Deutsche Bank
Markets Research

Global | Economics

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Peter Hooper
Chief Economist
(+1) 212 250-7352
peter.hooper@db.com

Michael Spencer
Chief Economist
(+852)2203 8303
michael.spencer@db.com

Torsten Slok
Chief Economist
(+1) 212 250-2155
torsten.slok@db.com

Thomas Mayer
Advisor
(+49) 69 910-30800
tom.mayer@db.com

Global Economic Perspectives

US Shale Shock and Dutch Disease; BoJ Shock and Awe

Shale shock & the US macro-economy: A case of Dutch disease?

The shale energy revolution has reversed a several decades long downward trend in US energy production and caused US energy to trade at sharp discounts to global equivalents. For the most part, these broad trends are projected to persist through at least the next decade. This week's GEP considers the implications of this revolution for the US economy, giving special focus to the impact on the manufacturing industry and the potential for the US to catch a case of the Dutch disease.

US industry should benefit from these developments, as the sharp discount of US energy prices relative to international equivalents provides a significant comparative advantage. And although US consumers are not likely to receive a substantial direct benefit from these dynamics in the near term because natural gas is a small share of personal consumption expenditure and US gasoline prices have been tied more closely to international oil prices, US consumers should benefit from lower overall inflation. In addition, a continued increase in US energy production will lead to an improvement in net exports.

Contrary to the Dutch disease diagnosis, we find that US manufacturing is likely to benefit, rather than be hurt by, the shale energy boom for several reasons. First, the sharp discounts on US energy prices give US manufacturing a comparative advantage over international competitors. Second, US manufacturing output is not especially sensitive to changes in the value of the dollar, partly because imported intermediates, which are cheaper with a stronger dollar, are important for manufacturing productivity. Third, the negative effects on the broader economy from a natural resource boom that have been observed in other economies should be limited because the US is a relatively closed economy and manufacturing is a small share of US GDP. In other words, we do not believe that the shale shock will lead to a serious case of the Dutch disease in the US.

Shock and Awe from the BoJ

The BoJ under new leadership and desperate to end deflation has pulled out all the stops. By joining other major central banks in a willingness to use balance sheet policy much more aggressively than heretofore, we think they have a reasonable chance of succeeding in raising growth and inflation significantly, if not to the full 2% level that has been targeted. A key channel of transmission, yen depreciation, may well have significantly further to run, but is unlikely to be discussed publicly by the BoJ. In a second piece this week we provide some background analysis of the BoJ's historic move.

Key Economic Forecasts

	Real GDP % growth b			Consumer Prices % growth c			Current Account % of GDP d			Fiscal Balance % of GDP		
	2012F	2013F	2014F	2012F	2013F	2014F	2012F	2013F	2014F	2012F	2013F	2014F
US	2.2	2.3	**3.3**	2.1	2.3	2.6	-3.1	-3.1	**-3.3**	-6.8	-6.3	-5.3
Japan	2.0	1.4	0.6	0.0	0.0	2.0	1.0	1.2	2.3	-9.6	-9.4	-7.4
Euroland	-0.6	-0.6	1.0	2.5	1.6	1.6	1.2	1.7	1.6	-3.2	-3.0	-2.6
Germany	0.7	0.3	1.5	2.1	1.7	1.8	7.0	6.3	6.1	0.2	-0.4	-0.2
France	0.0	-0.6	1.1	2.2	1.4	1.5	-2.4	-2.2	-1.9	-4.6	-3.8	-3.2
Italy	-2.4	-1.8	0.4	3.3	1.8	1.6	-0.6	0.4	0.4	-3.0	-2.6	-2.8
Spain	-1.4	-1.6	0.5	2.4	1.9	1.3	-1.1	0.5	0.3	-10.0	-6.2	-5.3
UK	0.3	0.5	1.8	2.8	3.0	2.6	-3.7	-3.1	-2.5	-7.8	-7.1	-6.4
Sweden	1.2	1.3	2.3	0.9	1.0	1.5	7.2	6.5	6.0	-0.7	-0.5	0.0
Denmark	-0.5	0.3	1.5	2.4	2.0	2.0	5.6	5.0	4.5	-4.4	-2.5	-2.0
Norway	3.0	2.2	2.6	0.7	1.8	2.0	14.1	14.0	13.0	10.1	10.5	10.0
Poland	2.1	1.4	2.3	3.7	1.8	2.5	-3.5	-2.3	-3.0	-3.6	-3.5	-2.9
Hungary	-1.7	-0.2	1.6	5.7	2.6	3.1	1.0	1.6	0.9	-3.0	-2.9	-2.8
Czech Republic	-1.2	0.7	2.8	3.3	2.1	2.0	-2.4	-2.3	-2.3	-5.0	-3.2	-2.7
Australia	3.6	2.5	4.0	1.8	2.5	2.3	-3.7	-3.2	-3.0	-3.0	-1.8	-1.0
Canada	1.8	2.1	3.0	1.5	2.4	2.3	-2.6	-1.9	-1.3	-1.4	-1.1	-0.7
Asia (ex Japan)	5.9	6.8	7.5	3.8	3.9	4.2	1.4	0.9	0.6	-2.8	-3.0	-2.5
India	4.1	6.9	7.2	7.5	6.5	6.4	-4.9	-4.9	-4.4	-7.7	-7.5	-7.3
China	7.8	8.2	8.9	2.6	3.0	3.5	2.7	2.0	1.6	-1.6	-2.1	-1.5
Latin America	2.8	3.5	4.0	7.8	8.3	8.2	-1.3	-1.4	-1.6	-2.6	-2.3	-1.9
Brazil	0.9	3.3	4.2	5.4	6.0	5.4	-2.4	-2.6	-2.8	-2.5	-2.9	-2.5
EMEA	2.8	3.4	3.9	5.2	5.3	5.1	1.5	1.4	0.4	-0.5	-0.5	-0.3
Russia	3.4	4.3	4.2	5.2	6.5	6.1	4.1	3.3	1.4	0.0	0.0	0.2
G7	1.4	1.3	2.2	1.9	1.8	2.3						
World	2.9	3.2	4.0	3.3	3.3	3.6						

Source: Deutsche Bank

a) Euroland forecasts as at the last forecast round on 22/03/13. Bold figures signal upward revisions, bold, underlined figures signal downward revisions. (b) GDP figures refer to working day adjusted data. (c) HICP figures for euro-zone countries and the UK (d) Current account figures for Euro area countries include intra regional transactions.

Forecasts: G7 quarterly GDP growth

% qoq saar/annual: % yoy	Q1 12	Q2 12	Q3 12	Q4 12	2012	Q1 13F	Q2 13F	Q3 13F	Q4 13F	2013F	2014F
US	2.0	1.3	3.1	0.4	***2.2***	3.0	2.3	3.0	3.5	***2.3***	***3.3***
Japan	6.1	-0.9	-3.7	0.2	***2.0***	3.1	3.4	2.6	2.5	***1.4***	***0.6***
Euroland	-0.3	-0.6	-0.3	-2.3	***-0.6***	-1.0	0.0	0.7	0.8	***-0.6***	***1.0***
Germany	2.0	1.1	0.9	-2.4	***0.7***	0.6	1.5	1.7	1.0	***0.3***	***1.5***
France	-0.2	-0.4	0.7	-1.2	***0.0***	-1.3	-0.5	0.2	0.7	***-0.6***	***1.1***
Italy	-3.7	-3.0	-0.8	-3.7	***-2.4***	-2.3	-1.2	0.0	0.4	***-1.8***	***0.4***
UK	-0.3	-1.5	3.8	-1.2	***0.3***	-0.2	0.6	1.0	1.5	***0.5***	***1.8***
Canada	1.2	1.9	0.7	0.6	***1.8***	2.5	2.8	3.0	3.7	***2.1***	***3.0***
G7	1.9	0.3	1.3	-0.5	***1.4***	1.8	1.8	2.2	2.5	***1.3***	***2.2***

Sources: National authorities, Deutsche Bank

Shale shock & the US macro-economy: A case of Dutch disease?

- The shale energy revolution has reversed a several decades long downward trend in US energy production and caused US energy to trade at sharp discounts to global equivalents. For the most part, these broad trends are projected to persist through at least the next decade. This week's GEP considers the implications of this revolution for the US economy, giving special focus to the impact on the manufacturing industry and the potential for the US to catch a case of the Dutch disease.
- US industry should benefit from these developments, as the sharp discount of US energy prices relative to international equivalents provides a significant comparative advantage. And although US consumers are not likely to receive a substantial direct benefit from these dynamics in the near term because natural gas is a small share of personal consumption expenditure and US gasoline prices have been tied more closely to international oil prices, US consumers should benefit from lower overall inflation. In addition, a continued increase in US energy production should lead to an improvement in net exports.
- Contrary to the Dutch disease diagnosis, we find that US manufacturing is likely to benefit, rather than be hurt by, the shale energy boom for several reasons. First, the sharp discounts on US energy prices give US manufacturing a comparative advantage over international competitors. Second, US manufacturing output is not especially sensitive to changes in the value of the dollar, partly because imported intermediates, which are cheaper with a stronger dollar, are important for manufacturing productivity. Third, the negative effects on the broader economy from a natural resource boom that have been observed in other economies should be limited because the US is a relatively closed economy and manufacturing is a small share of US GDP. In other words, we do not believe that the shale shock will lead to a serious case of the Dutch disease in the US.

Introduction[1]

The leveraging of technological advances to economically extract oil and gas from unconventional sources has dramatically changed the dynamics of US and global energy markets. US Natural gas production reached a new historical high in 2012, and US oil production recently reversed a two decades long downtrend due to the application of these methods to the extraction of crude oil. At the same time, rapidly rising supply combined with both a lack of infrastructure to transport and export the product and a ban on the export of crude oil from the US, has led to large pricing differentials between the US and global energy markets, as US oil and natural gas have traded at dramatic discounts to their global equivalents.[2]

What does all of this mean for the outlook for the US macro-economy? At one level, the economic benefits of this revolution seem obvious. Increased energy production will move the US toward energy independence, lower energy

[1] We would like to thank Sourav Dasgupta, Kaushik Baidya, and Rajsekhar Bhattacharyya for their contributions to this research piece.

