Planet of the Aches. Some aches and pains are constraining the global economy, with more severe strains occurring in the emerging world. We believe contagion to the US and Europe will be limited in 2016, and expect their consumer revivals to continue, courtesy of low inflation, low commodity prices, central bank intervention and reduced fiscal austerity. However, above-average equity valuations, peaking corporate earnings momentum and stagnant productivity growth will likely result in a year of modest single-digit returns on diversified portfolios.
This year’s cover art transforms some well-known aches and pains: exhaustion, tinnitus, periodontitis, bronchitis, acid reflux, hangovers, restless leg syndrome, appendicitis, conjunctivitis, anemia, mononucleosis, E. coli infections, iron deficiency, narcolepsy, macular degeneration and altitude sickness. These aggravating but generally not life-threatening conditions are meant to convey a slow growth world, but not one on the precipice of collapse or recession. Competitive devaluations are unlikely to alleviate these aches and pains; successive rounds of currency depreciation in Europe and Asia mostly redistribute income across countries, rather than boost aggregate demand.

Most of these conditions are homegrown: Latin American and Australian overexposure to commodity prices, weak consumer activity in Japan, economic dissonance across countries in the Eurozone, a surge in dollar-borrowing emerging economies and slowing corporate profits growth in the US. However, some conditions are the result of contagion: “ECBotulism” refers to the impact of ECB policy on countries like Sweden that are forced to engage in destabilizing quantitative easing, or lose export market share (see page 15 for more details). As for Canada, there was no need to transform the name of an illness for our cover: “Dutch Disease” refers to an economic condition in which one sector of the economy (in this case, oil and gas) drives the currency to such a high level that it causes medium-term damage to the rest of the country’s export sectors.

Cover art by Norm Bendell.
As we enter 2016, I want to thank you for the continued trust and confidence you place in J.P. Morgan. We are privileged to serve as your trusted advisor, and we work very hard every day to deliver “only first-class business,” as J.P. Morgan, Jr. said, “and that in a first-class way.”

While volatility marked much of 2015, the Federal Reserve’s December decision to raise interest rates confirmed the divergence of economic environments around the world. And so the broad question remains: Will consumer recovery in the United States and European developed markets be enough to drive global growth, or will continued emerging market challenges take a toll on the health of the global economy?

In his ever-insightful and always-entertaining new year outlook, Michael Cembalest examines the ailments hindering stronger growth around the world, and offers a long-term prognosis for global markets. Michael and our strategy team take an in-depth look at macroeconomic implications and detail what we can expect in the year ahead, from peaking corporate earnings momentum to stagnant productivity.

We hope you enjoy this piece, and, more importantly, we wish you good health and much happiness in the coming year.

Most sincerely,
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Click on the video to hear Michael Cembalest, Chairman of Market and Investment Strategy, discuss the cover illustration of “Planet of the Aches.”
Executive summary

Planet of the Aches. Stars are aligning for mid-single-digit returns on diversified portfolios in 2016. That would be a little better than 2015, when returns on many diversified portfolios ranged from 0% to 3.5% \(^1\). The aches and pains shown on the cover are aggravating (resulting in slow growth) but generally not life-threatening (recessionary). Growth is mostly sustained by consumer spending; global retail sales are still growing at 3%-4% per year in real terms, as they have since 2012. However, manufacturing, trade and capital spending are stagnant (1\(^{st}\) chart), despite 10,000 volts of monetary stimulus \(^2\) from developed world central banks (2\(^{nd}\) chart). Since mid-2014, global profits have also stagnated (3\(^{rd}\) chart), in part since declines in energy and mining sectors have not been offset by gains elsewhere, resulting in diminishing returns on equities (4\(^{th}\) chart).

\(^1\) Using index returns through December 30, we develop a rough estimate for 2015 diversified portfolio returns.

- For **US$ investors**: A 60/40 mix of the MSCI All-Country World Equity Index and the Barclays US Aggregate Fixed Income Index returned 0%, assuming 50% of Eurozone and Japanese equity exposure is currency hedged.

- For **Euro investors**: A 60/40 mix of the MSCI All-Country World Equity Index and the Barclays Global Aggregate Fixed Income Index returned 3.5%, assuming 67% of US and Japanese equity exposure and 100% of fixed income exposure are currency hedged.

- In both cases, portfolio returns would be ~1% higher if emerging market equity exposure were excluded, while a 10% US high yield allocation would subtract 0.5%.

- For additional context, the HFRI Fund-Weighted Composite Index and the HFRI Hedge Fund of Funds Index were both up 0.3% through November 30.

\(^2\) Given Fed reinvestment policy that’s expected to continue despite rising rates, asset purchases of 60 billion Euros per month by the ECB and an expected increase in asset purchases by the Bank of Japan, developed world central bank assets shown above may increase by another $2-$3 trillion over the next 2 years.
The emerging markets component of the global slowdown

The more severe aches and pains are generally felt in the emerging markets, which is why they’re inflamed on this year’s cover. The “emerging markets growth premium” has actually been shrinking since 2010. In developed economies, economic conditions are more stable, as stronger service sector activity offsets weak manufacturing. **The key issue for 2016 is whether economic illnesses in emerging markets will result in contagion in the developed world.** Our assessment is that for the most part, contagion will be limited.

We expect bank credit growth and retail sales growth to keep falling in the emerging world while they improve in the developed world. A key catalyst for these trends: a $550 billion annual wealth transfer from oil producing countries to oil consuming countries, with the largest gains accruing to countries with low gasoline taxes, such as the US.\(^3\)

\(^3\)The US consumer benefits to a greater degree from lower oil prices given lower gasoline taxes. From June 2014 to September 2015, consumer-facing gasoline prices fell by 30%-35% in the US, by 25% in China, by 15% in the rest of the developed world ex-US, and by only 5%-10% in the EM world ex-China.
While EM illnesses are a factor, lower US equity returns have a domestic catalyst as well

The August correction in US equities was not just a reaction to a 2% China devaluation. I also see the correction as a reaction to slow US revenue and earnings growth, even after stripping out large declines in the Energy sector. The second chart shows single-digit revenue growth for "core" sectors, which exclude Energy, Financials and Utilities. Furthermore, sectors that do generate higher revenue growth attract a lot of interest: Healthcare was the only sector in Q2 with revenue growth over 5%, leading to over-crowding and a Healthcare correction in August and September.

The RMB devaluation and its impact on US and EM equities, Index level (both axes)

The "dollar altitude sickness" and "earnings anemia" shown on the cover have taken a toll on 2015 and 2016 earnings expectations. From peak levels, S&P 500 earnings expectations for 2015 have fallen by 12% and expectations for 2016 have fallen by 15%. A proxy for small business operating margins ("intentions to raise prices" less "intentions to raise wages") shows downward pressure on margins in 2016. Lower earnings growth argues for P/E multiples that are closer to "average" than "peak". While low inflation and low interest rates prompt some to call for higher multiples, I am reluctant to believe that investors should reward a sub-par earnings outlook with higher valuations.

Falling earnings per share estimates for the S&P 500
Consensus S&P 500 earnings per share

Proxy for small business operating margin trends
Net % planning to raise prices less net % planning to raise wages

Footnote: During the selloff in Healthcare, correlations across stocks spiked to 60% (~2x the average level since the mid 1970s), and forward P/E multiples fell below parity vs. the overall market, which is unusual. The last time it happened: around 20 years ago, when the prospect of greater regulation also affected the Healthcare sector.
Slowdown in equity and credit returns in 2015 not a surprise given elevated expectations

We first published the “Market and Investor Optimism Barometer” in October 2014 to highlight our concerns about the Panglossian view that prevailed at the time. Since we published the Barometer, a proxy for risky US and European asset markets has moved sideways.

<table>
<thead>
<tr>
<th>Market and Investor Optimism Barometer</th>
<th>Percentile vs. history Dec-2013 Dec-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large cap median P/E ratio</td>
<td>84 79</td>
</tr>
<tr>
<td>Large cap forward P/E ratio</td>
<td>75 78</td>
</tr>
<tr>
<td>Small cap P/E ratio</td>
<td>89 54</td>
</tr>
<tr>
<td>Europe P/E relative to US</td>
<td>86 54</td>
</tr>
<tr>
<td>Individual investor bull/bear</td>
<td>93 8</td>
</tr>
<tr>
<td>Independent advisor optimism</td>
<td>96 52</td>
</tr>
<tr>
<td>Portfolio manager optimism</td>
<td>99 57</td>
</tr>
<tr>
<td>Futures market long-short</td>
<td>95 95</td>
</tr>
<tr>
<td>Equity market volatility</td>
<td>78 34</td>
</tr>
<tr>
<td>High grade bond spreads</td>
<td>99 24</td>
</tr>
<tr>
<td>High yield bond spreads</td>
<td>98 29</td>
</tr>
</tbody>
</table>

99th percentile = most optimistic/bullish. *See box below for sources.

