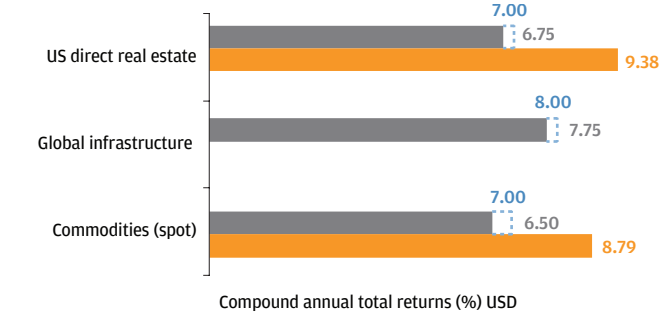
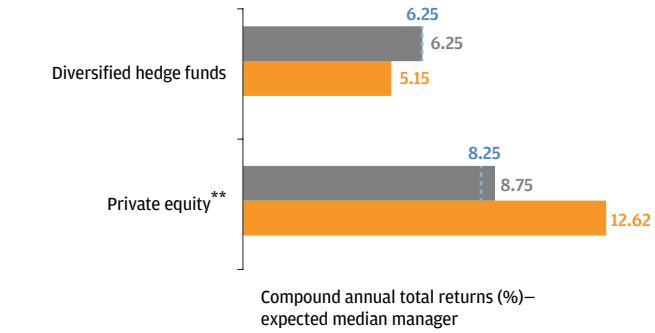


EXHIBIT 4D: ALTERNATIVES



Source: J.P. Morgan Asset Management (assumptions as at 31 October 2011 and 30 November 2010), Bloomberg (October 1996–September 2011). Indices used: Barclays Capital US Treasury 7-10 Year Index, Barclays Capital US Corporate Index, Merrill Lynch High Yield Master II Index, J.P. Morgan EMBI Global Composite Index, J.P. Morgan GBI-EM Global Diversified, S&P 500 Index, Russell 2000 Index, MSCI EAFE Index, MSCI Emerging Markets Index, NCREIF Property Index, Dow Jones-UBS Commodity Spot Index, HFRI Fund of Funds Diversified Index, Thomson Venture Economics. * Historical performance since January 2003. **Source: Thomson Venture Economics. History represents US buyouts pooled average time-weighted returns from 30 September 1996 - 30 June 2011.

FIXED INCOME MARKETS

Low for longer

by **Michael Feser,** *CFA, Head of Quantitative Research and Portfolio Management, Global Multi-Asset Group*
Grace Koo, *PhD, Quantitative Research and Portfolio Management, Global Multi-Asset Group*

In brief

Expect lacklustre fixed income returns as yields eventually rise toward higher equilibrium levels:

- Yields to remain low before rising to more "normal" levels
- Speed of yield normalisation likely to be slower in the US compared to the eurozone
- Negative real cash returns expected in most markets
- Flatter yield curves anticipated, especially at the long to ultra-long end
- Lower credit loss rate than in the past should lead to tighter credit spreads

As developed economies continue to operate with substantial slack and above-trend growth rates remain elusive, we expect core inflation pressures to remain subdued. Major central banks are therefore likely to keep policy rates low for the next two-to-three years and will, through this, sustain the continuation of the current low cash and bond yield environment. Policy rates are expected to start normalising to their equilibrium levels in 2014 to 2015 as resource utilisation finally tightens to more typical levels. *This initial period of unchanged yields is an alteration of the methodology used in generating our fixed*

income assumptions in prior years, where yields were assumed to revert back toward the equilibrium levels over a period of three years beginning immediately.

We expect the combination of an extended period of accommodative central bank policy with continued investor preference for safety in an environment of slow real growth and shorter cycles to lead to negative real cash returns in most markets.

Yield curves are likely to flatten globally, especially in the long to ultra-long end as demographics and structural factors such as the growth of liability driven investments increase demand for long duration securities. The related search for income together with a smaller quality differential between sovereign and investment grade corporate credits should lead to lower equilibrium spread levels. We believe the credit loss rate may be lower than in the past, as the adverse impact from shorter economic cycles is likely to be more than offset by improved underwriting discipline and a lower level of excess in credit markets. This should be especially supportive for high yield credit as loss rates fall below their historical average.

US rates—Low for longest

Cash and bond yields are expected to be stable for the next three years, followed by a four-year adjustment period toward the equilibrium yield of 3% for cash and 5% for US ten-year Treasuries. Cash returns are projected to be adversely impacted by the Fed's accommodative policy and the investor demand for safety, returning 2% in nominal terms and -0.75% relative to core inflation. Fixed income returns will suffer during the period when yields rise toward equilibrium levels, and we expect US ten-year Treasuries to return 2% over the forecast horizon, in line with cash.

Assumptions show the yield curve between cash and ten-year US Treasuries to be slightly steeper than in the past. This reflects a slight inflation bias and incorporates Japan's experience following an extended period of zero interest rates. We, however, expect the long end of the yield curve, between the ten-year and 30-year maturity, to flatten to 25 basis points (bps) in equilibrium due to strong structural demand in long duration bonds.

Equilibrium investment grade corporate credit spreads could fall to 125 basis points (bps), down 25bps compared to last year's forecast. As shorter economic cycles help prevent a buildup in excess credit, we expect the average default rate for high yield credit to fall from 4% to between 3% and 3.5%, lowering the expected credit loss to 200bps versus the historical average of 250bps. Continued strong investor appetite for high yield assets will lead to a small decline, from 300bps to 275bps, in the average net premium required to hold high yield bonds. In aggregate, these effects result in an equilibrium high yield spread of 475bps compared to the historical average of 550bps. The corresponding return forecasts for US investment grade corporate bonds and high yield bonds are 4% and 7%, respectively.

The eurozone—A quicker path to equilibrium

We believe that the European Central Bank (ECB) will be more sensitive to inflation and will therefore try to normalise policy earlier than the Fed. As a result, we expect rates to be anchored only for the next two years, followed by a relatively quicker normalisation period of three years. The tougher ECB policy stance also helps to maintain a positive real yield in equilibrium, with a nominal yield of 2.5% versus a headline inflation rate of 2%. For euro government bonds, focusing on the broader group of core countries including Italy and Spain, we forecast a ten-year equilibrium yield of 4.5%. This is 25bps above last year's forecast, reflecting a sustained level of credit differentiation among euro sovereign issuers. The outlook for European corporate credit is similar to that for the US, with investment grade credit spreads of 125bps and a relatively slightly wider high yield spread of 500bps, reflecting an illiquidity premium for European over US high yield bonds.

UK to normalise at US speeds, Japan at Europe's pace

For the UK, we assume that the path to normalisation will be the same as in the US, with yields initially unchanged for three years, followed by an adjustment period of four years and the equilibrium cash yield of 3.25% just ahead of headline inflation of 3%.

For Japan, the normalisation path is expected to be similar to that of the eurozone. Our thinking on the prospects for Japan has remained unchanged from last year. Domestic savings will continue to support low rates, and the cash and ten-year yields are expected to stay low at 1% and 2%, respectively.

Emerging markets—Rising rates and an evolving debt market structure

One of the main challenges in forecasting the equilibrium yields and spreads for emerging market (EM) fixed income is the potential change in the market's composition. Each issuer's choice and access to the external debt market, as well as the development of local currency markets, is even more difficult to predict than its equilibrium yield.

We expect equilibrium yields for local currency EM debt to rise, driven by higher expected EM inflation and higher real yields. Inflation expectations will be pushed higher by the continued high demand for commodities as well as the increasing tightness in EM labour markets. Real yields are also likely to rise as EM national savings rates fall toward the lower levels typically seen in developed markets over time. The potential development of the Chinese local currency bond market also creates an upward bias to the weighted equilibrium yield. Therefore, we have revised the local currency EM debt yield assumption to 7.5%, up from 6.5% last year.

For hard currency EM debt, we believe that the credit quality of the market is peaking as high quality issuers are likely to move toward the development of and issuance in their local currency markets, while new frontier markets will increase issuance of external debt. Therefore, we keep the equilibrium spread forecast at 250bps, unchanged from last year.