[2] For a more detailed analysis of the shale energy boom, see: Sankey, P., D.T. Clark, S. Micheloto, and W. Nip (February 28, 2012), "The Future of US Oil." DB Markets Research.
Sankey, P., D.T. Clark, S. Micheloto, and W. Nip (December 18, 2012), "Future of US Oil: 2013 Preview – The Bucket List." DB Markets Research.
For an analysis of the implications of this revolution for Asian economies, see: Baig, T. and S. Choi (March 22, 2013), "Shale shock." DB Asia Economics Special.

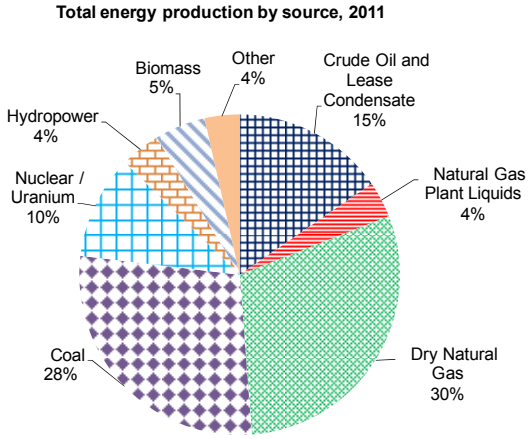
prices and boost consumer discretionary income, and reduce input costs for energy-intensive industries, providing a comparative advantage for US manufacturing. However, observers have also suggested that this "shale shock" may have some significant negative side-effects, namely the so called "Dutch disease." This is in reference to the experience of the Netherlands following its major natural gas discovery in the North Sea in the 1960s. Becoming a major producer and exporter of energy absorbed much of the country's fixed investment, led to an appreciation of the Dutch currency, and depressed its trade-sensitive manufacturing sector. Could the same happen in the US, especially after the current energy cost advantages have worn off?

To address these questions, we begin by reviewing briefly recent and prospective developments in the US energy sector. We then turn to the broad macroeconomic implications of these developments, and finally, we address more specifically the potential for a serious case of Dutch disease in the US.

Prospects for US shale energy

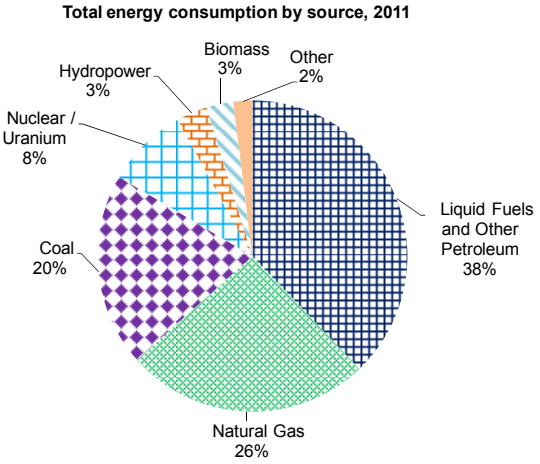
Crude oil and natural gas are a large share of US energy production and consumption. Crude oil production accounted for roughly 15% of total US energy production in 2011, while natural gas accounted for another 35% of production (Chart 1). Coal remains more than 25% of US energy production, and alternative sources, such as nuclear and hydropower account for the majority of remaining production. In terms of consumption, oil and natural gas account for roughly 2/3 of US energy consumption (Chart 2).

Chart 1. Crude oil and natural gas are a large share of US energy production



Note: 'Other' includes 'other Renewable energy' and non-biogenic municipal waste, liquid hydrogen, methanol, and some domestic inputs to refineries.
Source: EIA, DB Global Market Research

Chart 2. Crude oil and natural gas also large share of US energy consumption

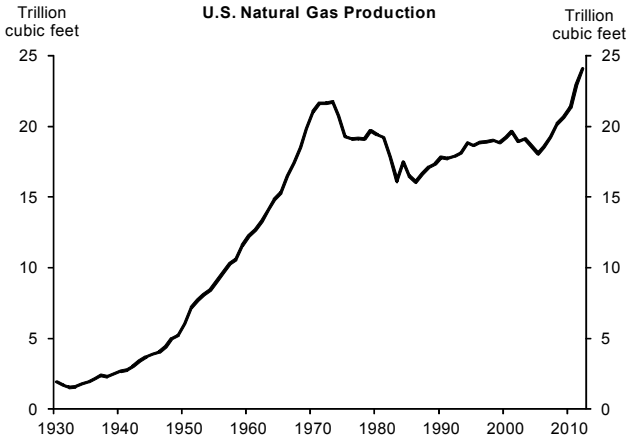


Note: 'Other' includes 'other Renewable energy' and non-biogenic municipal waste, liquid hydrogen, methanol, and some domestic inputs to refineries.
Source: EIA, DB Global Market Research

Recent trends

Shale energy boom began with natural gas in mid-2000s. Although US natural gas production climbed rapidly from the 1930s into the 1970s, production stagnated over the following three decades (Chart 3). This trend reversed in the mid-2000s with the large-scale implementation of unconventional wells, including both "tight" and shale production.[3] While conventional energy accounted for about 90% of all gas production in the early 1990s, unconventional gas, including tight and shale, accounted for almost 50% of all natural gas production by 2009 (Chart 4). And while all other resources have continued to decline, the rise in shale gas has led the rise in total US natural gas production over the past several years.

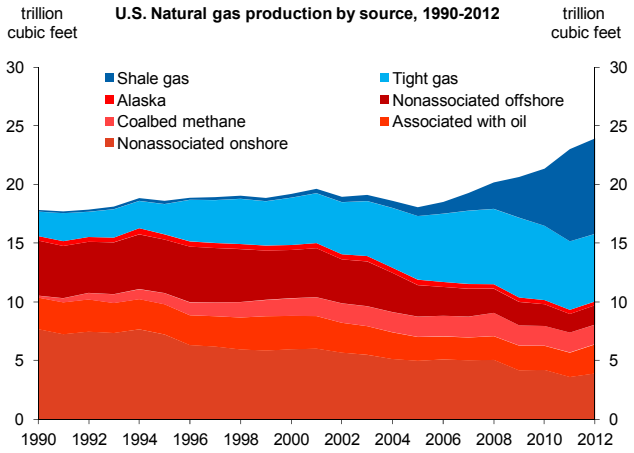
Chart 3. Natural gas production began to rise in the mid-2000s…



Sources: EIA, DB Global Market Research

[3] Conventional resources refer to those found in accessible gas reservoirs or oil wells. Unconventional resources require more advanced extraction techniques and include tight sands and shale energy trapped deep in sedimentary rock.

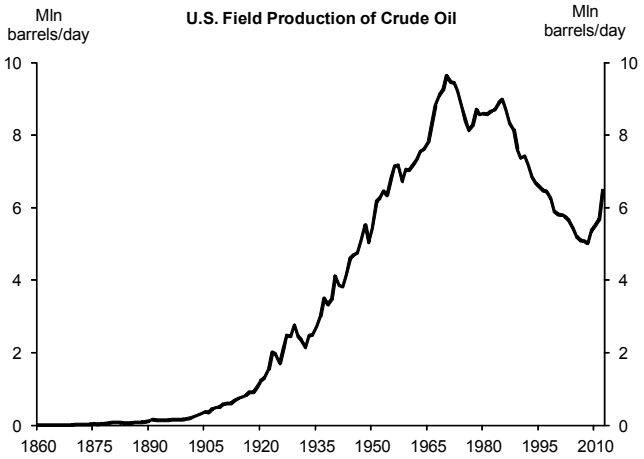
Chart 4. …led by increases in shale gas production.



Sources: EIA, DB Global Market Research

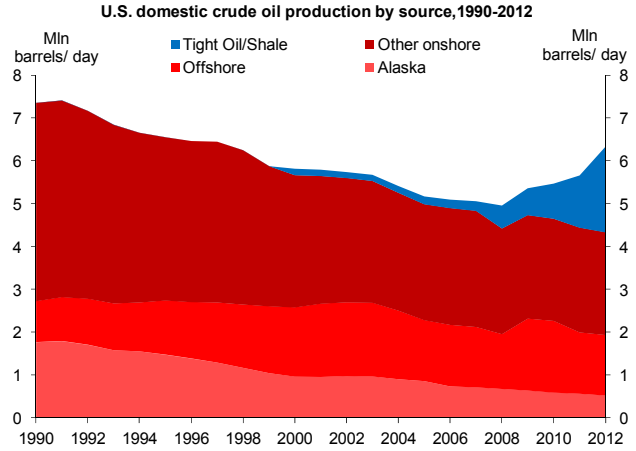
Shale energy boom recently extended to US crude oil. US crude oil production has followed a broadly similar path to natural gas. After steadily increasing production through the 1960s, this trend then reversed, and US crude oil production declined through the mid-2000s (Chart 5). The reversal of this downward trend in the 2000s is due entirely to tight/shale oil production (Chart 6). While all forms of conventional production have continued to decline, tight/shale production has climbed from zero barrels per day in the mid-1990s to almost 2 million barrels per day (mmbpd) by 2012, with most of the growth occurring over the past several years.

Chart 5. Crude oil production also reversed a decade long downward trend in the mid-2000s….



Sources: EIA, DB Global Market Research

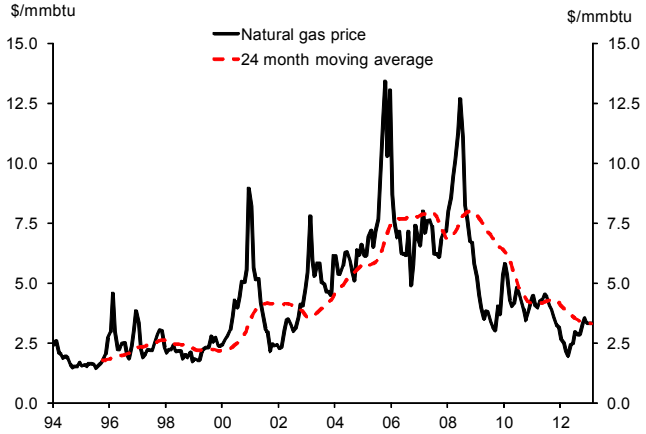
Chart 6. …and higher production has come entirely from tight/shale oil



Sources: EIA, DB Global Market Research

US natural gas prices have plummeted. The rapid rise in US energy production has occurred against a backdrop of moderating US energy demand, thanks both to the economic slowdown and ongoing adjustment of energy consumption patterns in response to past run-ups in oil and gas prices. While some of this demand will recover as the economy returns to full employment, the shift toward excess supply in the US market will also be magnified in the near to medium term by inadequate infrastructure to transport and export the rising energy supply and a federal ban on exporting domestically produced crude oil. This imbalance in the US market has already generated interesting energy price dynamics over the past several years. First, natural gas prices in the US, which peaked around $13/mmbtu (million British thermal units) in 2005, plummeted by about 85% to less than $2/mmbtu in 2012 (Chart 7). Although natural gas prices have since risen, they remain well below the levels prevailing in the mid-2000s. This sharp decline in natural gas prices has incentivized a transition away from other energy sources, such as coal, toward the usage of natural gas.