A simplified portfolio of risky assets
Cumulative total return in US$ since 1/1/2005, rebalanced quarterly

<table>
<thead>
<tr>
<th>Portfolio weights:</th>
</tr>
</thead>
<tbody>
<tr>
<td>30% S&amp;P 500</td>
</tr>
<tr>
<td>30% MSCI Europe</td>
</tr>
<tr>
<td>20% US high yield</td>
</tr>
<tr>
<td>20% Europe high yield</td>
</tr>
</tbody>
</table>

Note: 50% of European equity and high yield exposure is currency hedged. Source: Bloomberg, Barclays Research, JPMAM, December 17, 2015.

Investors were not the only ones who were offside. Federal Reserve expectations for US GDP growth have consistently been too optimistic since 2010, when the Fed was projecting 4% growth for 2011 and 2012. The gaps between the dotted lines (Fed ex-ante forecasts) and the solid blue line (ex-post US GDP growth) in the chart below are large. Hope sprang eternal.

Federal Reserve growth expectations too high
Real GDP Y/Y % change

<table>
<thead>
<tr>
<th>FOMC projections made in each year:</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Note: FOMC projections are from meetings 12 months prior. Source: Federal Reserve Board and FRB Presidents, JPMAM. 2015.

Despite a painful recession, overall economy-wide debt levels did not decline, Total non-financial debt as % of GDP

<table>
<thead>
<tr>
<th>Developed markets</th>
<th>Emerging markets</th>
</tr>
</thead>
</table>

During the global recession, in much of the developed world, debt shifted from households to governments. From a political perspective, this may limit fiscal ammunition for spending to boost growth, unless countries want to finance spending through central bank monetization of fiscal deficits. While fiscal austerity in the developed world has finally subsided, we project a neutral (rather than stimulative) fiscal impact in 2016.
Where do we go from here?

US earnings are projected to rise in 2016, with gains from Consumer Discretionary, Tech and Staples; projections also assume that 2015 is close to the bottom for Energy and Materials.

### Another weak quarter for S&P 500 earnings and sales in Q3; consensus projections are higher for 2016

<table>
<thead>
<tr>
<th>Earnings Y/Y growth</th>
<th>Sales Y/Y growth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Q2 2015</strong></td>
<td><strong>Q3 2015</strong></td>
</tr>
<tr>
<td>Telecom Services</td>
<td>11%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>15%</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>9%</td>
</tr>
<tr>
<td>Financials</td>
<td>5%</td>
</tr>
<tr>
<td>S&amp;P 500 ex-Energy</td>
<td>6%</td>
</tr>
<tr>
<td>Industrials</td>
<td>2%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>6%</td>
</tr>
<tr>
<td>Utilities</td>
<td>6%</td>
</tr>
<tr>
<td><strong>S&amp;P 500</strong></td>
<td>-1%</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>-3%</td>
</tr>
<tr>
<td>Materials</td>
<td>3%</td>
</tr>
<tr>
<td>Energy</td>
<td>-57%</td>
</tr>
</tbody>
</table>


Do 2016 consensus projections make sense?

- I agree with projections of a Consumer Discretionary earnings bounce in 2016 vs. 2015, given lower energy prices, an improving labor market, rising home prices and low inflation. However, this sector has already had a great run, valuations for some stocks are elevated and technicals show crowded positioning among hedge funds and other institutional investors.

- The more challenging assumption is the market’s confidence in a Tech earnings bounce. After stripping out Apple and Google, Tech revenues are as weak as Industrials. This is not a surprise: Tech has the highest foreign sales exposure of all S&P sectors, even more than Energy and Materials. While it looks like the majority of the dollar’s rise is finally over, we don’t expect a major dollar reversal. Furthermore, our outlook for Brazil, China, Europe, Japan and the rest of the Far East for 2016 is not that different than 2015. If so, Tech earnings may not improve as much.

- An Energy rebound will probably not happen until 2017. Some companies that sold oil forward will see hedges expire in 2016, in which case sector earnings may decline further.

- All things considered, consensus earnings growth estimates are probably 1%-2% too high; our base case is that S&P 500 earnings and sales will rise in mid-single digits in 2016. Earnings per share growth has been boosted by 2% per year by stock buybacks since 2012, but buybacks and M&A activity may peak in 2015/2016 (see page 29).

---

5 Amazon is a good example of “improving fundamentals / rising valuations” in Consumer Discretionary stocks. After a difficult 2014, Amazon soared in 2015 as investors responded positively to more clarity on its profitable web services business. Amazon now has the same market cap as Wal-Mart, Costco and Target combined, while its revenues and free cash flows are only 15%-25% as high. Amazon’s success is not without precedent; its share of total retail sector revenues and gross profits since 1999 looks eerily just like Wal-Mart’s rise from 1971-1988. As per Empirical Research, Amazon’s stock price now reflects expectations of 10%-20% revenue growth over the next 10 years, a feat which Amazon has already achieved but must now replicate on a larger scale.

Other signs of late-cycle behavior can be found when looking at a group of 5 growth stocks (Google, Facebook, Amazon, Netflix and Salesforce.com). As noted by Empirical Research, their relative P/E ratios are now 3.3x the overall market, which is roughly the same multiple as the big 4 growth stocks at the end of the 1990s (Microsoft, Intel, Cisco and Dell). The rising correlations of today’s 5 growth stocks send a similar signal; the trailing 3-year correlation of their daily excess returns hit 45% in December 2015, which is roughly the same as the daily return correlation of the 4 1990s growth stocks at its peak.
Credit markets: spreads are wider, with more volatility to come in 2016

Yields are rising on energy bonds, reflecting rising default expectations. A J.P. Morgan Securities report estimated that 30% of the high yield energy market could default by 2017 assuming $45 oil and $2.75 natural gas. However, rising spreads have broadened beyond just energy/mining; in both the late 1990s and in 2007, rising credit spreads preceded larger equity market problems.

Rising credit spreads follow a period of large inflows into high yield, emerging markets debt, municipals and other forms of credit. When the Fed is holding down long-term rates (financial repression) and the frantic hunt for yield is on, it’s hard to assess the depth and health of credit markets. Some signs of easy credit conditions: covenant-lite loans represented 70% of US loan issuance in 2015 vs. 10% in 2009, part of the continuing rise in corporate leverage (see page 29).

There’s plenty of empirical and anecdotal evidence pointing to reduced credit market liquidity (see chart, and page 28). Many credit mutual funds hold 5%-7% in cash and securities that mature within a year that typically trade close to par. Both categories would presumably be drawn upon first should redemptions rise. After cash and short-term bond buffers are exhausted, price discovery on less liquid securities can cause problems for managers. We expect volatile credit conditions to continue in 2016.

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7 In early December 2015, a distressed credit mutual fund run by Third Avenue with $3.5bn in assets as of July 2014 was forced to block withdrawals (“gating”) after a wave of redemptions.
The Planet of the Aches: a world of low returns on diversified portfolios

We expect the developed world consumer revival to continue, fueled by low inflation, low commodity prices and less fiscal austerity. However, valuations in developed equity markets are elevated, creating higher hurdles for earnings. Central Bank intervention may provide a slightly higher boost to European and Japanese markets than the US in 2016, but all things considered, it looks like a single-digit year ahead for diversified portfolio returns.

We expect easy monetary policy from the Fed (see page 10), Bank of Japan and European Central Bank in 2016, even if the Fed hikes once or twice next year; as shown below, it’s still a low inflation world. On geopolitics, you can be forgiven for thinking that the world is a dangerous place. But as we have written in the past, geopolitical conflict has historically not had a large, lasting impact on financial markets: the economic, market and investment footprint of warzone countries is much smaller than their population footprint. The business cycle has always been much more important for investors, which is why it preoccupies our approach.

There are distressed investments out there for those willing to accept the volatility. Mining and energy valuations are close to historic lows in relative terms, and emerging markets valuations are low as well. While we may only be 50%-60% through the economic adjustment in emerging economies, markets tend to bottom well before this adjustment process is through.

This year’s Outlook covers the US, Europe, Japan, China and EM, with concluding sections on credit market liquidity, oil prices, the credit risk of US states, private equity vs. public markets, hedge fund performance, problems in Brazil and a summary of 2 in-depth papers from 2015: The Millennials, and our energy paper which covers the dynamics of electricity grids dominated by wind and solar power.

Michael Cembalest
J.P. Morgan Asset Management

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In addition to the data in the table above, here’s another sign of how far energy and mining have fallen: British American Tobacco now has the same market cap as the entire UK mining sector; in 2013, UK mining was 3x larger.