For hard currency EM corporate bonds, we believe the composition between investment grade and high yield issuers is broadly in equilibrium and the credit quality is likely to remain relatively unchanged. Lower quality issuers are discouraged from participating due to limited investor demand and high cost, while very high quality issuers are likely to limit their use of the USD-denominated market in favour of other cheaper sources to raise cash. This dynamic should help to maintain the current credit quality mix, leaving the expected equilibrium spread level unchanged from last year at 300bps.

Fixed Income: Selected long-term equilibrium return assumptions

GOVERNMENT—COMPOUND (IRR) TEN-15 YEAR RETURNS (LOCAL)

	Yields (%)	Returns (%)
US core inflation	2.75	
US cash	3.00	2.00
US ten-yr Treasury	5.00	2.00
US TIPS (real yield)	1.75	3.50
US municipal	4.00	2.50
European core inflation	1.75	
European cash	2.50	2.25
European ten-yr government bond	4.50	2.25
UK core inflation	2.50	
UK cash	3.25	2.25
UK ten-yr government bond	5.00	2.25
Japan core inflation	0.50	
Japan cash	1.00	0.75
Japan ten-yr JGB	2.00	1.50

CREDIT—COMPOUND (IRR) TEN-15 YEAR RETURNS (LOCAL)

	Spread (bp)	Returns (%)
US corporate bonds	125	4.00
US high yield bonds	475	7.00
European investment grade corporate bonds	125	4.50
Pan-european high yield bonds	500	7.75
Emerging market debt	250	6.00
Local sovereign EM debt	7.50%*	6.75
Corporate EM debt	300	6.50

Source: J.P. Morgan Asset Management. Estimates as at 31 October 2011. Equilibrium fixed income yields have been rounded to the nearest 25bps.

* Equilibrium yield estimate

EQUITY MARKETS

Stronger returns despite weaker economies

by Ehiwario Efeyini, *Global Markets Strategist, Institutional Asset Management*

In brief

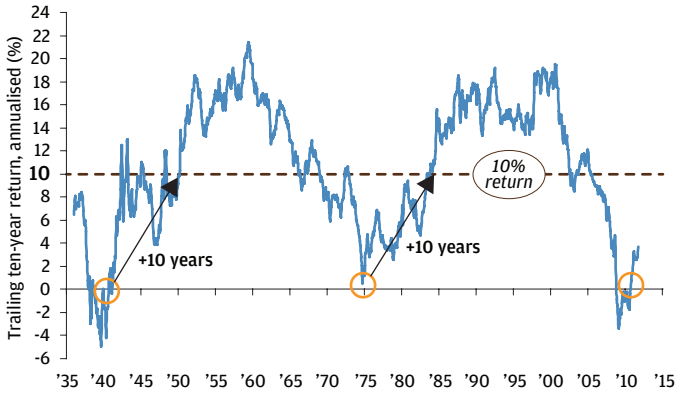
Equity market returns to remain relatively strong, despite slower economic growth and higher inflation:

- Ongoing outperformance from corporate earnings, with developed markets helped by overseas revenues
- Corporate cash balances used to fund acquisitions and higher dividend payouts
- Valuations to remain constant or rise from current levels

It has been a tough decade for equity investors. Over the last ten years, returns for developed market equities overall have been close to flat. But this lost decade for stock markets has not been unprecedented. Indeed, there have been two other distinct points in recent history at which ten-year equity returns resembled those of the previous ten years. Depression and war saw long-run returns flatline in the early 1940s, while expanding government deficits, rampant inflation and a shift in the global exchange rate regime led to the poor performance of the mid 1970s. However, after both episodes, equities subsequently rebounded, returning around 10% (annualised) over the following decade (**Exhibit 1**). Despite today's economic uncertainties, we would expect a return to more normal equity market performance over the next ten- to 15-year assumption horizon.

We expect a period of more normal equity returns over the next ten-15 years

EXHIBIT 1: US LARGE CAP TOTAL RETURN



Source: Ibbotson, J.P. Morgan. Data as at 2011.

Crucial to our assessment is a clear distinction between *economic* performance and *market* performance. While we are less optimistic on the economic outlook, there are three key reasons why we expect equity market returns to remain relatively strong.

1. Foreign-sourced earnings

Despite lower GDP growth expectations, we look for ongoing outperformance from corporate earnings. Decades of liberalisation in goods, labour and capital markets have given corporations a greater global reach, and we expect western multinational companies to continue to expand production lines and sales in foreign markets. This should allow real earnings growth to outstrip real GDP growth across the developed world, with those countries having the largest exposure to fast-growing emerging markets likely to see the greatest divergence between the domestic economy and domestic markets. In particular, European and Japanese earnings should see the greatest benefit relative to their slow-growing domestic economies. Both Europe and Japan source a greater share of their total revenues from the emerging world than does the US (**Exhibit 2**). Japan is helped by the large share of exporters with high exposures to emerging Asia, while Europe—even as its debt crisis continues—has historically shown very little correlation between long-run growth in GDP and long-run growth in corporate earnings (**Exhibit 3**).

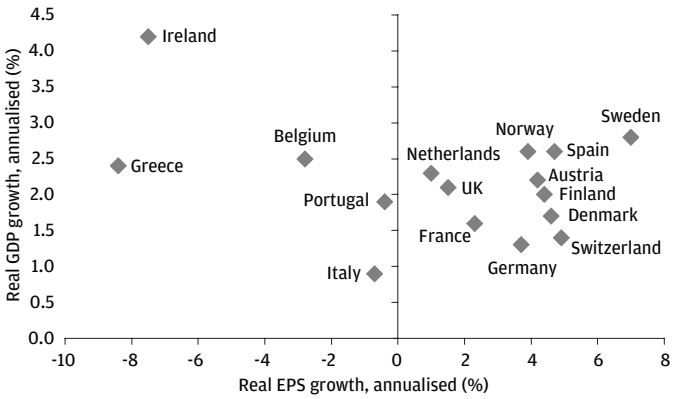
EXHIBIT 2: CORPORATE REVENUE EXPOSURES BY COUNTRY—SHARE OF TOTAL REVENUE

Country	Emerging share (%)	Developed share (%)
Spain	24	76
Netherlands	20	80
Europe	**16**	**84**
Germany	16	84
Switzerland	14	86
Italy	14	85
France	13	87
Japan	**12**	**89**
US	**8**	**92**

Source: HSBC, Thomson Reuters, Datastream, MSCI, J.P. Morgan.

History shows little correlation between long-run GDP growth and long-run EPS growth in Europe

EXHIBIT 3: REAL GDP GROWTH VERSUS REAL EPS GROWTH



Source: State Street, Bloomberg, J.P. Morgan. Data from 1990 to 2011.

2. Shareholder-friendly activity

Implied in our expectation for ongoing deleveraging, slow growth and persistently high unemployment is that the corporate sector will remain reluctant to expand organically, particularly through additional hiring. With corporate cash balances and earnings at all-time highs, this suggests to us that companies will have to put their capital to use in other ways. In particular, we look for a future pickup in dividend payouts and acquisitions, especially given that both have so far lagged the recovery in earnings and cash flow (**Exhibits 4A-4D**). The expected rise in payouts is reflected in a higher contribution from dividend yields over the assumption horizon across the major large-cap markets, while we would expect the bulk