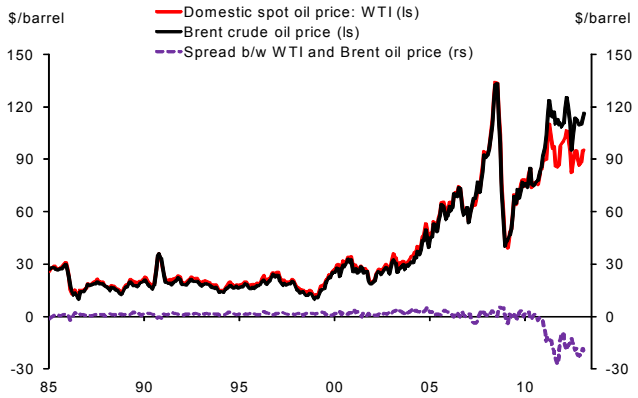
Chart 7. Natural gas prices have fallen since production picked up



Sources: WSJ, Haver Analytics, DB Global Market Research

A large discount between US crude and international prices has emerged. The significant increase in the supply of crude oil and inadequate infrastructure to transport away from the US Midwest, where WTI crude oil prices are recorded, has generated significant pricing differentials between WTI and Brent (Chart 8).[4] While the spread between WTI and Brent has historically been minimal – the mean spread between 1985 and 2009 was $1.30 – these dynamics just outlined have implied that WTI has often traded at more than a $20 discount to Brent since 2011, with an average discount of $17.

Chart 8. Increased oil supply has led WTI to trade at a sharp discount to Brent

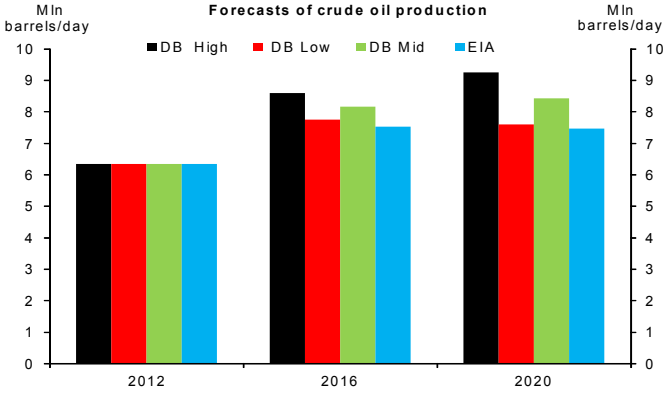


Sources: WSJ, FT, Haver Analytics, DB Global Market Research

Prospects for shale energy

Projections are for crude oil production to continue to grow. The estimates for future US energy production vary. In a bit dated forecast, the US Energy Information Administration (EIA) projects that US oil production will rise to a bit above 7mmbpd by 2016 and remain at about that level through 2020, while other more recent private estimates suggest oil production could reach as high as 10mmbpd by 2020. DB's baseline projection lies between these estimates, with oil production forecasted to rise to a bit above 8mmbpd by 2016 and remain at about that level through 2020 (Chart 9).[5] There is also some uncertainty around DB's projections, with lower- and upper-bounds in 2020 of 7.5mmbpd and 9.0mmbpd, respectively.

Chart 9. Oil production projected to rise over coming decade



Sources: EIA, DB energy equity research, DB Global Market Research

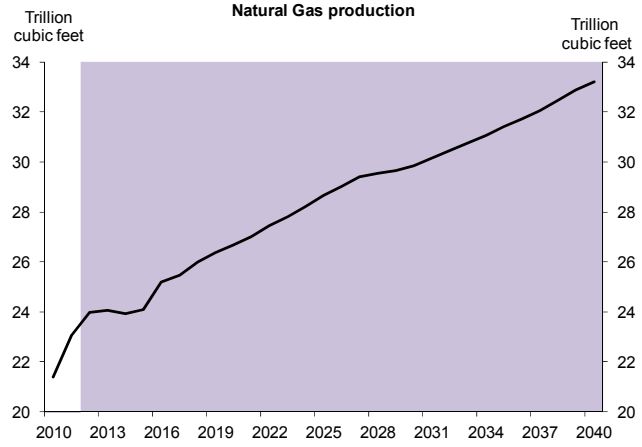
[4] Inadequate transportation infrastructure has also meant that inland oil – WTI – has traded at a discount to US coastal oil, such as in Louisiana.

[5] See: DB Markets Research (December 18, 2012), "Future of US Oil: 2013 Preview – The Bucket List." This estimate was marked up from the February 2012 projection because 2012 production exceeded earlier estimates.

Our energy equity research team believes that 2013 will be the "Year of the Pipeline", as more than 20 major-/mid-sized pipelines will go into service both this year and next. These planned pipelines will help alleviate some of the transportation infrastructure deficiencies and will lead to a narrowing of the discount between WTI and Brent prices in the year ahead. They project that this discount will be cut roughly in half by the end of this year to $10, but then will gradually rise again as production continues to expand and the US export ban leaves this supply trapped. This persistent discount between US and global energy prices will give a comparative advantage to industries located in the US, particularly those that are energy intensive. Lifting the crude oil export ban would imply a reduction in this price discount but may also incentivize greater production

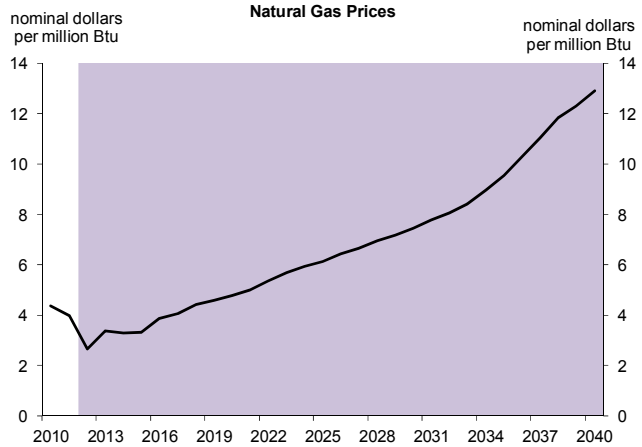
Natural gas production projected to rise steadily over the coming decades. The EIA projects that US natural gas production will expand 1.4% per year on average through 2020 and 1.2% per year on average through 2040 (Chart 10). At the same time, rising demand for natural gas will begin to put upward pressure on its price over the coming decades, but prices are expected to remain below those observed in the mid-2000s for at least a decade to come (Chart 11). Moreover, the sharp discount between US natural gas prices and international equivalents is projected to persist through at least the next decade.

Chart 10. Natural gas production projected to rise



Sources: EIA, DB Global Market Research

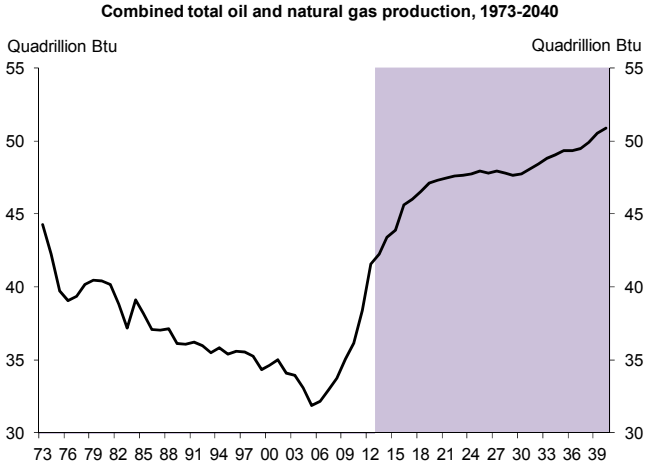
Chart 11. Natural gas price projected to rise as well



Sources: EIA, DB Global Market Research

These unconventional sources have resulted in a revolution in US energy. Combined total oil and natural gas production has risen sharply since 2006 after falling for more than 3 decades, and production is projected to continue to rise over the next several decades (Chart 12).

Chart 12. US energy production has risen sharply



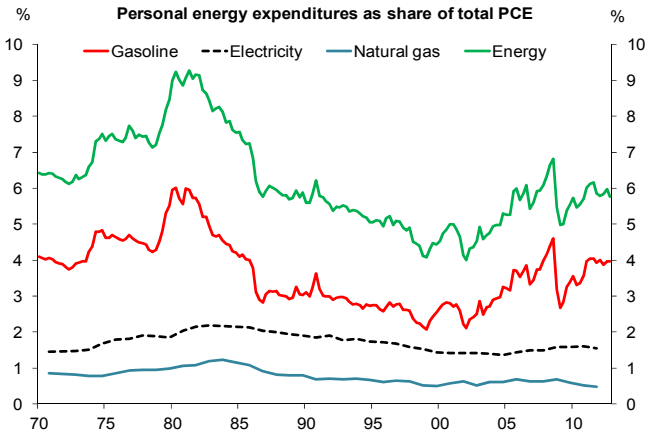
Source: EIA, DB Global Market Research

US macroeconomic implications

Consumers

Natural gas a small share of consumer spending. The extent to which US consumers have benefited directly from plummeting natural gas prices has thus far been limited. Total energy spending as a share of personal consumption expenditure (PCE) has recently fluctuated around 6%, about 2/3 of which is spending on gasoline, whose price is driven more by oil prices (Chart 13). Only about 0.5% of total PCE was devoted to natural gas expenditures. Thus, a drop in the price of natural gas from $6.00 in 2010 to about $2.00 in 2012 only freed up about $30-40bn in discretionary spending for US consumers on an annual basis in 2012. However, lower energy prices should benefit US consumers indirectly through lower overall inflation.