“Mission accomplished”: QE drives up equity valuations

Combined forward price-to-sales ratio on MSCI US, Europe and Japan equities, forward 12-months

Source: Thomson Reuters IBES, Datastream, JPMAM. December 2015.

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US: rising dollar takes a bite out of growth, but consumer rebound should continue

Any discussion of the US should start with the dollar. Its rise explains much of the weak corporate revenue and profit growth shown on page 5, and the export weakness shown below. The US does not export much to China, so we look at the real trade-weighted dollar excluding the RMB; its rise from 2011 to March 2015 was among the fastest on record. Since then, the trade-weighted dollar has been range-bound, even after the Chinese devaluation in August. Looking ahead, we believe that the majority of the dollar’s rise is now over, at least against the Euro and the Yen.

**Fast and furious: the rise of the dollar**
Real effective exchange rate, Index, July 2005 = 100

![Graph showing the rise of the dollar](source: Bank for International Settlements. November 2015.)

More indications of the strong dollar’s impact: business surveys and payrolls which show **large gaps between services and manufacturing**. Similarly, business capital spending is growing at 10%-15% for domestically focused companies and falling at the same rate for globally focused companies and energy companies. Part of the strength in services is related to commercial real estate, where office, apartment, industrial and retail occupancy rates are improving faster than the pace of new investment. However, commercial real estate is not cheap; hundreds of billions in Chinese capital outflows are targeting real estate in rule-of-law countries like the US, UK, Canada and Australia, driving up prices and lowering cap rates.

**Domestic demand strong, exports weak**
Contribution to GDP growth

![Graph showing contribution to GDP growth](source: BEA, J.P. Morgan Securities LLC. Q3 2015. Q4 is a projection.)

**Unusually large gap between services & manufacturing**
PMI survey level, 50+ = expansion, 3-month average

![Graph showing unusually large gap between services & manufacturing](source: Institute for Supply Management. November 2015.)

**Domestically oriented labor markets holding up**
Change in payrolls, thousands, 6-month avg. (both axes)

![Graph showing domestically oriented labor markets holding up](source: Bureau of Labor Statistics, JPMAM. November 2015.)
The good news: improving labor markets and falling gas prices are boosting consumption and housing. **It looks like the US will grow at 2.5%-3.0% in 2016, a bit stronger than 2015.** Consumer credit is picking up and no longer just reflects rising student loans; auto loan and credit card balances are rising as well. Federal and state/local fiscal drags have also come to an end, at least for now.

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**Steady employment growth**

Y/Y % change


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**Consumer credit growth**

Y/Y % change

- **Source:** Federal Reserve Bank. October 2015.

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**Private wages normalizing**

% of GDP, 6-month average

- **Source:** Bureau of Economic Analysis. November 2015.

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**Home and auto sales trending higher**

Vehicle sales (% of pop.), home sales (% of households), 3-mo. avg.

- **Source:** BEA, National Association of Realtors, Census. November 2015.

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**Bank loans to consumers and nominal consumer spending, 6-month % change, annual rate**

- **Source:** Federal Reserve, BEA. November 2015.

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**US profit margin decline mostly an energy story**

Profit margin, grey bars denote recessions

- **Source:** Datastream, NBER, Barclays. Q3 2015.
What about the Fed?

While the Fed has begun to raise interest rates, markets believe that the tightening cycle will be the weakest on record. The blue line in the 1st chart shows the change in market expectations for the effective Fed Funds rate, and implies a rate of just 1.35% two years from now. That would be the lowest trajectory of Fed tightening since 1964 (the grey lines show prior cycles).

I agree on a slow trajectory of Fed tightening, but I think market projections for the funds rate are too low; the 2nd chart above is the reason why. From 2008 to 2014, 3% of the labor force “dropped out” and stopped looking for jobs. No one knows why they haven’t returned now that job openings are rising, but eventually, tight labor supply could drive up wage inflation. It’s not happening yet, as wage growth measures have just recovered to normal levels. However, a November 2015 NFIB survey showed the highest reading for expected wage gains since 2007. Even in an environment of low goods price inflation (core CPI ex-housing is growing at ~1%), wage inflation could force the Fed to hike more quickly than what is now priced in. In my view, this is the single biggest risk for global markets in 2016.

Federal Reserve analysts deconstructed the decline in labor force participation, and found that almost half of the leavers had retired. Another large segment self-diagnosed as disabled; the rest departed for other reasons.
Future challenges

Productivity growth has been weak, way below the 1980s and 1990s. Photovoltaic solar panel and battery storage cost declines, driverless cars, 3D printing, robotics and online universities are potential sources of increased efficiency, but they may not generate the productivity gains of prior eras. That might be why rising R&D spending has not resulted in higher productivity growth (yet).

Another explanation for low productivity growth might be found in the second chart, which is the infamous exhibit I presented at my wife’s birthday party a few years ago (a.k.a. “The Shooting Party”).

**While my timing was ill-advised, any discussion about entitlements is incomplete without this picture.** The Federal government spends money on entitlements, and on a laundry list of programs that fall under the general description of “non-defense discretionary spending”. Examples of the latter:

- Transportation and infrastructure (e.g., civil and military air navigation, high-speed intercity rail programs, highway/rail/port rehabilitation, Coast Guard, Federal Aviation Administration)
- Employment services (e.g., job retraining, dislocation and vocational apprenticeship programs)
- Natural resources and the environment (e.g., Army Corps of Engineers, EPA superfund, arsenic/lead exposure management, pollution control and abatement)
- Energy (e.g., renewable energy integration, SmartGrid research, energy efficiency and nuclear power demonstration projects)
- Health and education (e.g., Federally financed elementary, secondary and higher education; consumer and occupational health and safety, NIH/CDC spending on disease control & bioterrorism)

In 1960, before the creation of entitlements, 35% of the elderly lived below the poverty line; the creation of entitlements was a vital need. However, its creators did not link entitlements to national income (e.g., ability to pay). The ratio between entitlement and non-defense discretionary spending was 1 to 1 in the early 1970s, is now 3 to 1, and after passage of the Budget Control Act in 2011, is headed to 4 to 1 by 2020. Some economists refer to this phenomenon as “generational theft”, given the degree to which programs that contribute to future growth, employment and productivity are being cut.

**For more information on issues affecting US growth and productivity that might be useful around the family dinner table** (personal tax rates, corporate tax rates, the fiscal cost of the Iraq War, government regulation, the Affordable Care Act, the impact of free trade on US manufacturing workers, natural gas prices and hydraulic fracturing, tort reform, etc.), see **our holiday piece** from 2015.
Europe: cyclical improvements for another year...the bigger test will be in 2017

Most of Europe is showing signs of improved growth. Employment, business surveys, bank lending, consumer confidence, retail sales, car registrations, etc. are rising. Positive signals are not just in core countries like Germany; as shown in the last 2 charts, residential mortgage, consumer and corporate credit demand is picking up in Italy and Spain as well. The recoveries in Spain and Italy\(^{11}\) are taking place off of a very low base, but positive momentum is clear.

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\(^{11}\) Amazing but true: after two recessions, Italy starts growing again. Households and businesses are in expansion mode, exports are rising, unemployment is falling and consumer spending is picking up. Italy will need many years of easy money support from the ECB to keep this momentum going, as well as allowances from the European Commission to postpone fiscal tightening and debt reduction. The continually rising stock of Italian bank NPLs implies that Italian banks are not lending as much as they might, given their capital levels.
Even with these improvements, the Eurozone appears headed back to just 2% growth. More fundamentally, potential growth may be low as well. In April 2015, the IMF and OECD estimated structural Eurozone growth (i.e., the speed limit of the economy that does not trigger inflation) at just 1%, reflecting a decline in total factor productivity growth and hours worked, slow growth in machinery and equipment, and insufficient competition in protected sectors. One illustrative statistic: from 2000-2014, total factor productivity grew by 1.4% in the Eurozone compared to 10.7% in the US\textsuperscript{12}.

The 2nd chart shows labor competitiveness gaps vs. Germany; so far, progress in Italy and France is slow. In Italy, Renzi’s government has passed labor market reforms, but they will play out over years and not months, and there are still barriers to implementation. In France, a September 2015 proposal for a full Eurozone fiscal union with a centralized Treasury by French Economy Minister Emmanuel Macron\textsuperscript{13} may reflect the recognition that after the cyclical boost is over, France still faces difficult problems ahead, including political obstacles to closing its competitiveness and trade gap vs. Germany (more on France on page 16).

An exception to the low growth/stagnant competitiveness picture: Spain. It will take years for Spain to heal (industrial production is 25% below its pre-crisis peak, unemployment is 20%, youth unemployment is ~50%). But after a recession in which home prices and residential investment bottomed 35% and 50% below peak levels, Spain has grown at 3% for the past 2 years with contributions from both exports and household consumption. Changes in labor market flexibility, severance and collective bargaining are part of the reason that Spain has narrowed its unit labor cost gap with Germany. The next test is a political one: without the benefit of currency depreciation to absorb part of the adjustment, falling wages and prices had to account for most of it. The lingering impacts on unemployment and household formation have altered Spain’s political landscape in ways that cannot yet be determined.