Dividend payouts and acquisitions have room to rise from current levels

EXHIBIT 4A: S&P 500 NET INCOME

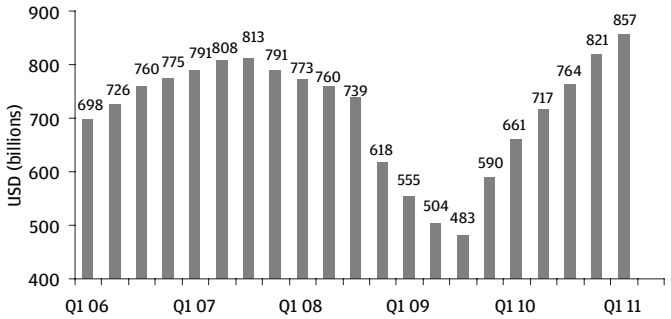


EXHIBIT 4B: S&P 500 FREE CASH FLOW

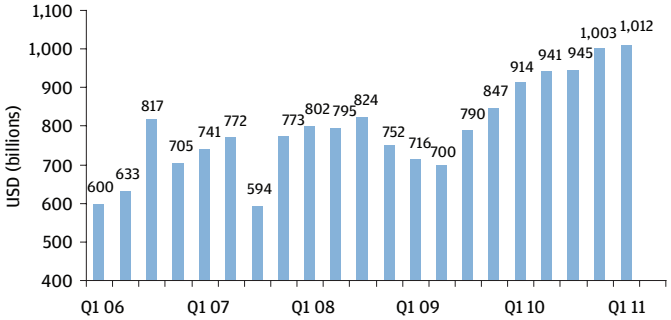


EXHIBIT 4C: DIVIDENDS

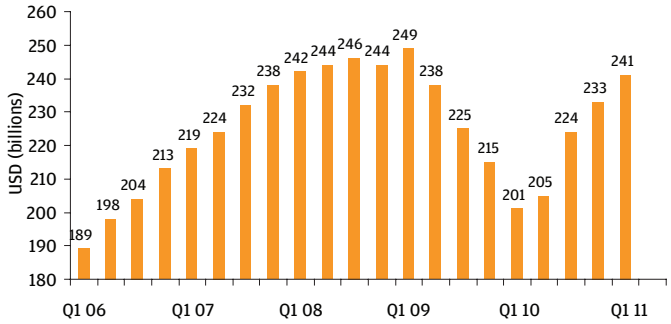
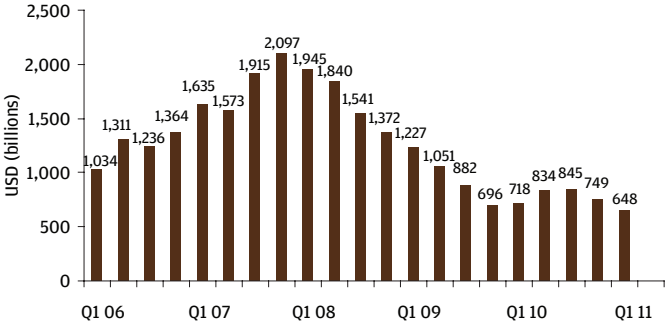


EXHIBIT 4D: M&A ACTIVITY



Source: FactSet, Bloomberg, J.P. Morgan. Data as at first quarter 2011.

of new acquisition activity to be directed toward mid-sized companies. We therefore also look for higher relative returns to mid-cap equity.

3. Flat to slightly higher valuations

Despite our expectation for a deterioration in the economic environment in the developed world (greater uncertainty, slower growth and higher inflation), we are assuming that valuations either remain constant or rise from current levels. Equity valuations have compressed over the past year and currently stand below their long-term averages. Measured against a 40-year trailing mean, current P/E ratios are 15% lower in the US, 30% lower in Europe and 16% lower in the UK. For the US and UK, we assume a flat contribution from valuation changes. The more dovish approach expected from the Federal Reserve and the Bank of England gives our inflation assumptions an upward bias (historically a headwind for valuations) in these markets, while current valuations are not significantly below their long-run averages (each around 0.4 standard deviations). For Europe, we look for a small positive contribution from valuation. A relatively hawkish European Central Bank is expected to keep inflation low (we are assuming no change from last year's expectation of 2.00%), while Europe's P/E ratio is around 0.8 standard deviations below its long-term average.

Other equity assumptions

Our expectations for prolonged deleveraging, continued banking sector headwinds and an extended period of near-zero interest rates in the developed markets also have implications for some other key equity assumptions:

A shift in style preference

Historically, we have favored value stocks over growth stocks, putting each at a respective 25bps return premium and discount to standard large-cap equity. However, for two main reasons, we are switching our style preference. First, we believe that sector concentrations point in favour of growth.

Sector weightings and foreign-sourced revenues favor growth stocks

EXHIBIT 5A: SECTOR WEIGHTINGS BY STYLE

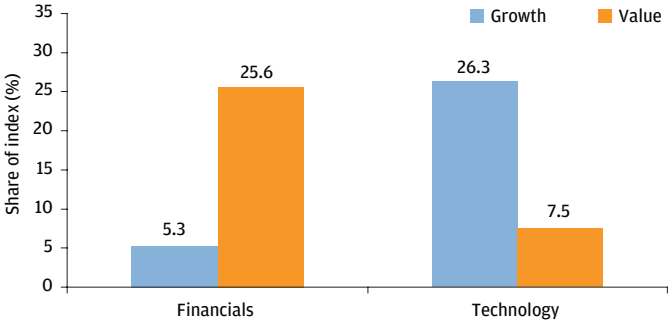
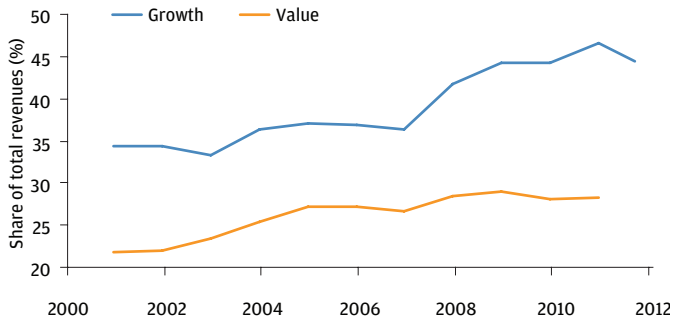


EXHIBIT 5B: FOREIGN-SOURCED REVENUES BY STYLE



Source: Russell Investment Group, FactSet, Standard & Poor's, J.P. Morgan as at 30 September 2011. Growth is represented by the Russell 1000 Growth Index. Value is represented by the Russell 1000 Value Index.

The largest sectors in value and growth are, respectively, financials and technology—each accounts for around 25% of the index as a whole. The share of these two sectors in the other style category is, however, small—financials are just over 5% of growth and technology is around 7.5% of value (**Exhibit 5A**). We see a very different outlook for each of these key sectors. Technology should reap significant benefits from an ongoing corporate focus on productivity and continuing strength in innovation in the face of slow economic growth. Meanwhile, returns for financials are likely to be constrained by persistent deleveraging in the private sector and a tougher regulatory environment (including stricter capital requirements). Second, the share of corporate sales derived from abroad will be particularly important for returns as domestic economic activity remains weak. At around 45% and rising (**Exhibit 5B**), foreign-sourced revenue makes up a significantly higher share of total sales in the growth index than in the value index.

Emerging market outperformance

We are also increasing our expected return premium for emerging relative to developed markets from 125bps to 200bps. This differential—though higher than in past years' assumptions—remains consistent with the last 15 years of delivered performance in emerging markets relative to developed. While we still believe that global markets are highly coupled (ie, they move in the same direction, and emerging equities would fall along with developed if developed economies were to enter another recession), emerging market stocks are likely to enjoy a greater margin of outperformance due to their lack of structural problems and stronger fundamentals: lower government deficits, lower debt ratios in both the public and private sectors, higher currency reserves and healthy banks. In addition, emerging economy policymakers have much more room to offer policy support (both monetary and fiscal) than their developed economy

Portfolio inflows a likely source of future support for emerging markets

EXHIBIT 6A: EQUITY MARKET VALUATIONS

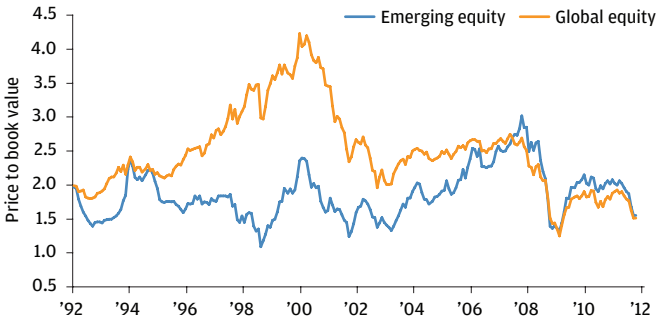
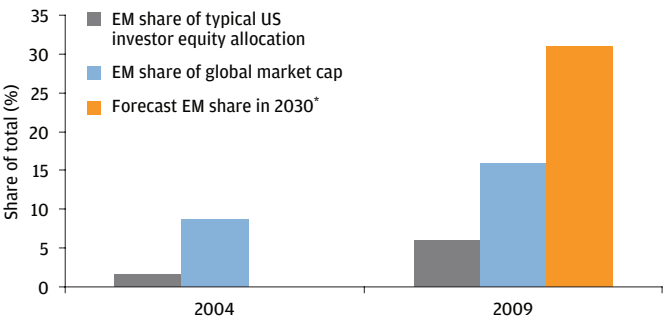


EXHIBIT 6B: EQUITY MARKET SHARES



Source: FactSet, Goldman Sachs, J.P. Morgan. Data as at October 2011.