Chart 13. Consumers affected more by oil prices

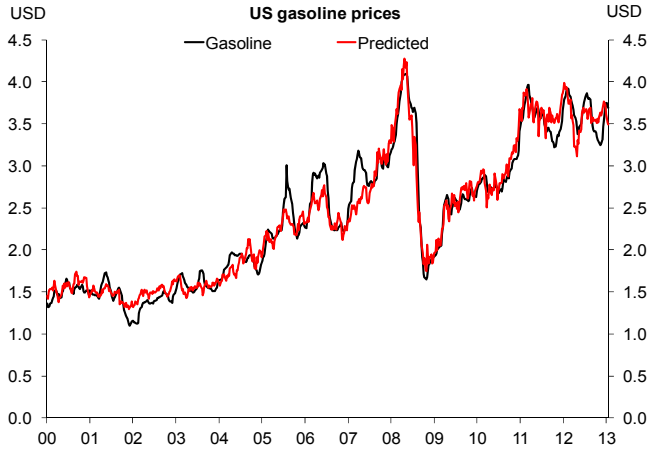


Note : Gasoline= gasoline + other energy goods; energy= oli+electricity+ natural gas
Sources: BEA, Haver Analytics, DB Global Market Research

US gas prices tied more closely to international oil prices. US consumers have also not benefitted greatly from the discount of WTI oil prices. Because there is more adequate infrastructure in the US to transport refined products, domestic

gasoline prices have been tied more closely to world oil prices than domestic oil prices.[6] In fact, a regression analysis of Brent oil prices on US gasoline prices has an R-squared of 0.96, suggesting that variations in Brent oil prices can explain almost all of the variation in US gasoline prices (Chart 14). This statistical relationship suggests that US gasoline prices tend to increase by $0.024 for every $1 increase in Brent oil prices.[7] It is possible that US consumers may benefit more from this discount if the marginal producer of gasoline in the US faces WTI prices and this relationship breaks down going forward.

Chart 14. US gasoline prices explained by price of Brent



Sources: Oil and Gas Journal, FT, Haver Analytics, Econbrowser.com, DB Global Market Research

As long as gasoline expenditures continue to be the largest share of consumer spending on energy and US gasoline prices are more closely determined by world oil prices, US consumers will see little of the direct benefit of the shale energy revolution through lower energy prices in the short run. Only with a more meaningful shift toward natural gas fueled expenditures would we expect to see an important benefit to US consumers from rising shale production. To this end, President Obama recently introduced an "Energy Security Trust", which will provide funding for technologies that will help consumers capitalize on lower energy costs, among other goals.[8]

Businesses

Energy-intensive industries to benefit from shale boom. The extent to which businesses will benefit from lower energy prices depends on their reliance on energy as an input. The transportation industry tends to be very energy intensive, measured here as the share of total output represented by petroleum and coal products inputs (Chart 15). In fact, the BEA input-output tables suggest that industries within transportation account for 5 out of the 10 most energy-intensive sectors in the US as of 2011. And the transportation sector has primarily used oil as its major energy input, even with the large decline in

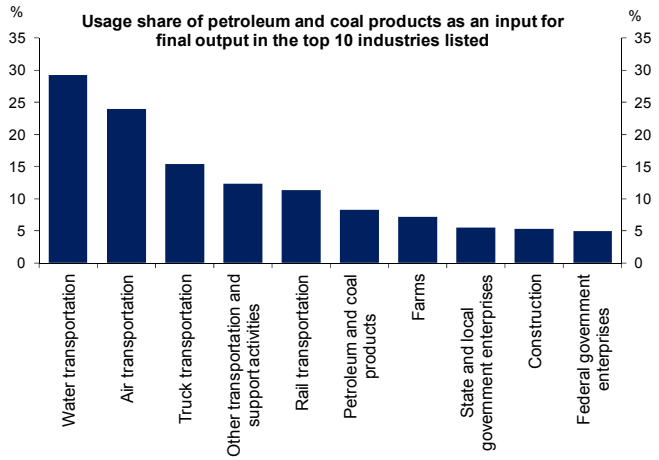
[6] See Borenstein, S. and R. Kellogg (2012), "The Incidence of an Oil Glut: Who Benefits from Cheap Crude Oil in the Midwest?" NBER Working Paper No. 18127.

[7] Specifically, we regress weekly, unleaded regular gas pump prices on a constant and weekly Brent crude oil prices. For a similar specification see: http://www.econbrowser.com/archives/2012/06/gasoline_prices_7.html. A similar regression including WTI instead of Brent produces a lower R-squared value of 0.93. We arrive at a similar finding if we restrict our analysis to the period spanning 2005 to the present: Brent prices are better predictors of US gasoline prices than WTI prices.

[8] See: http://www.whitehouse.gov/the-press-office/2013/03/15/fact-sheet-president-obama-s-blueprint-clean-and-secure-energy-future.

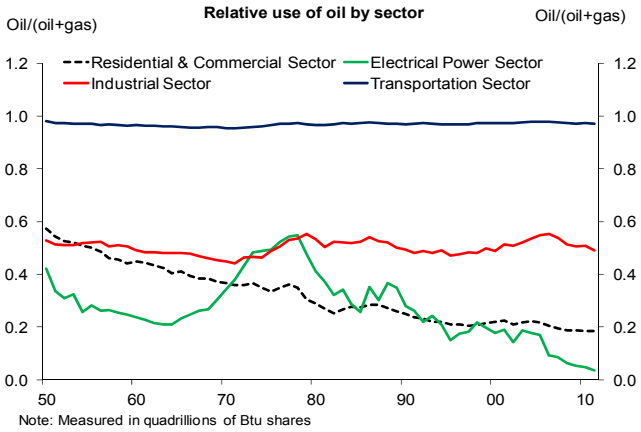
the price of natural gas relative to oil (Chart 16). Given that there is existing technology to capitalize on the falling relative cost of natural gas in the US, there appears to be significant scope for the transportation sector to shift from oil to gas. However, this shift will take time and will only occur with an outlook for sustained lower natural gas prices. On the other hand, the electrical power sector has very little room to further benefit from low natural gas prices, as the shift from oil to gas has largely been completed.

Chart 15. Transportation sector is very energy intensive



Sources: BEA, DB Global Market Research

Chart 16. Potential for significant benefit from a shift toward gas



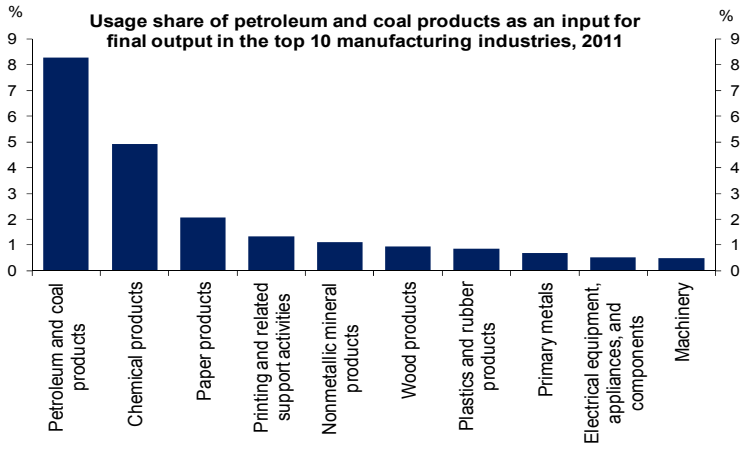
Sources: EIA, DB Global Market Research

Manufacturing to benefit, but energy is relatively small input. There is scope for the industrial sector to benefit from lower natural gas prices, as oil still has about a 50% share of energy use in that sector, down from 55% in 2006. And there has been a lot of discussion recently about the possible boom in US manufacturing in response to lower energy prices caused by the shale revolution. Anecdotally, there have been reports of plants relocating to the US to take advantage of lower energy costs.[9] We would expect the most energy-intensive manufacturing industries to benefit most from the shale energy revolution, including petroleum and coal, chemical, paper, and printing, among other industries (Chart 17). However, given that energy products account for a relatively small share of total output in these industries, we would express

[9] For example, see: "Shale gas lures global manufacturers to US industrial revival", May 26, 2013 (http://www.reuters.com/article/2013/03/26/manufacturing-shale-idUSL6N0CE57M20130326).

some caution about forecasting a US manufacturing revolution based on lower energy prices alone. Deciding on a plant location is a complex decision that considers not only input costs but the location of demand as well. While US manufacturing will surely benefit from rising global labor costs and lower energy prices, the relatively low energy intensity of a number of manufacturing industries suggests that the shale energy revolution may have a more muted impact on the overall US economy.

Chart 17. Most energy-intensive manufacturing industries

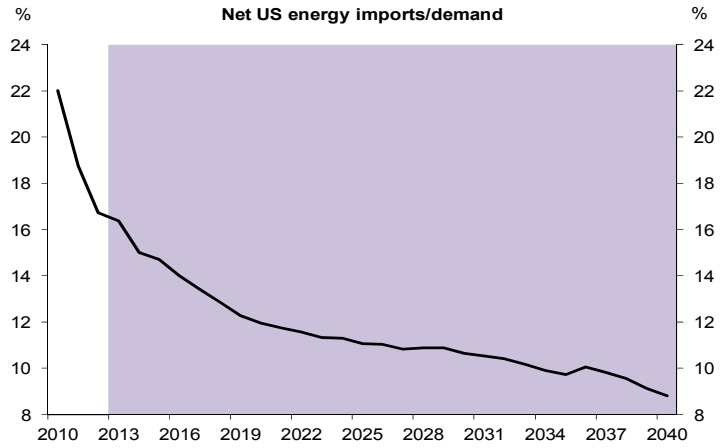


Sources: BEA, DB Global Market Research

Implications for external sector

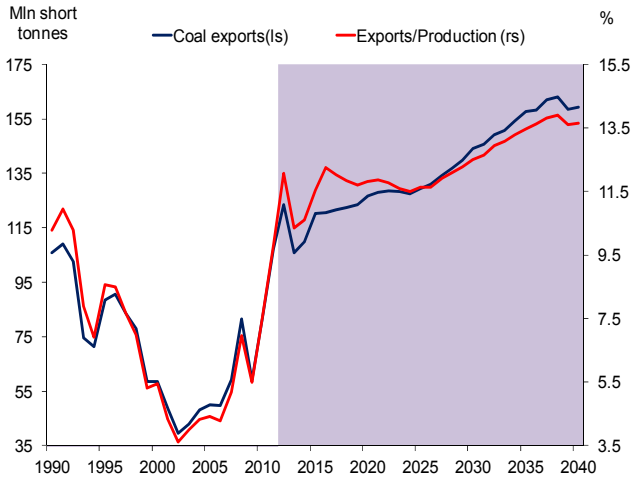
Net exports and dollar to benefit. Perhaps the most direct effect on the US economy from the shale energy revolution will be through net exports. Given the projected rise in US oil and natural gas production, energy imports relative to demand are projected to decline sharply from about 22% in 2010 to 9% in 2040 (Chart 18). The significant increase in shale natural gas production, and the subsequent shift in the electrical power sector toward natural gas, has increased US coal exports (Chart 19). While only about 3.5% of US coal production was exported in the early 2000s, 12% of coal production was exported in 2012, and this fraction is projected to approach 14% by 2040. The boom in US natural gas production has prompted natural gas import terminals to shift their infrastructure into export terminals and is also expected to swing the US from a net importer of natural gas to a net exporter in the coming decade (Chart 20).