\textsuperscript{12} “Lifting potential growth in the Euro area”, Peter Praet, Executive Board of the ECB, Berlin, April 23, 2015.

\textsuperscript{13} Macron: “If we don’t move forward, we are deciding the dismantling of the Eurozone”. Full fiscal union? Good luck with that. I cannot imagine that Germany would agree to what would amount to perpetual support.
Equity market pricing. The P/E discount of European equities vs. the US is ~15%, which ranks in the middle of the range seen since the 1990s. The earnings cycle is at an earlier stage in Europe and there is plenty of operating leverage, so earnings could spike higher if GDP growth rose appreciably. But given our 2% forecast for real GDP growth in Europe, we expect mid-single-digit earnings growth in 2016, just as in the US. If there’s a positive surprise brewing, it could result from a recovery in European capital spending which is still 10% below 2007 levels while US capital spending is 10% higher. All things considered, a neutral position in Europe makes sense for 2016, particularly since the ECB is loading up the monetary bazooka again (see box).

European profit margins and return on equity are ~2% below US levels; the difference is partly related to higher US Tech margins. I view the convergence of European and US margins from 2005 to 2010 as an anachronism resulting from the Southern European consumption/housing boom. Given the low likelihood of a recurrence, the Eurozone may not recapture all of its underperformance vs. US equities seen from 2010 to 2014. For US$ investors, Eurozone equities outperformed the US in 2015 only if the Euro exposure was hedged away; otherwise, the performance gap was unchanged (last chart). The same is true in Japan, where hedged Japanese equity returns doubled returns on unhedged equities from 2010 to 2015. I don’t remember a time when currency hedging was more central to decisions on regional equity allocations, and reflects the battle of central banks to debase their currencies. While the majority of the Euro’s decline vs. the US$ may have already taken place, we believe it’s worth hedging against another 5%-8% decline in the Euro vs. the US$ in 2016.

In 2015, hedged Eurozone equities start to close gap vs. the S&P, Cumulative total return for a US$ investor

Latest ECB bazooka for weakening the Euro
The latest ECB announcements lengthen its securities purchase program (of 60 billion Euros per month) by six months. The ECB also cut its deposit rates by another 10 basis points. This puts the rate paid by the ECB on mandatory and excess banking system reserves to -0.3%. Since deposit rates were set at negative levels, there have been large capital outflows from the Euro area (and into the US), driving down the Euro. Like the Fed, the ECB will now reinvest principal it receives on its purchased securities, prolonging its impact.
One big question for 2017: German inflation

At some point, German inflation might render the ECB’s policy stance too easy for the Bundesbank (it is already too easy for some non-Eurozone neighbors; see box). While German home prices are rising, German unit labor costs, wages and goods price inflation are stable. However, given the speed with which unemployment and idle capacity are falling, there could be a spike in German wages or prices in 2017. What will the ECB do then, since its monetary policy will be “just right” for Spain, Italy and France? The original sin of the Eurozone was that it drove a wedge between cycles in France, Italy and Germany that weren’t “broken” to begin with and joined economies that were very different (see charts below). It is notable that Sabine Lautenschläger, a German member of the ECB six-person Executive Board, came out against the idea of an enlarged ECB asset purchase program in November.

German inflation showing up in housing, but not in wages or prices, Y/Y % change

[Graph showing German inflation in housing, wages, and prices]


Death in Venice

Industrial Production Index, 12/31/1999 = 100

[Graph showing industrial production in Germany, France, and Italy]

Source: Respective national statistical agencies. October 2015.

North America vs. European Monetary Union

World Economic Forum composite competitiveness score*

[Graph comparing competitiveness of North America and European Monetary Union]


“ECBotulism”: ECB policy and its impact on non-Eurozone countries

ECB policy is already too easy for some non-Eurozone EU neighbors. ECB policy has prompted countries like Sweden, Denmark and Switzerland to keep pace with the ECB and engage in quantitative easing (central bank asset purchases), driving down interest rates and currencies in order to avoid losing too much export market share. The risk: distorting financial and asset markets and creating conditions for a crash, particularly in housing. One notable example: Swedish home prices are up 25% since 2010 and household debt is accelerating. GDP growth of 4% is rapidly closing its output gap, and inflationary pressures are building.

Switzerland finally gave up on its quantitative easing program and abandoned the Swiss Franc peg in January 2015 after its FX reserves ballooned by EUR 400 billion. Since January 2015, Switzerland has experienced a decline in manufacturing, spending, wage growth, exports and confidence. In other words, the ECB is forcing other European neighbors to choose between two equally unappealing options in the long run.
The other big question for 2017: the French presidential election

Polls suggest the National Front will make it into the 2nd round of the French presidential election in 2017 against a Socialist or UMP candidate. The French system requires a 50% majority in 2nd round voting. Conventional thinking is that Socialist and UMP voters will unite and support any candidate other than the National Front. In support of this view, polls from Odoxa in May 2015 show the UMP victorious against Le Pen in a 2nd round whether the UMP candidate is Sarkozy or Juppé. Polls show a narrower presidential victory for the Socialist Party over Le Pen if the candidate is Manuel Valls; Le Pen only polls higher than Hollande.

However, while business confidence is rising, the French recovery is slower than in the rest of Europe, the number of unemployed in France is still close to its peak, and 1% growth isn’t going to change that very much. Growth in France is mostly related to rising household debt rather than rising disposable income or exports (France’s export market share has collapsed since the year 2000). The 2017 French election, a litmus test for Le Pen’s message of France needing to reclaim its monetary and territorial integrity, is one of the most interesting European elections of the last 40 years.

Early polling for the 2017 French presidential election
Polls for hypothetical second round

Unemployment improving, but not in France
Harmonized unemployment rate (both axes)

14 The latest results for the National Front. In May 2014 elections for the European Parliament, the National Front emerged as the largest representative party from France with 25% of the vote. In March 2015 Departmental elections, the National Front received 22% of the vote, and in the December Regional elections, 27%.
Japan: government intervention in equities overrides macroeconomic weakness

Something is wrong with this picture. In the US and Japan, corporate profits sank during the global financial crisis. In the US, the profit recovery was accompanied by a recovery in household income. In Japan, however, corporate profits and household income moved in opposite directions, as dynamics that helped profits recover did not help consumers.

How can we explain the outcome in Japan? The benefits of a weak Yen are mostly concentrated among large corporations, given translation gains on offshore non-Yen income relative to Yen-denominated costs. For smaller companies and households\(^ {15}\), a weaker Yen simply resulted in imported inflation.

While consumer spending has stabilized after a decline caused by the imposition of a Value Added Tax in 2014, there are few signs of a rebound to pre-VAT levels. Japanese GDP growth has been volatile and averaged 1.5% in 2015; we’re expecting a similar outcome in 2016.

\(^ {15}\) Another sign of how the deck is stacked against the Japanese consumer: the elevated level of Japan’s “OECD producer protection ratio”, which measures the degree to which Japanese agricultural producers benefit from prices that are higher than international markets. Japan’s ratio is 1.9, and only Korea’s is higher. The US ratio is 1.02, and the European Union ratio is 1.05. The Trans-Pacific Partnership is allegedly going to tackle this, but like the other presumed benefits of the TPP for Japan, I will believe them when I see them.
In October 2015, the Bank of Japan did not take further steps which markets were anticipating (e.g., an increase in equity ETF purchases from ¥3tn per year, an increase in REIT purchases from ¥90bn per year or an increase in government bond purchases from ¥80tn per year). Perhaps concerns about the negative domestic impacts from a weaker Yen are affecting BoJ policy. Our contacts in Japan believe that the BoJ is no longer being pre-emptive, and will wait until November 2016 to act.

**Before one gets too despondent about Japan, there are some tailwinds for equity investors.** Many relate to government intervention and corporate governance reform, and explain how Japanese equities generated positive returns in 2015:

- As described on the prior page, Japanese corporate profits have been rising; while nominal GDP growth of 3% isn’t much, it’s better than the 0% that Japan averaged from 1991 to 2013
- Japan’s Central Bank is now the second largest equity holder, second only to the Government Pension Investment Fund; similarly, Japan’s Government Pension Investment Fund doubled its equity allocation from 12% to 25%
- The consequences of Japan Post Bank and Japan Post Insurance privatizations are worth watching. The former is the largest financial conglomerate in Japan, and the latter controls the largest pool of private savings in the world. Now privatized, they may seek more equity risk with their ¥300 trillion in assets. Currently, 2/3 of these assets are invested in JGBs
- Corporate governance reforms are designed to push cash-rich companies to start disgorging it. As shown, there’s plenty of room for greater shareholder distributions. Other reforms are pushing companies to add more independent directors and protect rights of minority shareholders

**Japanese companies have a lot more cash than US counterparts...**

**...but do less with it**

![Chart showing cash (% of market cap) and cash (% of GDP) for US and Japan companies](source: Bloomberg, JPMAM, Q3 2015. MSCI Japan and US equity indices used in calculations.)