* Goldman Sachs forecast as at 2011.

counterparts in the event of another downturn: while policy rates are close to zero in the developed world, for example, emerging market rates are just under 6% in aggregate. And given an extended period of near-zero interest rates in the developed economies, we would also expect emerging markets to be further boosted by faster portfolio inflows, especially given reasonable relative valuations and investor allocations well below market capitalisation weightings (**Exhibits 6A-6B**).

Equity: Selected long-term return assumptions

COMPOUND (IRR) TEN–15 YEAR RETURNS

	(%)
UK core inflation (local)	2.50
UK real GDP (local)	1.75
UK large cap (local)	8.25
UK small cap (local)	8.50
EUR core inflation (local)	1.73
EUR real GDP (local)	1.25
EUR ex-UK large cap (local)	8.25
EUR ex-UK small cap (local)	8.50
US core inflation (local)	2.75
US real GDP (local)	2.25
US large cap (local)	8.00
US small cap (local)	8.50
EAFE (USD)	**7.75**
Japan (local)	5.50
Canada (local)	8.50
Emerging markets (USD)	**10.00**

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

ALTERNATIVE STRATEGY CLASSES

Composite assumptions understate top manager returns

by Anthony Werley, *Chief Strategist, Endowments & Foundations Group*

In brief

Return assumptions for alternative strategy classes reflect the core beta components of each strategy's composite returns and our long-term assumptions for those components. Alternative strategy classes and their associated drivers of return include:

- Hedge funds—traditional asset class returns, varying by hedge fund strategy
- Private equity—mid-cap public equity returns
- Commodities—global nominal GDP growth and inflation; and additionally for gold, emerging market equity returns and the value of the US dollar
- Real estate—economic growth, inflation and valuation dynamics, bounded by fixed income and equity returns

In addition to these core beta assumptions, it is important to consider manager dispersion when making an allocation commitment to an alternative strategy.

This year our capital market assumptions exercise draws a sharper distinction between traditional asset class and alternative strategy class projections than in the past. While

there is a meaningful component of beta in most alternative approaches, these strategies are employed primarily for their alpha potential. The dispersion of manager returns is significantly wider in the alternative strategies than in traditional asset classes, reflecting the ability of skilled managers to add alpha through an enhanced investment tool box. Alternative strategies' performance data represents a composite of active manager data (ie, it includes beta and alpha) and as such, there is no precise, return to risk replicable benchmark like that for traditional asset classes.

As in past years, the 2012 strategy class composite assumptions represent the core beta component of the composites' returns. However, in recognition of the potential value added of employing alternative strategies, some perspective around alpha or manager dispersion needs to be considered in making an allocation commitment—particularly in the case of hedge fund and private equity commitments. To that purpose, in addition to the composite assumptions for these alternative strategy classes, we have provided the historical manager dispersion—observed over a time frame in which the level of return was similar to that of our forward-looking assumptions.

Absolute return/hedge funds

Identifying "core" beta

We employ a factor approach to determining the core beta exposure each composite hedge fund series exhibits. The factor approach utilises a regression-based quantitative methodology that seeks to find the best fit of a composite's return versus a representative sample of traditional market factors. The factor approach has delivered a consistently high level of explanatory benefit with regard to a hedge fund composite's market risk or beta exposures. These market risk exposures are multiplied by the traditional long-term market return assumptions. The output of this approach is a composite expected long-term equilibrium beta return projection.

Other methodological considerations shaping our long-term assumptions include:

- Hedge fund categories are defined by HFRI Index definitions.
- Our analysis is based on HFRI historical manager data.
- The Fisher-Geltner-Webb[1] methodology is used for unsmoothing manager returns (see the following section on adjusting risk measures for serial correlation).
- We apply 90% Winsorisation[2] for outlier data clean-up and historical return calculations.

Private equity

The private equity return assumption reflects our conviction that an accurate estimation of average financial sponsor returns would be essentially flat to the public markets over extended periods of time. Specifically, we use our mid-cap public equity return assumption, since the mid-cap space has historically been the capitalisation playing field for the largest percentage of assets dedicated to private equity. In the absence of reliable data for calculating private equity risk, volatility is calculated using the premise that debt levels are a reasonable proxy for the risk assumed within a financial sponsor framework. Assuming the average financial sponsor takes on a debt burden 40% higher than that of the mid-cap universe, volatility would be represented at a 40% premium to public mid-cap equity volatility.

Private equity represents the clearest case for the necessity of achieving a return premium to the average return expectation in the assumptions. Compensation for debt burden levels, illiquidity and other idiosyncratic risks taken necessitate a return well in excess of public markets. Private equity return dispersion across the private equity composite is the widest of all core asset and strategy classes, reflecting the unique strategy risks and capabilities (**Exhibit 1**).

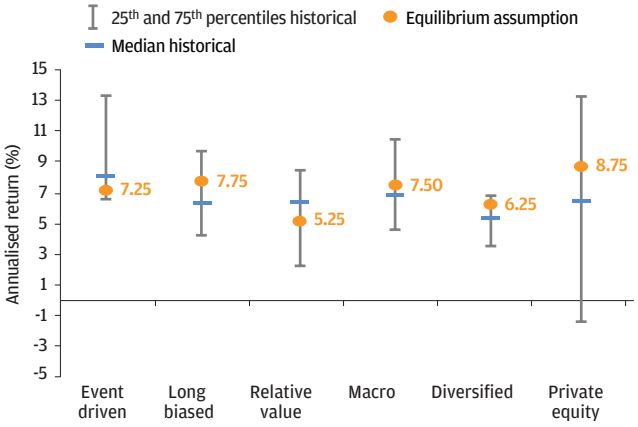
Commodities

We have assessed global nominal GDP growth (real GDP plus a price deflator) to be the best predictor of long-term commodity spot price change over a strategic time frame. Over the past 15-year period, global growth has been driven increasingly by

[1] J.D. Fisher, 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.

[2] Winsorisation, named for the engineer John P. Winsor, is a process for transforming data for the purpose of removing the impact of potentially spurious outliers on statistical results.

EXHIBIT 1: MANAGER ALPHA AND DISPERSION



Source: Forward-looking hedge fund assumptions are J.P. Morgan estimates and based on methodologies discussed. Hedge fund manager returns are taken from Pertrac and internal J.P. Morgan databases. Historical range is given at 25th, 50th and 75th percentiles using annualised return from September 2004 to August 2011, with the exception of private equity data. Private equity historical manager returns are taken from Thomson Venture Economics data. For detailed methodology, please see below.

Given the complex risk-reward tradeoff in these assets, we counsel clients to rely on judgment rather than quantitative optimisation approaches in setting strategic allocations to these asset class strategies.

Data and calculation for private equity dispersion: For the historical private equity dispersion, Thomson Venture Economics is used for the Ten-Year Pooled Horizon Return data, broken down by quartiles. Private equity forward-looking return is based on the revised *J.P. Morgan Long-Term Capital Market Return Assumptions* for 2012.

Underlying Thomson Venture Economics Methodology: Thomson Venture Economics Private Equity Ten-Year Pooled Horizon return is calculated by pooling all cash flows from a sample of funds over a ten-year time period, along with the sample's net asset value at the beginning and ending points of the calculation. Based on this pooled series of cash flows, the Pooled IRR is calculated. When reporting the Ten-Year Pooled Horizon return by quartile, a fund's quartile position would be based on where the fund's cumulative IRR falls compared to funds with similar primary market, vintage year, and fund stage focus. Cash flows of funds with similar quartiles would be pooled together to find the Ten-Year Pooled Horizon return by quartile.

emerging versus developed economy activity, with emerging economies accounting for roughly 25% of global nominal GDP. We expect this trend to continue, with emerging markets increasing their share of global nominal GDP to roughly 50% over the next strategic 15-year time frame. As a result, despite the substantial rise in commodities over the past decade, we see commodity prices continuing to show gains in excess of inflation over the next 15 years.