Chart 18. Net energy imports to decline relative to demand



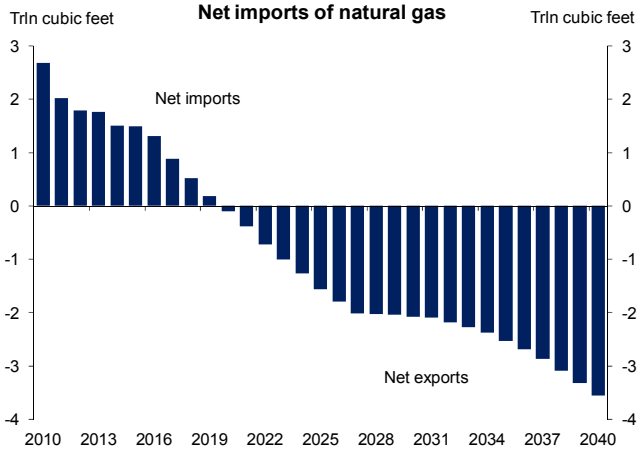
Sources: EIA, DB Global Market Research

Chart 19. Coal exports have increased



Sources: EIA, DB Global Market Research

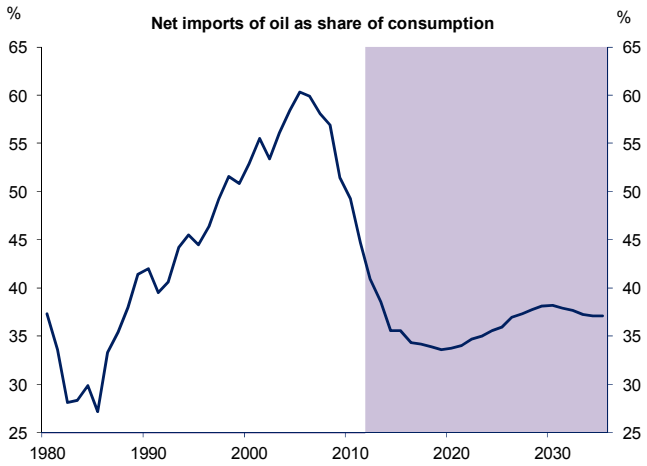
Chart 20. Natural gas net exports to turn positive



Sources: EIA, DB Global Market Research

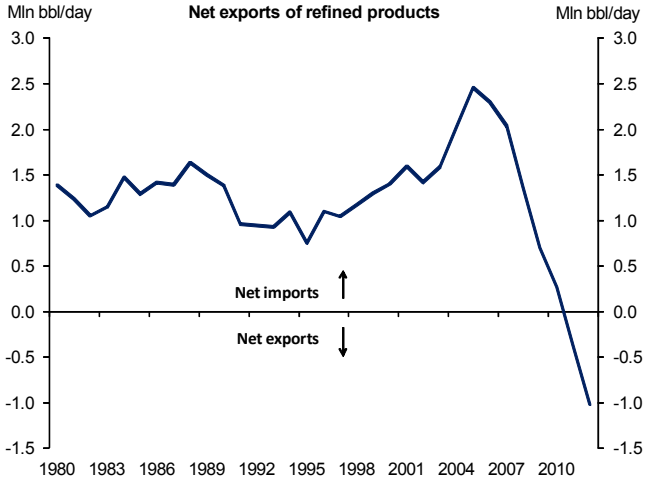
Oil imports have declined; US is a net exporter of refined products. The impact on net exports has not been limited to natural gas; oil imports have also declined substantially relative to US demand (Chart 21). While net oil imports equaled about 60% of US demand in 2005, only about 40% of demand was met by net oil imports in 2012, and the EIA projects that this lower level will persist over the next several decades. In addition, the US has quickly become a net exporter of refined products (Chart 22).

Chart 21. US oil imports/demand to remain low



Sources: EIA, DB Global Market Research

Chart 22. US is a net refined products exporter



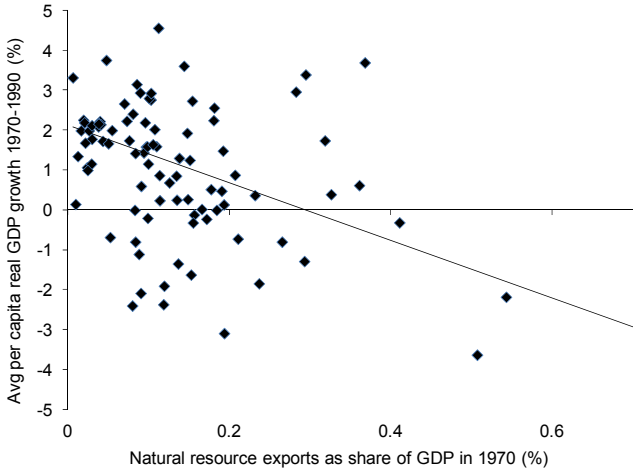
Sources: EIA, DB Global Market Research

Dutch Disease

Although the analysis thus far suggests that the rise in shale production will benefit the US economy, there is an extensive literature that has considered the idea of a "natural resource curse", in which abundant natural resources tend to be associated with lower long-term growth rates – a relationship that is reflected in cross-country data. Chart 23, which reproduces an analysis from Sachs and Warner (2000), depicts the negative relationship between the share of GDP to natural resource exports in 1970 and the subsequent average per capita real GDP growth rates for approximately 100 countries.[10] This negative relationship suggests that countries with a larger share of the economy devoted to exporting natural resources tended to have lower real per capita growth rates in the following two decades. Although this chart is just suggestive of this relationship, the academic literature has found that this negative correlation is pretty robust to the inclusion of other explanatory variables.

[10] See Sachs, J. and A. Warner (2000), "Natural Resource Abundance and Economic Growth." *Leading Issues in Economic Development*, Oxford University Press.

Chart 23. Share of natural resource exports negatively related to future growth rates



Sources: Sachs and Warner (2000), DB Global Market Research

While a number of explanations have been proposed for this negative relationship, a related concern with major natural resource discoveries is that other sectors, particularly manufacturing, will be hurt by a shift to energy production. This occurrence has been referred to as the "Dutch disease" after the poor performance of the Dutch economy following a significant natural gas discovery in that country in the 1960s.

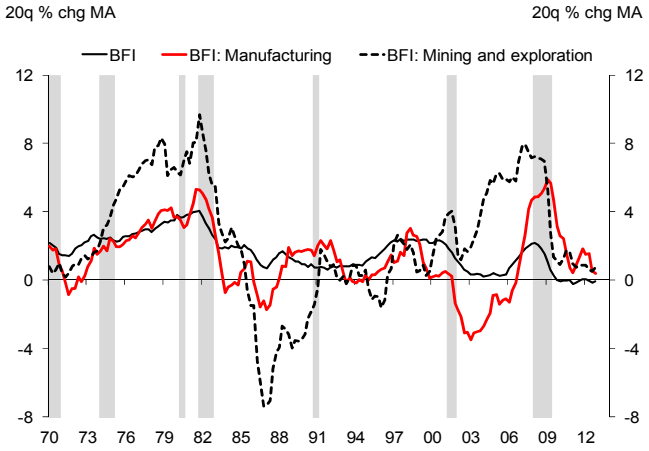
What causes the Dutch Disease?

There are several reasons why we may expect other sectors to suffer from significant natural resource discoveries. First, in response to substantial growth and productivity prospects, there is a tendency to re-allocate investment and employment toward the energy sector, which hurts longer-term growth prospects for the non-energy sector. Second, these discoveries would tend to lead to an appreciation of the domestic currency, as energy net exports rise and the discovery attracts foreign direct investment. Currency appreciation tends to hurt exporters of goods and services as their products become more expensive to international purchasers.

Will the US catch the Dutch Disease?

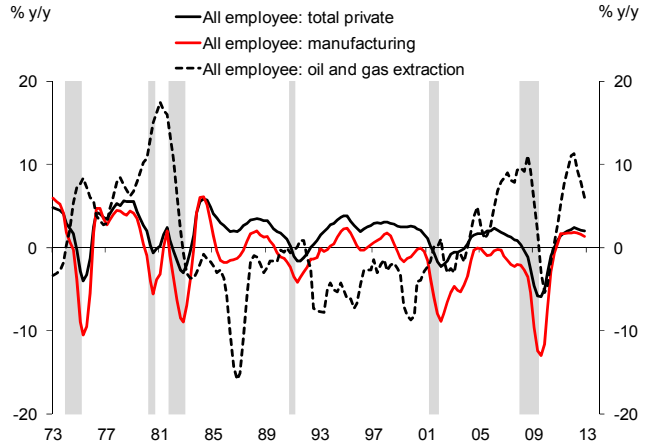
Employment and investment in energy-related industries has risen. Recent sector-level trends in the US are consistent with the re-allocation of resources in response to the shale energy revolution. Private fixed investment in mining and exploration has significantly outpaced total business fixed investment since the early 2000s (Chart 24). Prior to the financial crisis, private fixed investment in mining and exploration was growing at a 5-year moving average pace of 8%, compared to 2% for total business fixed investment. In addition, while energy-related investment was growing rapidly during the early 2000s, manufacturing investment was actually contracting. Employment has followed a similar trend: Employment in oil and gas extraction grew at a 10% y/y pace prior to the financial crisis, and although it contracted during the recession, it has returned to rapid growth (Chart 25). Conversely, total private employment, and manufacturing employment in particular, have expanded much more slowly than energy-related employment.