**The Japanese experiment.** There are few precedents for the kind of experiment Japan is conducting. At the current pace of BoJ purchases, private sector banks might actually run out of JGBs by the end of 2016, at which point the BoJ would have to buy them directly from the non-bank private sector; I think it’s fair to say that no one really knows what would happen then. One thing is certain: like riding a tiger the BoJ can’t stop now, and has little choice but to continue with debt monetization as Japan’s Federal debt grows higher, and as it veers further and further into the economic unknown.

![Chart showing Japanese velocity of money (M3) Central bank assets, % GDP](source: Bank of Japan, Cabinet Office of Japan, JPMAM, Q3 2015.)

**A professor I once told me this was impossible**

16 Another wacky milestone in the Japanese experiment: a Bank of Japan initiative to buy equity ETFs that target firms raising wages and capital spending, financed by the sale of its other stock holdings.
Why all the focus on emerging markets?

Over the course of my career, emerging markets have gone from exotic to mainstream. The table shows rising inflows and portfolio allocations into emerging economies, EM’s share of global output and other similar statistics. EM arguably merits more attention now than in 1998, when Russian and Asian currency devaluations caused a sharp (but temporary) correction in developed equity markets.

The increasing importance and footprint of emerging markets

<table>
<thead>
<tr>
<th>Year</th>
<th>Inflows into EM, % of world GDP</th>
<th>Developed world allocation to EM financial assets</th>
<th>EM share of global output</th>
<th>EM annual corporate bond issuance (US$ Bn)</th>
<th>China share of EM corporate bond issuance</th>
<th>China share of global fixed investment</th>
<th>EM Asia ex-China share of global fixed investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>1.0%</td>
<td>&lt;0.5%</td>
<td>27%</td>
<td>-</td>
<td>3%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>2.5%</td>
<td>&lt;0.5%</td>
<td>27%</td>
<td>-</td>
<td>3%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>1.5%</td>
<td>&lt;0.5%</td>
<td>27%</td>
<td>$2</td>
<td>0%</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>1995</td>
<td>3.0%</td>
<td>&lt;0.5%</td>
<td>27%</td>
<td>$14</td>
<td>2%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>2000</td>
<td>6.5%</td>
<td>&lt;0.5%</td>
<td>29%</td>
<td>$40</td>
<td>0%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>2005</td>
<td>7.0%</td>
<td>2.75%</td>
<td>33%</td>
<td>$118</td>
<td>12%</td>
<td>9%</td>
<td>5%</td>
</tr>
<tr>
<td>2010</td>
<td>11.5%</td>
<td>4.75%</td>
<td>40%</td>
<td>$341</td>
<td>38%</td>
<td>19%</td>
<td>8%</td>
</tr>
<tr>
<td>2015</td>
<td>17.5%</td>
<td>5.75%</td>
<td>47%</td>
<td>$931*</td>
<td>72%*</td>
<td>27%</td>
<td>8%</td>
</tr>
</tbody>
</table>


Within emerging markets, the focus is of course on China. The charts below show China’s impact on the world: its share of global activity and the example of copper, and its gravitational pull on the rest of the emerging world. Many EM countries are overexposed to China through their exports of either intermediate manufactured goods or commodities.

China’s growing share of the global economy

% of each category

- Exports
- Oil consumption
- Output
- Fixed investment
- Commodity consumption
- Steel consumption


For commodities, average of consumption of steel, copper, aluminum, zinc, tin, lead, nickel, oil, gas, coal, nuclear, cement, pork and rice.

China’s impact on the copper market

Copper consumption, million metric tons


The gravitational pull of China

Correlation of Chinese GDP growth with GDP growth of all EM countries, GDP-weighted; 10-year rolling basis

Source: International Monetary Fund, JPMAM. 2014.
The impact of the China slowdown on commodity prices is still underway. While most commodity prices are down sharply vs. 2011, some are still higher than in the year 2000. Projections from Barclays’ commodities group show the copper market subject to excess supply until 2020.

The next chart from J.P. Morgan Securities estimates the impact of a 1% growth decline in China on different regions, and concludes that the impact is small on the developed world. The wild card: where are losses from EM debt expansion going to show up? The IMF cites EM non-financial corporate debt as having doubled from 2008 to 2014 from $9 to $18 trillion, one of the most astonishing debt expansions on record. This includes onshore and offshore debt, and both loans and bonds. Much is related to commodities, construction and real estate in China. The second chart shows the breakdown of external debt measured against exports (e.g., hard-currency ability to pay). Countries like Brazil, Turkey, Indonesia and South Africa are in the crosshairs; China looks fine on this basis.
Which countries are experiencing the greatest pain? Brazil, and Turkey

Brazil entered the commodity price decline in a weak political and economic position, and now faces rising domestic debt, growing fiscal deficits, double-digit inflation, an unemployment surge (from 4.6% in Q2 2014 to 8% in Q3 2015) and falling growth/wages. During the boom, Brazil passed along benefits in the form of public sector wage indexation and increased government spending. In retrospect, these benefits should have been temporary, or at least linked to commodity gains while they lasted. The situation is bleak, but differs from Brazil 2002, given $350 billion of FX reserves and less reliance on external debt. Domestic asset prices will probably be under pressure for a while longer, but a default on Brazilian external debt is unlikely (see pages 37-38 for more details).

Turkey is one of the most capital-reliant countries in the world. The only major EM country with a larger negative net international investment position (liabilities to foreigners net of holdings of foreign assets) is Greece. The decline in the Turkish Lira, capital flight, falling central bank reserves, rising inflation and domestic funding costs, asset-liability currency mismatches in Turkish banks and a weak economy are part of its balance of payments problem, exacerbated by the risk of political instability.

While Russia faces the prospects of no growth in 2016 after a 4% decline in 2015, financial markets have priced much of this in already. The Russian equity market is trading at the lowest P/E in the EM world (even after adjusting for its heavy weighting to energy stocks), and its currency has already fallen by 60% from its 2011 peak. Other than Brazil, commodity exporters like Chile and South Africa had the worst economic momentum heading into the end of 2015.
Markets generally rise before economies do; are we there yet?

In other words, have EM equities corrected enough yet? Sentiment is terrible; investor positioning appears to be very underweight; EM price-to-book ratios are ~2/3 of the way back down to 1998 levels; and in trade-weighted terms, EM currencies (ex-China) are back at 1998 levels. The relative cheapness in EM price-to-book ratios reflects higher weights to financial and commodity sectors than in developed markets, but that has always been the case, so the trend shown below is a reasonable measure of where relative value stands between the two markets.

It’s hard to pick the bottom and it typically feels awful when you get there, but I think we’ll see the bottom in EM asset prices over the next 12-18 months. As we reviewed in our 2014 bottom-feeding paper, the bottom in asset prices almost always occurs before peak loan defaults, unemployment, bank failures and other distress metrics, and before exports start rising. In the past, rising surveys of manufacturing activity have been helpful signals in timing market bottoms in emerging markets.

### Balance of payments pressures in the emerging world

<table>
<thead>
<tr>
<th>Country</th>
<th>Current Account: % change in:</th>
<th>% change in:</th>
<th>Unit labor costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Worst (% GDP)</td>
<td>Today (% GDP)</td>
<td>Imports (US$)</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1.7%</td>
<td>2.2%</td>
<td>-19%</td>
</tr>
<tr>
<td>Brazil</td>
<td>-4.8%</td>
<td>-3.2%</td>
<td>-35%</td>
</tr>
<tr>
<td>Colombia</td>
<td>-6.9%</td>
<td>-5.9%</td>
<td>-18%</td>
</tr>
<tr>
<td>Turkey</td>
<td>-10.2%</td>
<td>-4.3%</td>
<td>-22%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>-3.8%</td>
<td>-1.8%</td>
<td>-32%</td>
</tr>
<tr>
<td>South Africa</td>
<td>-6.4%</td>
<td>-4.1%</td>
<td>-21%</td>
</tr>
</tbody>
</table>

Note: worst current account since 2010; change in imports, exports, currency and unit labor costs measured vs. peak since 2010.
Source: national statistics offices, EIU, J.P. Morgan Securities LLC. Q3 2015, except currency which is through November 2015.