Gold has claimed an important foothold in the portfolios of investors—from individuals to institutions, including hedge funds and central banks. Thus, it has earned inclusion in our capital markets process. Gold is not an asset class but does possess advantages as a store of value and has unique correlations versus public equities and the US dollar. Our return methodology is a function of gold's relationship to global inflation expectations and global growth. We found that the price of gold is positively correlated to emerging market equity returns and inflation and negatively correlated to the dollar. These three factors together provide a parsimonious model that captures the impact of global demand as well as the "flight to safety" aspect of gold associated with rising inflation or a declining dollar.

Real assets

Real estate return estimations are typically bounded by the outlook for equity and fixed income returns, as core real estate has, over cycles, typically generated returns between those for bonds and equities. Over time, we have also noted that core real estate returns in major developed markets are highly correlated to nominal GDP, so economic growth and inflation expectations are also key variables to consider. Finally, when moving out on the risk curve to value-added and opportunistic strategies, levels of leverage and the accrual of value through operational improvements are drivers of returns that should outpace core real estate returns over longer holding periods. The current approximate IRR of 7% for US core/plus property seems fair value in light of the return to risk opportunities of equity and fixed income—not surprising given the level of investor interest in core/plus during 2010 to 2011. With investors still relatively risk averse, valuations for value-added and opportunistic strategies have likely lagged core. The combination of this valuation lag and expected return premia, from both higher levels of leverage and the ability to create value at the property level, results in the potential for attractive relative returns for these strategies.

As a direct reflection of its lower historical volatility, European real estate did not suffer as great a drop in 2008 to 2009 or as strong a rebound since, as local investors tend to be very committed to local property investment, supporting values on the downside. Additionally, long-term cash flow and, therefore, value appreciation should be limited by weak expectations for European economic fundamentals and inflation.

US REITs

US REITs appear to be close to fair value versus core. Higher leverage should thus result in a return premium over time. Real estate markets in the rest of the world have lagged the US, suggesting that returns from a global allocation should outperform.

Infrastructure

Infrastructure returns reflect the exposure to stable sectors, such as regulated utilities and energy pipelines, as well as the need to attract capital by compensating investors for long-term commitments.

Alternative strategies: Selected long-term return assumptions

US DOLLAR-BASED COMPOUND (IRR) TEN-15 YEAR RETURNS

	(%)
PRIVATE EQUITY	8.75
HEDGE FUNDS	
Event driven	7.25
Long bias	7.75
Relative value	5.25
Macro	7.50
Diversified	6.25

Source: J.P. Morgan Asset Management. Estimates as at 31 October 2011.

Note: Private equity strategies are unlike traditional asset classes in that there is no underlying investible index. The return estimates shown above are equal to our estimates of mid-cap equity returns.

Given their complex risk-reward tradeoffs, we counsel clients to rely on judgment rather than quantitative optimisation approaches in setting strategic allocations to these alternative asset strategies.

Real assets: Selected long-term return assumptions

US DOLLAR-BASED COMPOUND (IRR) TEN-15 YEAR RETURNS

	(%)
REAL ESTATE/INFRASTRUCTURE	
REITs	7.00
US direct real estate (unlevered)	6.75
US value added real estate	8.00
European direct real estate (unlevered)	6.25
Global infrastructure	7.75
COMMODITIES (SPOT)	6.50
Gold (spot)	6.75

Source: J.P. Morgan Asset Management. Estimates as at 31 October 2011.

J.P. MORGAN ASSET MANAGEMENT LONG-TERM CAPITAL MARKET RETURN ASSUMPTIONS

	Expected ten–15 year annualised compound returns - local currency (%)[1,2]		Rationale
UK ECONOMIC INDICATORS	Inflation	3.00	High unemployment and deleveraging of the public and private sectors to keep inflation low overall, while aggressive reflationary central bank policy and rising import prices risk higher inflation over the medium-to-longer term. Strong growth in the emerging economies should drive commodity prices higher, causing headline inflation to outstrip core.
	Core Inflation	2.50	
	Real GDP	1.75	A prolonged period of deleveraging in the public and private sectors and a slower rate of increase in the labour force to constrain economic growth.
FIXED	UK Cash	2.25	The Bank of England to keep policy rates on hold for an extended period and raise them only gradually thereafter. Real rates to remain close to zero on average.
	UK Gilt	2.00	Absolute yields to stay low in the near term, rising towards higher equilibrium nominal levels as monetary policy is eventually normalised. Real total returns negative due to both low income return and capital losses as rates rise.
	European Government Bond	3.50	Absolute yields in the stronger eurozone member states to stay low in the near term, rising towards higher equilibrium nominal levels as monetary policy is eventually normalised. Uncertainty over fiscal sustainability in weaker countries to persist, but aggregate long-run total returns expected to outpace other major developed markets as European Union policymakers ultimately manage to contain the crisis.
	European Aggregate Bond	3.75	Spreads are expected to narrow, but total returns are expected to be constrained as absolute yields rise due to higher aggregate rates on government bonds.
	European Investment Grade Corporate	4.50	
	European High Yield	7.75	Returns to be boosted by lower absolute yields as spread tightening more than offsets higher yields on government bonds. Haircut applied to total returns for expected defaults.
	US Intermediate Treasury[3]	1.75	Absolute yields to stay low in the near term, rising towards higher equilibrium nominal levels as monetary policy is eventually normalised. Real total returns negative due to both low income return and capital losses as rates rise.
	US Aggregate	3.00	Spreads are expected to narrow, but total returns will be constrained as overall yields rise with Treasury rates.
	US Short Duration Government/Credit	2.25	
	US Investment Grade Corporate	4.00	
	US High Yield	7.00	Limited capital losses are expected as spreads narrow significantly to offset projected rise in Treasury rates. Income is expected to be the major driver of return. Haircut applied to total returns for expected defaults.
	US Leveraged Loans	6.00	
	World Government Bond (GBP)	2.75	Government bond yields to rise globally from current levels leading to capital losses as rates converge to equilibrium.
	World ex-UK Government Bond (GBP)	2.75	
	Emerging Market Sovereign Debt	6.00	Spreads are expected to narrow, but total returns will be constrained as overall yields rise with US Treasury rates.
	Emerging Market Local Currency Sovereign Debt	6.75	Yields are expected to rise as inflation and real rates in emerging economies increase over time. Total returns will be largely driven by income.
	Emerging Market Corporate Debt	6.50	Spreads are expected to narrow, but total returns will be constrained as overall yields rise with US Treasury rates.
EQUITY[2]	UK Large Cap Equity	8.25	Returns are expected to equal the sum of nominal EPS growth + dividend yield + P/E return impact. Total returns are expected to recover over the long term as the corporate sector outperforms the domestic economy.
		4.50	Corporate earnings growth is expected to exceed nominal GDP growth as companies maintain cost discipline and revenues benefit from fast-growing overseas markets.
	UK Large Cap Dividend Yield	3.75	Dividend yields are expected to rise as companies favour payouts over new investment given higher uncertainty over the economic outlook.
	UK Large Cap P/E Return Impact	zero	Valuation multiples to remain below long-term historical averages given persistent deleveraging pressures and higher expected inflation.
	UK Small Cap	8.50	Small premium to large cap assumed. Sluggish domestic demand to restrain return advantage.
	Europe ex-UK Large Cap Equity	8.25	European corporate earnings premium to nominal GDP expected given relatively large share of emerging market sourced revenues. Valuations to improve from depressed levels as a resolution to the debt crisis is ultimately reached. Moderate rise in dividend yields expected.
	Europe ex-UK Small Cap	8.50	Small premium to large cap assumed. Tighter credit availability and sluggish domestic demand to restrain return advantage.
	US Large Cap	8.00	US earnings growth expected to exceed nominal GDP growth as companies maintain cost discipline and revenues benefit from fast-growing overseas markets. Dividend yields are expected to rise as companies favour payouts over new investment given higher uncertainty over the economic outlook. Valuation multiples to remain below long-term historical averages given persistent deleveraging pressures and higher expected inflation.
	US Mid Cap	8.75	Premium to large cap assumed for both. Mid-cap companies in particular are likely to benefit from acquisition activity by larger firms, especially given significant cash build-up on large-cap corporate balance sheets.
	US Small Cap	8.50	
	US Large Cap Value	7.75	Growth is expected to outperform value given more favourable sector concentrations and a higher share of revenues sourced from overseas markets.
	US Large Cap Growth	8.25	
	Japanese Equity	5.50	Japanese earnings to outperform the domestic economy given exposure to fast-growing overseas markets. Japan to remain a global underperformer given its demographic challenges and ongoing battle with deflation.
	EAFE Equity	7.50	Market capitalisation weighted average of expectations for regional equity returns.
	Emerging Market Equity	10.00	Healthier economic fundamentals, more favourable demographics and more policy flexibility to support long-term emerging market growth. Capital inflows expected to support equity returns, particularly given low current investor allocations.
	Asia ex-Japan	10.00	Headwinds from higher imported commodity prices are expected to be offset by stronger underlying economic growth than in other emerging regions.
	Global Equity	8.25	Market capitalisation weighted average of expectations for regional equity returns.
ALTERNATIVE/OTHER[2]	European Direct Real Estate (unlevered)[4,5]	6.50	European real estate to lag the US given less room for price appreciation after shallower downturn and earlier recovery.
	US Direct Real Estate (unlevered)[4,5]	6.75	Returns typically between stocks and bonds. Some boost from valuation still assumed, but a larger discount to equities is expected given the recent period of sustained outperformance.
	Global Infrastructure (GBP)[4,5]	8.00	Exposure to government-regulated sectors to limit return downside. Returns boosted by leverage, modest exposure to fast-growing emerging markets and likely increase in privatisations.
	Hedge Fund - Diversified (GBP)[4,5]	6.50	Expected hedge fund returns based on multi-variate regressions to public markets. Blend of emerging market, commodities, small cap and US investment grade bond betas the main driver of median manager expected return. Sizeable divergences expected between managers.
	Hedge Fund - Event Driven (GBP)[4,5]	7.50	Blend of emerging market, commodities, mid cap, small cap, EAFE, US high yield, and cash betas are the main driver of median manager expected return. Sizeable divergences are expected between managers.
	Hedge Fund - Long Bias (GBP)[4,5]	8.00	Blend of commodities, Asia, and small-cap betas will be the main driver of median manager expected return. Sizeable divergences expected between managers.
	Hedge Fund - Relative Value (GBP)[4,5]	5.50	Blend of emerging market, commodities, US high yield and investment grade bond betas will be the main driver of median manager expected return. Sizeable divergences expected between managers.
	Hedge Fund - Macro (GBP)[4,5]	7.75	Blend of commodities and cash betas will be the main driver of median manager expected return. Sizeable divergences expected between managers.
	Commodities (GBP)[4]	6.75	Expected return based on expectation for global nominal GDP growth, with the majority of demand growth coming from the emerging economies.
	Gold (GBP)	7.00	Expected return based on historical relationship with inflation expectations, the US dollar and emerging markets.