Chart 24. Energy-related investment has significantly outpaced investment in other sectors



Source: BEA, Haver Analytics, DB Global Market Research

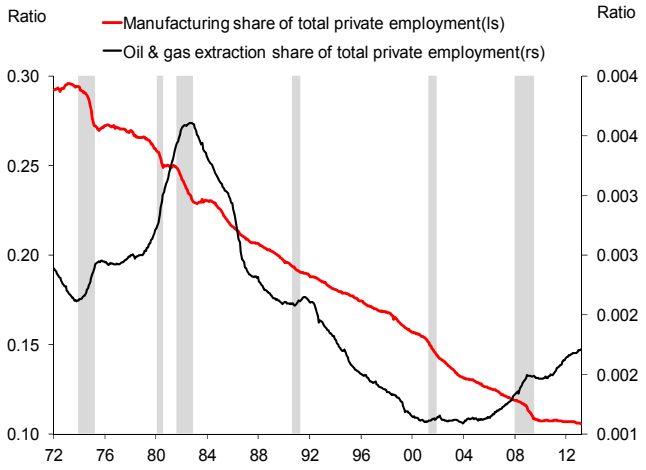
Chart 25. Employment in oil and gas extraction has outpaced labor growth in other sectors



Source: BLS, Haver Analytics, DB Global Market Research

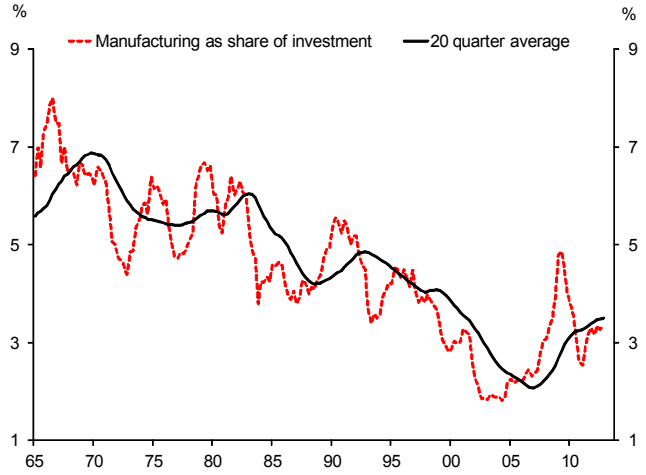
But decline in manufacturing pre-dates shale energy boom. Although these trends are consistent with the re-allocation of resources toward the energy-producing sector during a natural resource boom, the decline in manufacturing investment and employment pre-dates the US shale revolution. Manufacturing's share of total private employment (Chart 26) and total business fixed investment have both declined for several decades (Chart 27). However, manufacturing employment has actually grown nearly as fast as overall employment since the financial crisis, which has stabilized manufacturing's share of total employment. A similar reversal has occurred with manufacturing investment as a share of total investment, which has increased sharply since the financial crisis.

Chart 26. After declining for several decades, manufacturing share of employment has stabilized



Source: BLS, Haver Analytics, DB Global Market Research

Chart 27. Manufacturing share of investment has risen after declining for several decades



Source: BEA, Haver Analytics, DB Global Market Research

Manufacturing share of employment and investment has actually risen. The recent rising share of employment and investment in manufacturing runs counter to the Dutch disease argument of natural resource booms hurting manufacturing production through a re-allocation of resources toward the energy-related sectors. And in fact, there is growing anecdotal evidence that US manufacturing may actually directly benefit from the shale energy boom. There have been many recent reports about manufacturers returning to, or deciding to build new plants in, the US rather than in other countries, and this has been particularly true for industries that use natural gas as a key input, including the petrochemical industry. This trend has also benefited from rising labor costs in traditional low-cost countries such as China.

US manufacturing benefits from discounted energy prices. Why should the shale revolution help US manufacturing while natural resource booms have tended to hurt manufacturing in other countries? One key difference is that the US shale revolution has led to sharp price discounts between US oil and gas and their global equivalents. These discounts give US manufacturing a comparative advantage relative to producers in other countries, particularly for

energy-intensive industries. But these sharp discounts will not last indefinitely, especially as US energy demand picks up, infrastructure deficiencies are addressed, the oil export ban is eventually lifted, and shale energy production begins to rise in the rest of the world. However, we are probably years away from the latter two points becoming a reality. Our US energy equity research team suggests that consideration of lifting the oil export ban most likely will not materialize until after 2016 when domestic oversupply of crude begins to negatively affect investment and employment in the energy sector.[11] And although the US is not uniquely endowed with shale energy reserves, the speed at which the shale revolution took hold in the US is likely unique, as geopolitics impede the ability of other countries to achieve an equivalent scale to the US. Thus, it will take years for the US manufacturing sector to lose its current energy cost advantage. At that point, will it then be more vulnerable to the Dutch disease?

The second key element of the Dutch disease diagnosis is that an appreciating currency hurts export-oriented and import-competing sectors by making them more expensive and thus less competitive relative to foreign producers. As the US becomes more energy self-sufficient, indeed, possibly even a net exporter of energy, the dollar will get a lift; will that then mean a significant hit to US manufacturers? To examine this question, we consider the historical relationship between movements in the dollar and changes in manufacturing output.

Stronger dollar will not hurt US manufacturing severely. Following the analysis of a recent St. Louis Fed working paper, we test whether the real value of the dollar is a statistically important factor explaining manufacturing output after controlling for a number of other factors, including US and foreign real GDP growth, the US unemployment rate, real energy prices, and real imports and exports.[12] The results of this analysis are presented in Chart 28. We find that changes in the value of the dollar are not statistically significant in explaining changes in manufacturing production – a finding that holds across a number of specifications. In addition, statistical tests of whether changes in the value of the dollar can help forecast future values of manufacturing production (i.e. Granger causality tests) suggest that the value of the dollar does not help predict future manufacturing activity with up to 4 years of lag.[13]

[11] See: DB Markets Research (December 18, 2012),"Future of US Oil: 2013 Preview – The Bucket List."

[12] See Kliesen, K.L. and J.A. Tatom (January/February 2013), "U.S. Manufacturing and the Importance of International Trade: It's Not What You Think," *Federal Reserve Bank of St. Louis Review,* 95(1), pp. 27-49. (http://research.stlouisfed.org/publications/review/13/01/Kliesen.pdf)

[13] In particular, we cannot reject the null hypothesis that the dollar does not Granger cause manufacturing IP at the 5% significance level with up to 4 years of lag.

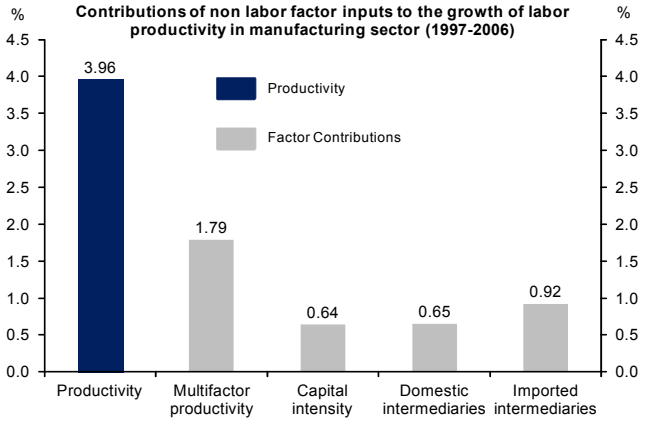
Chart 28. Manufacturing IP not closely linked with value of the dollar

Variable	Coefficient	Std Error
Constant	-0.465	0.465
Lagged dependant variable	0.040	0.045
Real US GDP	0.598	0.108
Real EU GDP	0.141	0.140
Unemployment rate	-60.117	8.202
Real dollar value	-0.007	0.027
Real energy prices	0.019	0.010
Real imports	0.146	0.026
Real exports	0.002	0.027
R-squared	0.835	
Adjusted R-squared	0.826	
S.E. of regression	3.018	

Source: DB Global Market Research

Manufacturing helped by stronger dollar through cheaper imported inputs. Interestingly, the value of real imports is positively associated with manufacturing production. This suggests a potential offsetting affect from the change in the dollar, namely, that as the dollar appreciates, imported intermediate inputs become less expensive and thus US exporters become more competitive in international markets. In fact, research by the Federal Reserve has shown that almost 25% of the productivity growth in manufacturing between 1997 and 2006 was due to imported intermediate inputs (Chart 29).

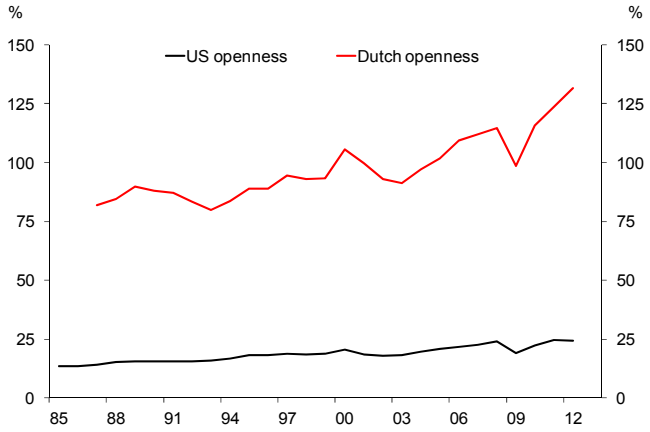
Chart 29. Imported intermediates are important for manufacturing productivity



Source: : Eldridge and Harper (2010), DB Global Market Research

US is a relatively closed economy: less affected by exchange rate movements. These results seem at odds with a substantial body of empirical literature that shows exports and imports of US manufactured goods are sensitive to the dollar. No doubt some portions of US manufacturing that are more sensitive to international trade will be negatively affected. However, our finding and the Fed work suggest that because the US economy is large and much less "open" than the Netherlands, for example, it is going to be substantially less affected by appreciation of its currency, and more influenced by domestic factors affecting aggregate demand. Supporting this view, a common measure of economic openness – exports plus imports relative to GDP – suggests that the US has historically been about 1/5 as open as the Netherlands (Chart 30).