### On a P/B basis, EM getting closer to 1998 levels

![Graph showing relative price-to-book value](image)


### Global fund managers underweight EM vs. DM

![Graph showing fund manager relative positioning](image)


### Emerging markets: real effective exchange rates

![Graph showing GDP-weighted broad REER](image)

Source: BIS, IMF, JPMAM. November 2015.
There are bright spots, like India

By most accounts, India is the most under-allocated emerging market when looking at foreign holdings of equities, bonds and FDI relative to its GDP. However, conditions are improving which may change that. A quick summary: Indian labor is priced competitively after a decline in the Rupee (Indian unit labor costs are 20%-30% cheaper than the rest of EM); private sector debt is low; India is a large beneficiary from lower oil prices, given its oil deficit; inflation has finally fallen below 10% with scope for further monetary easing; and reforms are gradually reducing barriers to growth. The government is starting to address long-standing infrastructure problems (particularly in the power sector), and is raising limits on foreign portfolio and direct investment. As in China, lending is gradually shifting from state-owned banks to private sector banks. Another important initiative that’s underway: a new bankruptcy law that recognizes bondholder rights and streamlines the collateral/collection process. While India has already been outperforming other EM assets, we suspect this may continue.

The other point to keep in mind: not all emerging markets are the same.

Let’s use a simple measure of external debt vulnerability, such as the external debt to exports chart shown earlier (these countries represent ~95% of the MSCI EM universe market cap). We put a dividing line between India and Russia, and created two EM baskets: low and high external debt vulnerability. As shown in the table, the higher vulnerability countries have seen worse equity market performance.

As for emerging markets dollar-denominated fixed income, yields have risen to around 7%. This might seem low in a historical context, but the shift away from external debt to domestic debt in most countries, along with much higher FX reserves, justifies much of the yield decline.
China: capital spending reversal now in full swing; China slowing, not melting

Let’s start with the good news:

- China is slowing, not melting down. The latest data point to growth of 5%-6%
- FX and interest rate liberalization was enacted last summer despite weak Chinese stock markets. In the wake of the 3rd and 4th plenums, there has also been some (but less) progress on state-owned enterprises (SOEs), tax and land reform, and reform of rural-urban registration (Hukou system)
- Deregulation has boosted private company formation. Similarly, return on assets for non-state owned enterprises is stable at ~9%; lower ROAs for SOEs is the bigger problem, as they make up around one-third of corporate investment. The potential for productivity gains remains large
- Provincial and central government spending is rising, which will offset some of the decline in private sector activity; the government also has room to bring down real lending rates, which are ~10%
- Sort of good news: China’s “Belt and Road” initiative, which entails the financing of roads, bridges, pipelines, ports and rail in 67 countries across Asia, the Middle East and Eastern Europe. The plan may help struggling Chinese steel, cement and heavy equipment companies. However, according to Gavekal Research, $80-$100bn of project financing in a year would only be equal to one month of domestic infrastructure spending, and take up only an estimated 20%-25% of China’s excess steel capacity. There are also questions about productivity of investments running through Pakistan, Yemen, Iraq, Afghanistan and Syria
- Another positive aspect of China’s exchange rate liberalization: hundreds of billions in capital outflows despite capital controls, much of which are destined for developed countries
That’s where most of the good news ends. The charts below show contours of the China slowdown. China’s competitive edge has diminished since the financial crisis, and in 2016, China will likely grow at its lowest rate since 1990. After a 50% rise in the RMB, the currency is a headwind as well. Industrial profits have stagnated, and excess capacity and slower investment may keep them under pressure for a while longer, driving down wages. The cracks in the China story have been visible for some time; consider the increase in corporate debt needed to support a unit of GDP. And as indicated by “Cirrhosis of the River” on the cover, China has the worst environmental conditions for a country at its level of development, an issue increasingly seen as a drag on growth.

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**Chinese capital formation eclipses prior industrializations**, Gross fixed capital formation, % of GDP


**Chinese service sector more stable than manufacturing**

PMI (50+ = expansion), 3-month average


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**China fixed asset investment by sector**

Y/Y % change, 12-month average


**China: electricity consumption and railway traffic**

Y/Y % change


---

**Rising levels of corporate debt in China**

Non-financial corporate debt, % of GDP


**China industrial profits**

Y/Y % change, 3-month average

While home prices have bounced, overhang of inventory will likely prevent a large increase in residential construction. The rise and fall in onshore equity markets, which coincided almost completely with the rise and fall in margin debt, resulted in a 90%+ decline in the open position of index futures and in futures market trading volumes. In other words, medium-term damage was done to the inner workings of onshore Chinese equity markets.

All things considered, China is on its way to 4% annual GDP growth by 2020. As shown in the final chart, offshore Chinese equity market P/E multiples are beginning to reflect this reality (although after stripping out financials, remaining sector multiples are higher).
Special topics

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Michael provides a deep dive into additional special topics including the global banking system, oil markets, the credit risk of U.S. states and credit market liquidity.
**Regulatory impacts on bond market liquidity as the credit boom comes to an end**

While the Volcker Rule presumably reduces the risk of proprietary trading losses affecting bank depositors, the Rule also substantially changes the foundations of credit trading. In 2012, academics pointed out what they saw as its eventual possible consequences:

> “First, the Volcker Rule will have a negative effect on market making and liquidity provision for many securities. The Volcker Rule will induce banks to retrench more from market making in smaller and riskier securities where large and unexpected supply-demand shocks are more likely, thereby reducing market making in the very securities where it is most valuable. The securities issuers and the investors will feel the effects”.

Over the last couple of years, it was hard to assess its impact. After all, senior loan mutual funds saw 95 weeks of consecutive net inflows through April 2014. Over the next couple of years, we will be able to assess the rule more clearly. From Howard Marks at Oaktree:

> “Although the eventual impact of the Volcker Rule is unknown, any diminution of the banks’ likelihood of engaging in proprietary buying during crises suggests a significant reduction in liquidity just when it may be needed most”.

A BIS report from August 2015 highlights the shift in the composition of fixed income ownership away from Broker-Dealers, the decline in trading volume and dealer positions, and the declining liquidity of high yield bond funds.

The US is not the only jurisdiction where changes to liquidity conditions are taking place. The European Securities and Market Authority published standards relating to pre- and post-trade transparency that are due to take effect in 2017. Our initial assessment: the impact could be substantial, given a market maker’s reduced ability to hedge or offload inventory. The outcome: more fragmentation, less liquidity, fewer firms acting as market makers and more volatile spreads whenever trading volumes increase.

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18 Howard Marks in Barron’s, March 26, 2015.

The impact from stock buybacks and share count reduction is probably peaking

As shown in the first 2 charts, buybacks are surging, and the ratio of M&A and buybacks to cash flow now surpasses 2007. The impact on equity markets is material: stock buybacks have been adding ~2% per year to EPS growth at a time when earnings growth is scarce. While many buybacks are paid for with cash (particularly by tech and pharma companies), some are financed via increased debt issuance. Given rising credit spreads and elevated debt balances (see box below), contributions to EPS growth from buybacks and M&A may fall in half by 2017. On a related M&A note, Empirical Research observes that acquiring companies experienced positive relative stock market returns from 2010 to Q3 2015; in Q4 2015, relative returns for acquirers turned negative.

Another later-stage market signal, shown in the last chart: less than 20% of technology IPOs in 2014 and 2015 had positive net income at their IPO date, which is almost as low as in 1999/2000.20

What's up with US corporate leverage?
Many investors are used to seeing charts showing very low levels of leverage on US corporate balance sheets. However, extreme sector differences can obscure important changes. The Tech sector now relies much less on debt than it did in the past. Given its large weight in US equity markets, the Tech sector masks an increase in leverage across the rest of the non-financial sectors since 2012. We adjust for Tech in the chart above.

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20 The pre-IPO lifespan of tech companies coming to market is longer today than it was in 1999, and price-to-sales ratios today are much lower than 1999 levels. In other words, the tech IPO market has improved since 1999. However, the IPO measures shown above do imply plenty of appetite for risk.
The improved resilience of global banking systems

Since the financial crisis, bank capital ratios have increased markedly. In addition, bank reliance on wholesale inter-bank funding and bond markets has declined as stable customer deposits make up a greater proportion of liabilities. As a result, banks are in a better position to absorb write-downs coming from energy-related investments and/or emerging markets exposures.

Developed world banks have increased capital...

Tier 1 capital ratio

- United Kingdom
- Eurozone
- United States
- Japan

Source: Bloomberg, JPMAM, Q3 2015.

...and reduced reliance on wholesale funding

Loan-to-deposit ratio

- Eurozone
- UK
- US
- Japan

Source: National central banks, Q3 2015.

Furthermore, as shown in the next 2 charts, banks hold less relative exposure to emerging markets and energy compared to prior cycles. When leveraged banking systems are on the hook, recessions and market corrections can be deeper. When losses are spread out amongst less leveraged corporate, institutional (pension) and individual investors, market corrections can be less pronounced.