[1] Return estimates are on a compound or internal rate of return (IRR) basis. Equivalent arithmetic averages, as well as further information, are shown on the following page.
[2] All asset class assumptions are in total return terms, including equity return assumptions. All returns are in local currency terms unless otherwise indicated.
[3] US Intermediate Treasury returns based on Barclays Capital US Treasury: 7-10 Year Index.
[4] Private equity, hedge funds, real estate, infrastructure and commodities are unlike other asset categories shown above in that there is no underlying investible index. Hedge fund returns are shown net of manager fees.
[5] The return estimates shown for these asset classes and strategies are our estimates of industry medians—the dispersion of returns among managers in these asset classes and strategies is typically far wider than for traditional asset classes.

See additional notes on the following pages.

J.P. MORGAN ASSET MANAGEMENT LONG-TERM CAPITAL MARKET RETURN ASSUMPTIONS

Correlation Matrix*

		Expected annualised volatility (%)[2]	Expected compound return - GBP (%)[2]	Expected arithmetic return (%)[2]	UK Inflation	UK Cash	UK Gilt	European Government Bond (hedged)	European Aggregate Bond (hedged)	European Inv Grade Corporate (hedged)	European High Yield	US Intermediate Treasury (hedged)	US Aggregate Bond (hedged)	US Short Duration Gov't/Credit (hedged)	US Inv Grade Corporate (hedged)	US High Yield	US Leveraged Loan	World Government Bond (hedged)	World Government Bond	World ex-UK Government Bond (hedged)	World ex-UK Government Bond	Emerging Markets Sovereign Debt	Emerging Markets Local Currency Debt	Emerging Markets Corporate Bond	UK Large Cap	UK Small Cap	Europe ex-UK Large Cap	Europe ex-UK Small Cap	European Large Cap	European Small Cap	US Large Cap	US Large Cap Value	US Large Cap Growth	US Mid Cap	US Small Cap	Japanese Equity	Asia ex-Japan Equity	Emerging Markets Equity	AC World Equity	AC World ex-UK Equity	Developed World Equity	European Direct Real Estate	US Direct Real Estate	US Value Added Real Estate	European REITs	US REITs	Hedge Fund - Diversified (hedged)	Hedge Fund - Event Driven (hedged)	Hedge Fund - Long Bias (hedged)	Hedge Fund - Relative Value (hedged)	Hedge Fund - Macro (hedged)	Private Equity	Mezzanine Debt	Global Infrastructure	Commodities	Gold
	UK Inflation	3.01	3.00	1.50	1.00																																																				
FIXED INCOME	UK Cash	2.25	2.25	0.50	-0.28	1.00																																																		
FIXED INCOME	UK Gilt	2.15	2.00	5.50	-0.09	0.10	1.00																																																	
FIXED INCOME	European Government Bond (hedged)	3.57	3.50	3.75	-0.17	0.23	0.69	1.00																																																
FIXED INCOME	European Aggregate Bond (hedged)	3.80	3.75	3.25	-0.18	0.17	0.68	0.94	1.00																																															
FIXED INCOME	European Inv Grade Corporate (hedged)	4.59	4.50	4.25	-0.14	-0.03	0.35	0.52	0.67	1.00																																														
FIXED INCOME	European High Yield	9.41	7.75	19.25	-0.05	-0.07	0.04	-0.05	0.04	0.38	1.00																																													
FIXED INCOME	US Intermediate Treasury[3] (hedged)	2.26	2.00	7.25	-0.11	0.13	0.76	0.74	0.72	0.34	-0.04	1.00																																													
FIXED INCOME	US Aggregate Bond (hedged)	3.32	3.25	3.75	-0.13	0.06	0.67	0.68	0.73	0.58	0.22	0.88	1.00																																												
FIXED INCOME	US Short Duration Gov't/Credit (hedged)	2.51	2.50	1.50	-0.24	0.29	0.48	0.60	0.65	0.50	0.10	0.76	0.80	1.00																																										
FIXED INCOME	US Inv Grade Corporate (hedged)	4.55	4.25	8.00	-0.14	-0.03	0.46	0.44	0.57	0.77	0.49	0.59	0.83	0.63	1.00																																									
FIXED INCOME	US High Yield	7.88	7.25	11.75	-0.10	-0.13	-0.04	-0.12	-0.06	0.18	0.59	-0.15	0.06	-0.12	0.28	1.00																																								
FIXED INCOME	US Leveraged Loan	6.67	6.25	9.50	0.02	-0.14	-0.15	-0.18	-0.15	0.00	0.24	-0.29	-0.18	-0.30	-0.01	0.82	1.00																																								
FIXED INCOME	World Government Bond (hedged)	2.81	2.75	3.50	-0.11	0.21	0.80	0.89	0.87	0.46	-0.07	0.88	0.81	0.71	0.54	-0.19	-0.29	1.00																																								
FIXED INCOME	World Government Bond	3.18	2.75	9.50	-0.21	0.26	0.60	0.53	0.46	0.04	0.15	0.58	0.44	0.41	0.24	0.26	0.16	0.58	1.00																																							
FIXED INCOME	World ex-UK Government Bond (hedged)	2.81	2.75	3.50	-0.11	0.21	0.78	0.89	0.88	0.46	-0.08	0.89	0.80	0.72	0.54	-0.20	-0.30	0.95	0.57	1.00																																							
FIXED INCOME	World ex-UK Government Bond	3.21	2.75	9.75	-0.22	0.27	0.58	0.52	0.45	0.03	0.15	0.57	0.43	0.40	0.23	0.27	0.17	0.57	0.96	0.56	1.00																																						
FIXED INCOME	Emerging Markets Sovereign Debt	6.89	6.25	11.75	-0.16	0.05	0.29	0.24	0.25	0.19	0.44	0.26	0.36	0.15	0.39	0.77	0.61	0.23	0.58	0.22	0.58	1.00																																						