Chart 30. Netherlands much more dependent on international trade than US

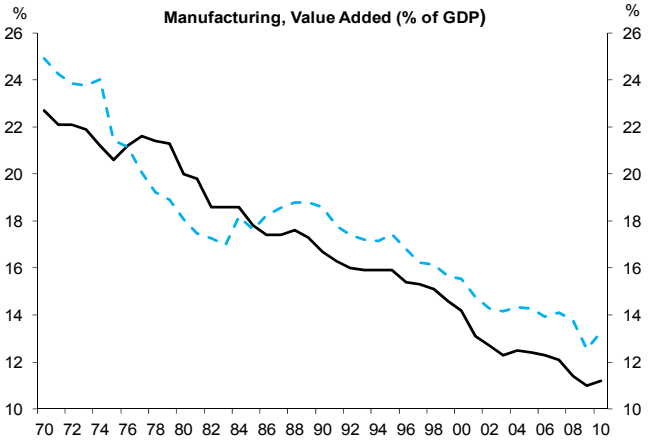


Note: Openness to trade is measured as the total amount of trade done by a country i.e. sum of imports and exports expressed as a percentage of GDP.
Source: BEA, CBS, Haver Analytics, DB Global Market Research

There is another difference between the US and Dutch economies that makes the latter more susceptible to a decline in manufacturing activity following a natural resource boom. Unlike the US, the Netherlands is a small, open economy, which tends to be a price taker in international markets. In response to a large wealth shock due to a natural resource discovery, relative prices tend to change more in the Netherlands, leading to sharper currency appreciation than we would expect in the US. Thus, we would expect the US shale energy revolution to have a more limited impact on the US real exchange rate.

US manufacturing small share of GDP. Even if US manufacturing was negatively impacted by the rising value of the dollar, the impact on the overall US economy would be limited compared to the Netherlands in the 1970s. This is because manufacturing only currently accounts for about 11% of GDP in the US, while manufacturing accounted for about 25% of the Dutch economy during the early 1970s (Chart 31).

Chart 31. Manufacturing smaller share of US GDP than Netherlands in 1970s



Source: World Bank, BEA, Haver Analytics, DB Global Market Research

US Dutch disease unlikely. Therefore, although a rising dollar will surely be negative for some US manufacturers, particularly those that do not intensively use imported intermediates, the relationship between the dollar and overall US manufacturing is not as obvious as often assumed. As a result, we would

anticipate that US manufacturing and overall growth prospects would not be particularly hard hit by a rising dollar, and that it is unlikely that the US will be inflicted with a serious case of the Dutch disease.

Conclusion

The shale energy revolution has introduced interesting dynamics into US and global energy markets, reversing a several decades long downward trend in US energy production and causing US energy to trade at sharp discounts to global equivalents. For the most part, these broad trends are projected to persist throughout at least the next decade. In this piece we considered the implications of this revolution for the US economy.

US industry should benefit from these developments, as the sharp discount of US energy prices relative to international equivalents provides a significant comparative advantage. And although US consumers are not likely to receive a substantial direct benefit from these dynamics in the near term because natural gas is a small share of personal consumption expenditure and US gasoline prices have been tied more closely to international oil prices, US consumers should benefit from lower overall inflation. In addition, a continued increase in US energy production should lead to a significant improvement in net exports.

Finally, our analysis suggests that it is unlikely that US manufacturing will suffer as a result of the shale energy boom for several reasons. First, the sharp discounts on US energy prices give US manufacturing a comparative advantage over international competitors. Second, US manufacturing output is not particularly sensitive to changes in the value of the dollar, partly because imported intermediates, which are cheaper with a stronger dollar, are important for manufacturing productivity. Third, the negative effects on the broader economy from a natural resource boom that have been observed in other economies should be limited because the US is a relatively closed economy and manufacturing is a small component of US GDP. In other words, we do not believe the US will be inflicted with a serious case of the Dutch disease.

Peter Hooper (+1) 212 250- 7352

Torsten Slok (+1) 212 25-2155

Matthew Luzzetti (+1) 212 250- 6161

Shock and Awe from the BoJ

Introduction

In its dramatic announcement last week, the Bank of Japan joined the club of major central banks with massively expanded balance sheets. It is a desperate gambit but we think also a well-founded and most welcome effort to end 15 years of failure to deal effectively with that country's deflation. In this note, we review briefly what is in the program, how it stacks up against QEs by other major central banks, what might have been the decision process behind it, some of the challenges that will be faced in implementing it and exiting it, how we think it could work to pull Japan out of deflation and subpar growth performance, and some interesting parallels to the Volcker-led Fed's change in operating procedures to deal with high US inflation in 1979.

Ingredients of the plan

The four major components of what the BoJ has dubbed its "Quantitative and Qualitative Monetary Easing" plan include:

1. Dramatically increase its pace of asset purchases to an annual rate of about USD600bn - USD700bn at the current yen exchange rate. This pace is roughly 60% of the pace at which the Fed is currently purchasing assets. In doing so, they are also shifting their operating procedure from one of targeting its short-term policy interest rate (which has been effectively pegged at zero in any case) to one of targeting the growth of the monetary base. The new purchases will be predominantly Japanese government bonds, which will rise by about USD500bn per year.

2. More than double the average term to maturity of securities being purchased from less than 3 years to about 7 years.

3. Increase the purchase of equity funds, including ETFs and J-REITs, albeit in much smaller scale than JGBs.

4. Continue these purchases for two years or until a goal of 2% inflation is achieved, subject to modification depending on prospects for growth and stable inflation.

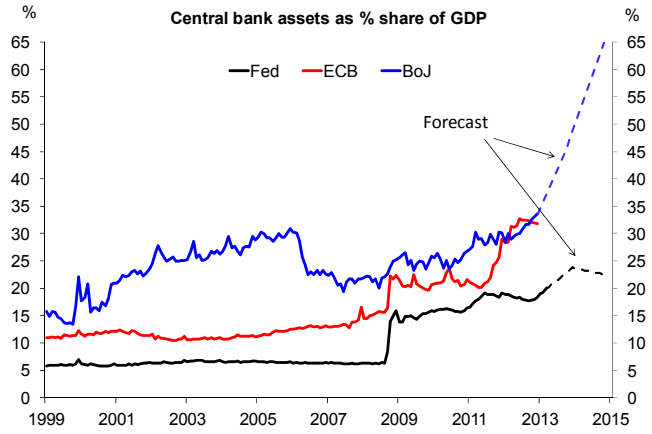
In sum, the key components are much more rapid balance sheet expansion and a substantial extension of the maturity of the BoJ's asset holdings, and a commitment to continue this policy until inflation is substantially positive.

Comparison with other major central banks

There are at least a couple ways to scale the BoJ's impending balance sheet expansion in order to compare it with what the Fed and ECB have done: relative to (1) nominal GDP, and (2) M2 or core liabilities (currency and required reserves—i.e., excluding excess reserves). Comparisons on these bases are shown in Charts 1 and 2 below.

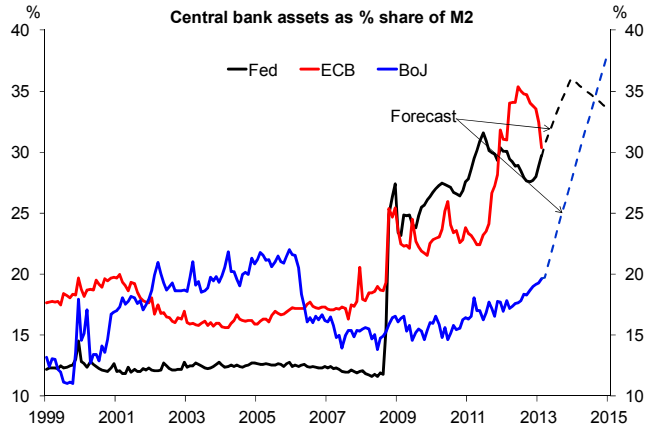
BoJ's planned balance sheet expansion over the next two years will put it far ahead of both the Fed and the ECB based on a ratio to GDP. The GDP measure may be a little misleading because the share of bank finance in total finance (and therefore the relative scale of the central bank's balance sheet) is substantially greater in Japan and the Euro Area than it is in the US, causing the US ratio to GDP to be well below the other two. As a ratio to either M2 or core liabilities (the two show a very similar picture, so we have shown just M2, which has a longer history, here), the BoJ's expansion over the next couple years will move it up to be in about the same league as (maybe even slightly above) the Fed and the ECB.

Chart 1 Scaled by GDP, BoJ Surpasses Fed and ECB



Source: BEA, Eurostat, CAO, FRB, ECB, BoJ, DB Global Market Research

Chart 2: Scaled by M2, BoJ Joins the Club



Source: FRB, ECB, BoJ, DB Global Market Research

The decision

Shock and awe. The magnitude and breadth of the measures taken by the BoJ last week appear to have been fully intended to exceed market expectations by a significant margin. They no doubt wanted to "shock and awe" the markets, that is, to send a strong message about the regime change in order to jolt market expectations, which are seen as critical to the effectiveness of the policy move.

To achieve this effect, they have gone "all in," pretty much exhausting their ammunition by increasing the size and duration of their JGB purchases to the maximum extent possible in flow terms. In the event, the announcement clearly had the desired effect in terms of market reaction. Many investors appear to have been surprised, having no doubt expected that BoJ bureaucracy would force its new governor to take more time to marshal support for a dramatic shift.

Latent support. The fact that it took only two weeks for Governor Kuroda to put together such a dramatic shift in policy suggests that many of the components of the plan had been under consideration within the Bank, but rejected by its former governor as too risky or ineffective. (By comparison, it took Paul Volcker a couple months to engineer an equally dramatic shift in the Fed's operating procedures after he was appointed chairman in 1979—more on this below.) We infer that there was significant latent support for a more

activist approach, and the change in leadership made a big difference—things that were not possible before suddenly became possible. Given the political climate and the backdrop of 15 years of deflation, most on the BoJ Board were likely ready to make the plunge. The single dissent on one of the less prominent features of the plan suggests that there was very little disagreement on the composition of the plan.

Implementing the program

Size and duration of purchases a challenge. We expect the BoJ will want to implement the new asset purchase program quickly, getting the average duration of securities purchased up to 7 years within the next month. That will not be easy. To avoid the appearance of direct debt monetization, they are limited to purchases in the secondary market, and scope to purchase securities of very long (30-40 year) duration is quite limited. These are issued for life insurance companies who will be loath to give them up, although the BoJ may do some arm twisting. The challenge facing them is that the average term to maturity of 10-year JGBs sold to the BoJ is typically seven years, so the BOJ has to take a relatively high portion of the thinner market above 10-year securities to balance out their purchases of shorter term securities. We would not expect the government to issue more longer-term debt to make their life easier. Moreover, they will be purchasing an amount equal to nearly three-fourths of gross new issues of JGBs (about 150% of monthly net issuance), becoming the dominant player in the market and forcing private dealers out.