Foreign funding to emerging markets by creditor type

Percent

- Banks
- Investors
- Corporates
- Other

Source: Bridgewater Associates, August 2015.

US energy debt mostly from high yield market, not banks

Debt shown as a % of shareholders' equity

- Total energy debt
- Other energy debt (bonds, commercial paper, etc.)
- Energy bank loans

Note: all mining industries shown (roughly 75%-78% oil & gas extraction).
Oil: a roadmap for lower prices first, higher prices later

There are reasons to believe that oil prices will be rangebound over the next year and may temporarily fall to ~$30, but there are factors which we expect will push oil prices modestly higher in 2017-2018, as forward curves currently anticipate. The charts tell the story in narrative form.

The world is currently oversupplied and there are signs that storage capacity is brimming with oil...

The reasons for oversupply include a decline in Chinese demand, and broader declines in oil intensity...

...as well as the possibility of increased Iranian oil sales, the lack of a traditional Saudi response to falling prices, and a lot of US producers that would only be incented to shut in production at prices < $40

SPECIAL TOPICS
History suggests that during an oil price bust, there is tremendous price deflation throughout the exploration and production supply chain, driving down the marginal cost of oil and creating financial distress, particularly for parts suppliers and other oil service companies. We hear from our managers that $4.0mm per well developments costs have in some locations fallen to $2.2mm per well.

While the oil price decline caused a large decline in energy earnings and rising energy credit spreads, investment grade producers account for 75% of US oil output; only 8% are rated B or lower. Credit conditions alone will have a modest impact on the sector’s ability to operate and raise capital.

Non-energy earnings growth stable
Calendar year earnings for S&P 500 sectors, 2014 = 100

US high yield corporate bond spreads
Spread to worst over 10-year treasury

Large cap energy price-to-book ratio relative to the market is now at the lowest levels in decades; if oil prices stay where they are, 30% of energy HY issues could default by 2017.

Bottom-up Energy default analysis

Note: All above scenarios assume $2.75 gas.

What could eventually drive oil prices higher? US oil production typically follows the rig count (which is more of a drilling indicator than a production indicator). As in prior oil market adjustments, declines in global oil capital spending are underway and will eventually result in less supply, shifting the narrative to the 3%-5% decline rates on existing fields. Note that cash flow from operations for global oil majors includes a large benefit from prior oil hedges, which will be rolling off in 2016-2017.

Declining oil prices led to declines in Saudi Arabian Monetary Agency balances in 2015. Based on IMF projections made in 2014, these declines could continue, given low oil prices and high levels of Saudi entitlement spending. The Saudis may eventually tire of low oil prices, capital flight, reserve depletion and having to issue debt to support entitlement spending. If so, they may (eventually) take steps to tighten supply once excess oil supply is gradually absorbed. However, Saudi debt reached 100% of GDP in the late 1990s, so there may be a long way to go before that happens.

**Key US shale oil plays: Bakken, Eagle Ford, Permian**

<table>
<thead>
<tr>
<th>Oil rig count</th>
<th>Oil production (mm barrels/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-2008</td>
<td>2009-2010</td>
</tr>
<tr>
<td>1,200</td>
<td>1,000</td>
</tr>
</tbody>
</table>


**The eventual supply adjustment is underway**

2015 US$ billions, based on 97 major global oil companies

![Graph showing oil production and rig count](image)

Source: Energy Information Administration, JPMAM. Q2 2015.

**Impact of government spending and oil prices on government deposits at SAMA, Saudi Riyals billions**

![Graph showing government deposits impact](image)

Source: IMF Article IV Consultation. September 2014. *Oil is Brent Crude

Oil prices may remain below $40 for a few months in 2016, but by early 2017, the gradual supply-demand adjustment (including the absorption of idle storage) will be well underway, at which point oil prices will likely start rising again.

![Graph showing Brent oil price](image)

Credit risk of US states: broad generalizations do not apply

Municipal bond risk will only become more important over time, as assets of some severely underfunded plans are gradually depleted. As a result, we summarize below a prior deep-dive analysis we published on municipal risk at the state level.

The direct indebtedness of US states (excluding revenue bonds) is $500 billion. However, bonds are just one part of the picture: states have another trillion in future obligations related to pension and retiree healthcare. In the summer of 2014, we conducted a deep-dive analysis of US states, incorporating bonds, pension obligations and retiree healthcare obligations. After reviewing over 300 Comprehensive Annual Financial Reports from different states, we pulled together an assessment of each state’s total debt service relative to its tax collections, incorporating the need to pay down underfunded pension and retiree healthcare obligations. In our Executive Summary, we showed the chart below as a synopsis of our findings. While there are five states with significant challenges, the majority of states have debt service-to-revenue ratios that are more manageable.

As a brief summary, we computed the ratio of debt, pension and retiree healthcare payments to state revenues. The blue bars show what states are currently paying. The orange bars show this ratio assuming that states pay what they owe on a full-accrual basis, assuming a 30-year term for amortizing unfunded pension and retiree healthcare obligations, and assuming a 6% return on pension plan assets. States below the green bar are spending less than 15% of total revenues on debt, which seems manageable from an economic and political perspective. When this ratio rises above 15%, harder discussions in the state legislature about difficult choices begin.

The highly challenged economics of a handful of state pension and retiree healthcare plans

% of state revenue collections required to pay the sum of interest on bonded debt, plus the state’s share of defined benefit plan contributions, retiree healthcare costs and defined contribution plan expenses

Sources: J.P. Morgan Asset Management; state/pension plan Comprehensive Annual Financial Reports; BEA; Pew Research; Moody’s; Census; Merrill; Loop Capital Markets. All data as of 2012.

It would take a long time for underfunded pension plans (e.g., 60% funded) to run out of cash, given the long duration of plan liabilities. But as investors learned in Puerto Rico and Greece, bond markets can drift along unconcerned with mounting fundamental problems, only to experience a rapid repricing at times that cannot be predicted. As a reminder, this analysis applies to states and not to city, county and other in-state issuers. Please contact your J.P. Morgan coverage team for a copy of the report.

Private equity: an update on performance vs. public markets

[This section is a summary of an Eye on the Market private equity review published in August 2015]

The Public Market Equivalent is a ratio of private equity to public equity performance, accounting for the timing of private equity cash flows and all fees. From 1980 to 2012, the PME for a large universe of 1,400 funds averaged 1.25, which is equivalent to excess returns of 3%-4% per year. Our latest review includes 2 more vintage years (2009 and 2010), with returns on all funds through June 2014. The additional vintage years have stiff hurdles ahead of them: since January 2009 and January 2010, the S&P 500 has risen by 158% and 104%. So far, buyout funds from these vintage years are trailing public markets, with PMEs slightly below 1.00. To be clear, only ~20% of buyout investments from these vintage years have been realized; their PMEs are primarily based on valuations rather than distributions, and may change as funds exit investments through IPOs, sales to strategic buyers or other private equity funds. Research indicates that residual values tend to be conservative estimates of the ultimate cash returned to investors. Nevertheless, it’s useful to start tracking how these vintage years are doing.

We are often asked whether different weighting approaches or benchmarks would have yielded different results. As shown below, PME results are similar whether computing average fund returns, median fund returns, or returns weighted by size of fund. Results are also similar whether using the S&P 500, the Russell 2000 or the Russell 3000 as the public equity benchmark.

In the current environment, sector-focused funds, private credit funds, real estate funds, and growth equity funds appear to offer better value than buyout, which is very much a seller’s market, given ample liquidity, rising purchase multiples and plenty of competition from strategic (corporate) buyers.

Private equity firms: largely sitting out the M&A wave

While worldwide M&A activity in 2015 rose above the prior 2007 high, it was driven more by strategic acquisitions by companies than by buyout firms, whose activity is still less than 1/3 of 2006 levels. Rising equity market valuations have given public companies more buying power at the same time that leveraged lending by banks is constrained by new OCC rules governing senior debt leverage, repayment timetables for senior debt, covenants and collateral protection. In other words, buyout firms are generally doing a lot more selling than buying these days.

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Hedge funds: generally delivering lower returns in line with risk-based benchmarks

What’s the best way to assess performance of a diversified hedge fund portfolio? Thresholds like “8%” or “Libor + 3%” are unrealistically high in some markets, and too low in others. A common shorthand approach compares hedge fund returns to a stock-bond portfolio with a similar risk profile, in which “risk” is defined as the volatility of monthly returns. What stock-bond portfolio mix makes sense? As shown by the brown line in the first chart, while a 60% Equity / 40% Bond mix is popular, it has consistently generated a lot more volatility than the HFRI Composite. A benchmark of 45% Equity / 55% Bond is closer, albeit with a +/- 2% margin of error (blue line).