FIXED INCOME	Emerging Markets Local Currency Debt	7.64	7.00	11.75	-0.18	0.14	0.21	0.15	0.16	0.18	0.55	0.14	0.25	0.12	0.34	0.63	0.35	0.12	0.49	0.11	0.50	0.74	1.00																																						
FIXED INCOME	Emerging Markets Corporate Bond	7.24	6.75	10.25	-0.17	0.04	0.29	0.26	0.29	0.29	0.42	0.29	0.40	0.19	0.47	0.77	0.68	0.24	0.51	0.23	0.51	0.89	0.67	1.00																																						
EQUITY	UK Large Cap	9.27	8.25	15.00	0.14	-0.15	-0.20	-0.27	-0.19	0.22	0.68	-0.34	-0.10	-0.24	0.22	0.54	0.35	-0.33	-0.09	-0.34	-0.09	0.40	0.52	0.33	1.00																																						
EQUITY	UK Small Cap	11.42	8.50	26.00	0.01	-0.14	-0.11	-0.18	-0.10	0.28	0.58	-0.27	-0.05	-0.19	0.27	0.55	0.37	-0.24	-0.09	-0.25	-0.08	0.40	0.48	0.39	0.83	1.00																																						
EQUITY	Europe ex-UK Large Cap	10.07	8.25	20.25	0.03	-0.06	-0.12	-0.24	-0.20	0.13	0.74	-0.28	-0.07	-0.19	0.21	0.55	0.28	-0.28	0.05	-0.29	0.06	0.43	0.62	0.33	0.92	0.80	1.00																																					
EQUITY	Europe ex-UK Small Cap	11.68	8.50	27.25	-0.01	-0.07	-0.09	-0.20	-0.14	0.20	0.77	-0.24	-0.02	-0.13	0.27	0.56	0.30	-0.24	0.06	-0.25	0.06	0.44	0.62	0.37	0.89	0.86	0.92	1.00																																					
EQUITY	European Large Cap	9.74	8.25	18.25	0.06	-0.09	-0.14	-0.25	-0.19	0.16	0.74	-0.29	-0.08	-0.20	0.22	0.56	0.31	-0.29	0.02	-0.30	0.02	0.43	0.61	0.34	0.93	0.82	0.95	0.93	1.00																																					
EQUITY	European Small Cap	11.52	8.50	26.50	0.00	-0.09	-0.09	-0.19	-0.13	0.23	0.73	-0.25	-0.03	-0.16	0.27	0.58	0.33	-0.24	0.02	-0.25	0.02	0.44	0.60	0.39	0.89	0.90	0.91	0.95	0.92	1.00																																				
EQUITY	US Large Cap	9.44	8.25	16.25	0.03	-0.12	-0.14	-0.24	-0.22	0.02	0.59	-0.30	-0.16	-0.31	0.08	0.71	0.54	-0.31	0.14	-0.32	0.15	0.58	0.65	0.50	0.83	0.73	0.85	0.80	0.86	0.80	1.00																																			
EQUITY	US Large Cap Value	9.23	8.00	16.50	0.05	-0.12	-0.11	-0.20	-0.18	0.07	0.60	-0.28	-0.12	-0.27	0.11	0.69	0.51	-0.27	0.15	-0.28	0.16	0.57	0.66	0.49	0.84	0.72	0.87	0.80	0.87	0.81	0.96	1.00																																	
EQUITY	US Large Cap Growth	9.79	8.50	17.00	0.01	-0.13	-0.18	-0.29	-0.26	0.00	0.57	-0.33	-0.18	-0.33	0.06	0.72	0.58	-0.36	0.11	-0.37	0.12	0.57	0.61	0.52	0.81	0.71	0.82	0.77	0.83	0.77	0.95	0.93	1.00																																
EQUITY	US Mid Cap	10.52	9.00	18.50	0.03	-0.15	-0.16	-0.26	-0.22	0.09	0.62	-0.32	-0.13	-0.29	0.14	0.74	0.57	-0.33	0.08	-0.34	0.09	0.57	0.64	0.53	0.83	0.77	0.84	0.82	0.85	0.83	0.93	0.94	0.93	1.00																															
EQUITY	US Small Cap	10.73	8.75	21.25	0.04	-0.13	-0.17	-0.28	-0.25	0.04	0.56	-0.34	-0.18	-0.32	0.07	0.68	0.51	-0.34	0.06	-0.34	0.07	0.49	0.60	0.44	0.76	0.74	0.80	0.78	0.81	0.79	0.89	0.91	0.88	0.94	1.00																													
EQUITY	Japanese Equity	8.35	7.00	17.25	-0.02	-0.01	0.02	-0.05	-0.02	0.16	0.40	-0.08	0.05	-0.07	0.25	0.53	0.41	-0.12	0.24	-0.13	0.24	0.45	0.49	0.45	0.51	0.52	0.53	0.52	0.53	0.54	0.55	0.56	0.52	0.58	0.54	1.00																											
EQUITY	Asia ex-Japan Equity	12.30	10.25	21.75	-0.12	-0.05	-0.13	-0.21	-0.16	0.16	0.61	-0.27	-0.07	-0.19	0.21	0.57	0.36	-0.29	-0.02	-0.30	-0.02	0.43	0.61	0.39	0.76	0.72	0.78	0.81	0.78	0.80	0.74	0.73	0.74	0.78	0.73	0.53	1.00																										
EQUITY	Emerging Markets Equity	12.39	10.25	22.25	-0.05	-0.07	-0.15	-0.23	-0.17	0.17	0.65	-0.27	-0.04	-0.17	0.23	0.58	0.34	-0.30	-0.05	-0.31	-0.04	0.46	0.64	0.40	0.82	0.76	0.83	0.85	0.84	0.85	0.77	0.76	0.76	0.81	0.76	0.55	0.93	1.00																									
EQUITY	AC World Equity	9.68	8.50	16.25	0.03	-0.10	-0.15	-0.25	-0.21	0.12	0.69	-0.30	-0.10	-0.26	0.18	0.69	0.46	-0.32	0.08	-0.33	0.08	0.55	0.67	0.48	0.90	0.81	0.92	0.89	0.93	0.89	0.93	0.93	0.91	0.93	0.89	0.61	0.83	0.87	1.00																								
EQUITY	AC World ex-UK Equity	9.72	8.50	16.50	0.02	-0.10	-0.14	-0.25	-0.20	0.11	0.69	-0.30	-0.11	-0.25	0.17	0.69	0.47	-0.32	0.09	-0.33	0.10	0.56	0.68	0.48	0.90	0.80	0.91	0.88	0.92	0.89	0.93	0.93	0.92	0.94	0.89	0.61	0.83	0.86	0.96	1.00																								
EQUITY	Developed World Equity	9.15	8.00	16.00	0.04	-0.10	-0.14	-0.25	-0.21	0.10	0.68	-0.30	-0.11	-0.26	0.16	0.69	0.47	-0.32	0.10	-0.33	0.10	0.55	0.67	0.48	0.89	0.81	0.91	0.88	0.92	0.89	0.94	0.93	0.92	0.93	0.89	0.61	0.81	0.85	0.96	0.96	1.00																								
ALTERNATIVE/OTHER	European Direct Real Estate[4,5]	7.74	6.50	16.50	0.03	-0.13	0.05	0.00	0.03	0.14	0.31	-0.01	0.11	0.04	0.17	0.27	0.14	-0.01	0.05	-0.01	0.05	0.22	0.30	0.19	0.33	0.35	0.35	0.38	0.35	0.38	0.30	0.35	0.26	0.35	0.35	0.24	0.26	0.29	0.33	0.33	0.33	1.00																								
ALTERNATIVE/OTHER	US Direct Real Estate[4,5]	7.87	7.00	13.75	0.01	-0.11	0.06	0.01	0.03	0.12	0.28	0.00	0.11	0.01	0.17	0.33	0.20	-0.01	0.09	-0.01	0.09	0.24	0.30	0.23	0.29	0.28	0.33	0.32	0.33	0.31	0.35	0.39	0.32	0.41	0.41	0.27	0.28	0.29	0.35	0.36	0.36	0.50	1.00																								
ALTERNATIVE/OTHER	US Value Added Real Estate[4,5]	10.47	8.25	22.50	0.02	-0.09	0.01	-0.03	-0.01	0.09	0.23	-0.05	0.05	-0.02	0.11	0.26	0.16	-0.05	0.04	-0.05	0.04	0.18	0.24	0.16	0.26	0.25	0.28	0.28	0.28	0.28	0.28	0.31	0.26	0.33	0.33	0.21	0.23	0.25	0.29	0.29	0.29	0.50	0.70	1.00																								
ALTERNATIVE/OTHER	European REITs	10.23	7.50	25.00	0.04	-0.13	0.09	0.03	0.08	0.29	0.64	-0.04	0.17	0.05	0.33	0.47	0.21	0.00	0.12	-0.01	0.12	0.43	0.59	0.36	0.72	0.70	0.76	0.78	0.76	0.78	0.62	0.67	0.56	0.66	0.63	0.45	0.57	0.62	0.70	0.70	0.70	0.60	0.41	0.37	1.00																								
ALTERNATIVE/OTHER	US REITs	9.93	7.25	24.75	0.02	-0.18	0.02	-0.06	-0.02	0.17	0.50	-0.09	0.10	-0.07	0.24	0.60	0.39	-0.10	0.12	-0.11	0.12	0.43	0.54	0.40	0.58	0.54	0.63	0.60	0.63	0.60	0.68	0.73	0.63	0.75	0.76	0.48	0.54	0.56	0.68	0.68	0.68	0.50	0.60	0.46	0.71	1.00																								
ALTERNATIVE/OTHER	Hedge Fund - Diversified (hedged)[4,5]	6.76	6.50	7.50	0.04	-0.05	-0.20	-0.22	-0.11	0.36	0.54	-0.25	0.00	-0.06	0.34	0.28	0.11	-0.27	-0.30	-0.27	-0.29	0.13	0.25	0.14	0.65	0.65	0.57	0.66	0.60	0.67	0.40	0.39	0.42	0.49	0.44	0.39	0.64	0.70	0.57	0.56	0.54	0.15	0.11	0.11	0.40	0.24	1.00																								
ALTERNATIVE/OTHER	Hedge Fund - Event Driven (hedged)[4,5]	8.06	7.50	11.00	-0.01	-0.11	-0.21	-0.27	-0.16	0.33	0.72	-0.30	-0.02	-0.14	0.33	0.44	0.19	-0.32	-0.26	-0.32	-0.26	0.25	0.36	0.24	0.77	0.77	0.74	0.79	0.76	0.80	0.63	0.62	0.63	0.69	0.66	0.39	0.71	0.77	0.75	0.73	0.73	0.24	0.22	0.20	0.55	0.44	0.85	1.00																								
ALTERNATIVE/OTHER	Hedge Fund - Long Bias (hedged)[4,5]	8.77	8.00	13.00	0.01	-0.10	-0.22	-0.30	-0.20	0.29	0.69	-0.31	-0.05	-0.14	0.30	0.38	0.13	-0.34	-0.26	-0.35	-0.26	0.20	0.40	0.18	0.80	0.76	0.78	0.82	0.80	0.82	0.63	0.64	0.64	0.70	0.68	0.45	0.79	0.85	0.77	0.76	0.74	0.26	0.25	0.21	0.57	0.47	0.87	0.93	1.00																								
ALTERNATIVE/OTHER	Hedge Fund - Relative Value (hedged)[4,5]	5.84	5.50	8.50	-0.08	-0.06	-0.14	-0.15	-0.02	0.49	0.67	-0.13	0.18	0.05	0.55	0.42	0.22	-0.19	-0.27	-0.19	-0.27	0.26	0.30	0.33	0.61	0.63	0.55	0.63	0.58	0.64	0.40	0.38	0.41	0.48	0.40	0.36	0.61	0.64	0.55	0.54	0.52	0.20	0.18	0.15	0.44	0.33	0.82	0.83	0.80	1.00												
ALTERNATIVE/OTHER	Hedge Fund - Macro (hedged)[4,5]	8.38	7.75	11.75	0.05	0.13	0.02	0.06	0.10	0.18	0.19	0.03	0.08	0.17	0.17	-0.16	-0.30	0.05	0.01	0.05	0.01	-0.15	0.07	-0.17	0.18	0.19	0.18	0.24	0.17	0.23	-0.03	0.00	-0.03	0.05	0.05	0.20	0.24	0.29	0.12	0.11	0.10	0.02	-0.01	0.00	0.12	-0.02	0.58	0.36	0.43	0.27	1.00										
ALTERNATIVE/OTHER	Private Equity[4,5]	12.33	9.00	28.00	0.02	-0.14	-0.18	-0.27	-0.23	0.08	0.60	-0.35	-0.18	-0.30	0.09	0.67	0.50	-0.33	0.03	-0.35	0.04	0.45	0.54	0.42	0.75	0.75	0.78	0.79	0.79	0.80	0.87	0.87	0.86	0.92	0.94	0.55	0.75	0.76	0.87	0.87	0.87	0.32	0.37	0.30	0.60	0.71	0.49	0.71	0.70	0.45	0.11	1.00									
ALTERNATIVE/OTHER	Mezzanine Debt	8.36	7.75	11.50	-0.15	-0.06	0.04	-0.02	0.02	0.15	0.50	-0.03	0.12	-0.06	0.28	0.93	0.83	-0.08	0.38	-0.09	0.38	0.84	0.63	0.85	0.44	0.46	0.44	0.46	0.45	0.47	0.63	0.60	0.66	0.65	0.58	0.50	0.48	0.49	0.60	0.61	0.60	0.22	0.27	0.21	0.39	0.50	0.19	0.34	0.27	0.35	-0.19	0.57	1.00							
ALTERNATIVE/OTHER	Global Infrastructure[4,5]	8.89	8.00	14.00	0.30	-0.14	0.19	0.11	0.12	0.12	0.20	0.19	0.25	0.10	0.23	0.21	0.11	0.16	0.15	0.16	0.14	0.22	0.23	0.21	0.22	0.19	0.23	0.21	0.23	0.21	0.25	0.28	0.21	0.28	0.28	0.20	0.14	0.17	0.25	0.25	0.25	0.24	0.28	0.21	0.33	0.45	0.06	0.12	0.14	0.09	0.01	0.24	0.17	1.00				
ALTERNATIVE/OTHER	Commodities[4]	7.88	6.75	15.75	0.17	-0.06	-0.09	-0.11	-0.08	0.09	0.33	-0.11	-0.02	-0.05	0.13	0.26	0.16	-0.13	0.02	-0.13	0.02	0.22	0.26	0.24	0.38	0.35	0.33	0.40	0.35	0.40	0.30	0.30	0.33	0.38	0.31	0.27	0.40	0.47	0.39	0.39	0.37	0.13	0.11	0.10	0.28	0.21	0.46	0.39	0.48	0.34	0.41	0.30	0.24	0.12	1.00			
ALTERNATIVE/OTHER	Gold	8.39	7.00	17.50	-0.11	0.09	0.28	0.19	0.18	0.01	0.10	0.31	0.26	0.19	0.18	0.14	0.03	0.24	0.41	0.23	0.41	0.39	0.39	0.37	-0.05	-0.03	-0.01	0.03	-0.02	0.02	0.04	0.06	0.04	0.07	0.06	0.19	0.13	0.18	0.07	0.08	0.06	0.03	0.05	0.02	0.04	0.07	0.11	0.05	0.09	0.05	0.33	0.01	0.25	0.08	0.39	1.00

* All estimates on this page are in sterling terms. As at 31 October 2011.

Note: Given the complex risk-reward trade-offs involved, we advise clients to rely on judgment as well as quantitative optimisation approaches in setting strategic allocations to all the above asset classes and strategies. Please note that all information shown is based on qualitative analysis. Exclusive reliance on the above is not advised. This information is not intended as a recommendation to invest in any particular asset class or strategy or as a promise of future performance. Note that these asset class and strategy assumptions are passive only-they do not consider the impact of active management. References to future returns are not promises or even estimates of actual returns a client portfolio may achieve. Assumptions, opinions and estimates are provided for illustrative purposes only. They should not be relied upon as recommendations 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. We believe the information provided here is reliable, but do not warrant its accuracy or completeness. This material has been prepared for information purposes only and is not intended to provide, and should not be relied on for, accounting, legal or tax advice. See footnotes on prior pages.

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