We can get closer to replicating the volatility of the HFRI Composite with a 6-factor model of US large cap, US small cap, emerging market equities, high yield, commodities and cash (green dotted line). Since 2001, the model’s combined equity weights are ~30% rather than 45%-50%.

With that framework in place, we can now evaluate how hedge funds have been doing. As shown in the chart on the right, the rolling 3-year performance of hedge funds, as proxied by the HFRI composite, has been in mid-single digits. While this is far from heroic performance, it’s more or less in line with the composite benchmark described above, suggesting that the risk-return is a “fair” one.

Is it fair to use the HFRI Composite (which an investor cannot buy) as a proxy for a diversified hedge fund portfolio? In other words, does it have similar risk? To examine this question, we created 1,000 random portfolios of 20 hedge funds based on certain criteria (at least seven years of performance, at least $750mm of AUM, and equal weighted among long-short, macro, event-driven and relative value). The volatilities of these random portfolios were usually less than the HFRI Composite (see chart below), so we proceeded under the assumption that the HFRI does not understate diversified hedge fund portfolio volatility.

Distribution of return volatilities of randomly generated portfolios of 20 hedge funds, 2004-2013


The changing client focus of hedge fund managers

As recently as 2002, 80% of hedge fund assets under management were invested on behalf of individuals. This number has fallen to one-third, as more and more institutional investors allocate to hedge funds. One of the consequences: the risk-return objectives of many institutions allocating to hedge funds are lower than those of individuals. That may be contributing to a decline in both hedge fund return and volatility, particularly during a period of financial repression.

How bad is Brazil, and what is the risk of contagion through sovereign default?

Brazil has been hit perhaps the hardest by the end of China’s capital spending boom and the decline in commodity prices. The situation in Brazil is as bad as anything I have seen since working on a J.P. Morgan team to restructure its external debt in 1994:

- Among the measures that are as bad or worse than 1994: GDP growth, the output gap (a measure of growth relative to potential), the current account deficit and the trade balance
- Inflation and unemployment are rising sharply, growth is falling, exports are still weak despite a collapse in the Real, and a 9% budget deficit (exacerbated by losses on Central Bank derivative positions) will add to domestic debt which has risen close to 2002 levels
- Domestic lending rates are now around 22% for corporations and 39% for households
- Even though equities are falling, earnings projections are falling just as quickly, so that P/Es are not at deep value levels
- J.P. Morgan Securities expects further weakness in the Real in 2016, along with refinancing risk on maturing external debt, rising delinquencies and deteriorating asset quality
- **The consequences are likely to be continued weakness in domestic Brazilian assets (note: the Bovespa is already down 74% from its 2010 peak in US dollar terms), and write-downs on some foreign direct investment that flowed into Brazil during the commodity boom.**

At some point, inflation should decline back into single digits when the Real stops falling, but that will take time, and then there will be **tough decisions to make**: Brazil will have to bring its domestic debt back down through fiscal consolidation, or monetize its public debt via the Central Bank. This will not be fun to watch, particularly if Brazil enacts capital controls to force real interest rates down without triggering capital flight (there may be some US academics who will counsel Brazil to do exactly this as a reaction against “unruly and mercenary capital flows”). Legislators tasked with fiscal consolidation will have to confront entitlements (see box), which increased markedly during the commodity price boom.

### Brazil and entitlements: some data points

- Brazil’s population retires on average at 54-55
- The social security deficit may hit 2% of GDP in 2016, and keep increasing since benefit adjustments are set at prior year inflation plus 2-year lagged real GDP growth
- 90% of government expenditures are mandated by law, and many grow at a rate above inflation
- While Brazil is a “young” country (only India has a lower % of population over 60), Brazil pension spending is 9% of GDP (more than twice the EM average of 4%), and its population is aging quickly
- “Think Greece, but on a crazier, more colossal scale,” said Paulo Tafner, economist and leading authority on Brazil’s pension system. “The entire country should be frightened to its core. The pensions Brazilians obtain and the ages at which they start receiving them are nothing less than scandalous.” [NYT 10-20-2015]
More bad facts: a lot of government and private sector debt and wages are indexed to inflation, which makes the inflation-recession-currency decline-capital outflow spiral even worse. In the 1990s, Brazil followed a path of de-indexing wages and prices, but reversed a lot of those measures from 2003 to 2011. By some measures, collective bargaining covers 60% of labor contracts, even higher than in Argentina, 3x higher than in India and 6x higher than in Mexico.

Even so, the risk of Brazilian sovereign default on external debt is lower than in 2002, primarily due to a shift in sovereign financing from external to domestic debt. Public sector external debt to GDP was 18% in 2002 and is only 5% today. The majority of Brazilian external debt is related to the corporate sector, and Petrobras specifically. Another way of saying it: Brazil has a lot of problems, but unlike Greece (2009) and Argentina (2001), Brazilian sovereign external debt is NOT the core problem, and defaulting on it would probably not be a part of a solution.

To be clear, Brazil’s sovereign risk is not as low as in Thailand and Malaysia in 1998, when balance of payments problems were mostly related to corporate leverage and exchange rates. Brazil’s public finances are now in much worse shape; inflation-indexed and short-term debt will come back to haunt Brazil in the form of higher debt balances and higher debt service costs. However, given Brazil’s reliance on domestic financing, credit spreads on external debt may eventually overestimate default risk if they keep rising (particularly as passive and active owners of sovereign and corporate debt are forced to sell now that Brazil has been downgraded to junk status by both S&P and Fitch).

What about “Petrobranchitis”? Petrobras debt quintupled from 2009 to 2014, and the company hasn’t generated free cash flow since 2008. Its financing challenges will have to be resolved in 2016, given US$ 24 billion of debt maturities over the next 2 years. By the end of 2016, Petrobras could burn through all of its cash in the absence of (a) asset sales, (b) extraordinary government support, (c) balance sheet expansion by local banks to replace international bondholders or (d) a substantially dilutive equity offering. Moody’s and S&P believe there’s a high probability of government support, but it’s unclear what form this support would take. Caution is warranted here, despite yields in the 12%-14% range.
Special topics in 2015: The Millennials, and high-renewable electricity grids

We published 3 Special Edition Eye on the Market issues in 2015. The first was on oil (covered in this document on pages 31-33); the second was on millennials, and the third was our annual energy paper.

The Millennials used fictional case studies to determine the amount of savings needed for retirement. Standard retirement calculations incorporate the possibility of below-average investment returns, but we also wanted to incorporate other real-life issues people face. According to Boston College, over any 10-year period, more than 3/4 of adults aged 50-60 experience job layoffs, widowhood, divorce, new health problems, or the onset of frailty among parents or in-laws. The first chart shows required savings rates needed to maintain solvency throughout retirement, even if adverse events take place. Savings rates are defined as pre-tax contributions to qualified plans by both spouses, starting at age 25. The 2nd chart shows what happens if millennials don’t save enough; their retirement spending as a % of pre-retirement income collapses. You can find the Executive Summary of The Millennials here.

Brave New World. In our last few annual energy notes, we analyzed the individual components of the electricity grid: coal, nuclear, natural gas, wind, solar and energy storage. This year, we looked at how they fit together in a system dominated by renewable energy, with a focus on cost and CO2 emissions. The importance of understanding such systems is amplified by President Obama’s “Clean Power Plan”, a by-product of which will likely be greater use of renewable energy for electricity generation.

There’s variability in wind and solar generation, even across large geographic areas. For example, assuming California increased wind capacity by 5x and solar capacity by 8x, it could meet 91% of demand with renewable energy in June, but only 52% of demand in January. How would electricity demand be met at times of low renewable generation, and how much will it cost? Will demand be met by time-shifted storage of surplus renewable energy? Via backup thermal power (coal or natural gas)? Could geographic diversification of renewable energy reduce backup power needs? Or will demand management be required, which aims to reconfigure consumer demand to match renewable generation? And what about places that are not blessed with ample solar and wind resources? These are the questions we analyzed in this year’s paper, entitled “Brave New World”.

The bottom line: while a high renewable system can result in 70%-80% reductions in CO2 emissions, its cost is significantly higher than current systems, even when assuming learning curves on wind, solar and storage. Grid expansion, storing electricity in electric car batteries, demand management and renewable energy overbuilding are interesting ideas, but rely to some extent on conjecture, insufficient empirical support and/or incomplete assessments of related costs. And where wind/solar capacity factors are low, costs will be even higher. You can find the Executive Summary of our annual energy paper here.
Sources and acronyms


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Before joining Asset Management, Mr. Cembalest served as head strategist for Emerging Markets Fixed Income at J.P. Morgan Securities. Mr. Cembalest joined J.P. Morgan in 1987 as a member of the firm’s Corporate Finance division.

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