How it will work: transmission channels

Target flexibility. From what Prime Minister Abe has said, we expect there will be some flexibility in the 2% inflation target-- he has described the target as 2% +/- 1%. The deadline for achieving that goal is "about" two years and the language on this point in their statement gives them an out—they will "examine both upside and downside risks to both economic activity and prices and make adjustments as appropriate." We expect they will aim to achieve at least 1% core inflation, abstracting from the effects of the 5% value added tax increase scheduled for next spring. Ultimately, raising growth is also seen as critical too.

Inflation expectations. The program is seen as working to raise inflation through several channels. As indicated by the design of their announcement, shifting market expectations about inflation through both their actions and their communications is one key channel, perhaps the most important. Unfortunately, they do not have very good measures of inflation expectations: a quarterly BoJ household survey; inflation swaps; quarterly Tankan survey of firms' expectations for output prices. Break-evens aren't reliable because linkers are illiquid (issuance is scant).

Phillips curve. A second channel is via stimulating growth to tighten the labor market. There is some evidence that the Phillips curve in Japan is steepening, which would imply some effect on inflation here.

Yen depreciation. A third, and we think most important, channel is via yen depreciation raising import prices and aggregate demand by stimulating real net exports. This would be seen as a normally accepted channel of transmission of monetary expansion to the domestic economy, much as it is by the Fed. But their failure to make any mention of this channel in their statement would indicate a significant degree of discomfort with discussing this publicly because of political sensitivities, especially among some of Japan's trading partners in Asia and elsewhere that have been highly critical of balance sheet-cum-currency depreciation policies by central banks in the advanced economies. There is a growing chance that as Japanese investors

are driven to reach for higher yield, they will look increasingly to invest abroad, anticipating higher returns in their home currency as the yen trends down. The move in the yen over the past week has been impressive and there is potential/risk for substantial further depreciation. Our own view is that the balance sheet expansion policy is the most appropriate way to deal with a chronic deflation problem in Japan, and that Japan's trading partners will be better off in the longer-term if this policy succeeds in its goal, even if it means a substantially depreciated yen for a time.

Stimulating growth. Economic activity will be stimulated by:
(1) lowering ex ante real interest rates to boost both asset values and interest-sensitive spending like business and residential investment,
(2) raising asset values further via portfolio rebalancing-- i.e., encouraging investors to reach for yield in riskier assets, including equities, and especially real estate. Higher stock and real estate prices should stimulate consumer spending via wealth effects and business spending via rising collateral values, and so on. The program's purchases of ETFs and REITs are small relative to JGBs and the sizes of these markets, but could be important qualitatively in helping bolster increases in asset values. Boosting property prices is key because of their importance to the household sector and as collateral for business loans. Japanese equities are held predominantly in the corporate sector and abroad and therefore less important to consumer spending, nevertheless good for confidence.
(3) Again, perhaps most importantly, yen depreciation, imparting stimulus to net exports.

Exit issues

The BoJ would not be focused on exit issues for now—all focus is on the war they have to wage against deflation. But they surely recognize that exit challenges will be exacerbated by a fiscal trajectory that is clearly headed the wrong way, and that further fiscal stimulus may well be needed near-term.

We expect that they fervently hope that their Q-squared program will work within the next two years, allowing them to limit how much they actually do end up expanding the balance sheet, given the various costs of balance sheet expansion that both Bernanke and Shirakawa have enumerated.

We would expect that the increased earnings generated by the balance sheet expansion are used to build up the BoJ's capital; indeed, they might want to look for other ways to build capital in anticipation of likely losses should they eventually sell assets.

More likely, however, the BoJ will want to avoid or reduce losses incurred on exit by allowing assets to roll off the balance sheet (slowly) as they mature rather than selling assets (losses are booked only if assets are sold). That is what they did in 2006, but then the assets were all short term, so QE was reversed quickly via natural runoff. That was viewed by some as a mistake, as was the timing of that exit (too early). Exit could also entail raising the IOER (currently 0.1%), which Bernanke recently described as the workhorse lever of proactive policy tightening when the time comes.

Parallels to Fed's policy regime change under Volcker

Finally, the BoJ's abrupt change in direction has been compared to the abrupt change in the Fed's monetary policy regime shortly after Paul Volcker was appointed Chairman in 1979. At that time the Fed was combating double-digit inflation, not deflation, and the prescription for getting a handle on inflation was to shift from targeting the interest rate level to targeting the growth of the money supply. Similarly, the first point in the BoJ's program is to shift its

formal operating regime from one of targeting the policy interest rate to targeting growth in the monetary base, or balance sheet. However, the connection between money or central bank money growth and inflation is a longer-term relationship, and the parallels between the Fed in 1979 and the BoJ today run deeper than this long-term relationship.

To understand how the money-inflation relationship works in the short to medium term one has to appeal to transmission channels, as we have outlined above. The Volcker Fed knew that in order to tame high inflation it would have to push the economy into recession, possibly a deep one that would raise unemployment enough to break thorough the wage-price spiral that had taken hold. This would have to be achieved via a sharp increase in interest rates, which would be politically difficult to announce, but for which there was no effective alternative. To achieve that rise in interest rates in a politically palatable way, the Fed shifted to slowing the growth of money, which it knew would cause interest rates to jump, But in doing so, it could say that it was doing its job of slowing money growth to a rate more consistent with where it wanted to see inflation go in the longer term, and letting the markets determine where interest rates would go in the meantime. The result of course was a sharp run-up in interest rates (well into double digit levels) and the deepest period of recession the US faced between the Great Depression of the 1930s and the Great Recession of 2008-09, which led to a long and successful period of disinflation.

In the BoJ's case, with policy interest rates constrained at the zero lower bound, and longer-term interest rates already quite low, there is relatively little scope for interest rate moves to stimulate demand, although as we have noted, the BoJ will be counting on expectations and increases in asset values to help. Probably more important, however, will be the exchange rate channel, with investors expecting the BoJ's action to drive the yen lower against other currencies. Of course, as we have noted, it is difficult for political reasons for the BoJ to discuss yen depreciation openly. Thus, much as the shift to targeting money growth served as the Fed's fig leaf for a necessary jump in interest rates, the shift to targeting the monetary base is effectively serving as the BoJ's fig leaf for a necessary plunge in the yen.

Peter Hooper (+1) 212 250-7352

Michael Spencer (+852) 2203 8303

Central Bank Watch

US

The Fed reconfirmed at its March meeting that it would continue its purchases of MBS at $40bn per month and longer-term Treasuries at $45bn per month until the labor market shows substantial improvement or the costs of balance sheet expansion outweigh the benefits. The minutes from the March meeting indicated that if recent economic trends continue, a significant number of FOMC members would favor starting to taper these purchases by this summer and end purchases by year-end. While that schedule would slip if the weakness in the March employment report is extended for more than another month or so, we still expect that tapering will start by September and new purchases to end by December. We expect the reinvestment program will end a year later, with the Fed's balance sheet allowed to shrink as assets mature. The FOMC has also said that they anticipate holding policy rates near current levels at least until the unemployment rate falls below 6-1/2% or their one-two year ahead forecast for inflation rises above 2-1/2% or longer-term inflation expectations show signs of becoming unanchored. We expect the unemployment rate will be the driving factor, and on the FOMC's current projections it is unlikely to fall low enough to induce policy rate increases until early 2015.

	Current	Mar-13	Dec-13
Fed funds rate	0 – 0.25	0 – 0.25	0–0.25

Japan

The BoJ deliberately exceeded market expectations with their announced "quantitative and qualitative" easing policy. In magnitude, a doubling of base money over two years is much more than expected, and the targeted duration of government bonds purchased -- seven years versus three years previously -- is also longer than expected. At JPY 7tn per month, the BoJ will purchase the equivalent of about 70% of gross bond issuance. This program is expected to deliver inflation of about 2% in about two years although a stable rate below 2% would still be viewed as a success. The transmission mechanism is expected to be via a rise in expected inflation (so lower ex ante real interest rates) and higher asset prices.

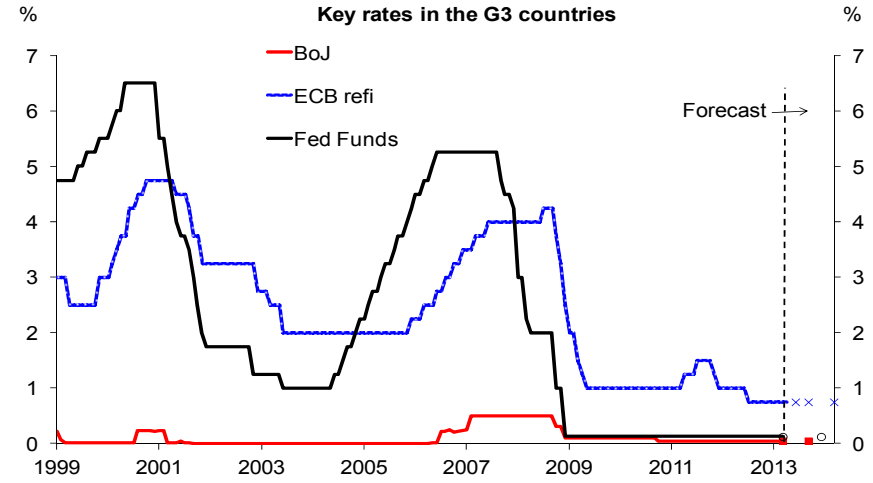
	Current	Mar-13	Sep 13
ON rate	0 – 0.1	0 - 0.1	0 - 0.1

Euroland

The ECB is calling on the participation of governments and NCBs before taking more unconventional steps to re-start credit. The political conditions for this are not met in the short run in our view. The ECB hinted at a refi cut in the next few months, but we have not altered our baseline for an unchanged stance.

	Current	Jun13	Sep13	Mar14
Refi rate	0.75	0.75	0.75	0.75

Key rates in the G3 countries



Source: BoJ, ECB, FRB, Haver Analytics, Bloomberg Finance LP, DB Global Markets Research

UK

Despite a change in the Bank's remit (the government underlined its view that the Bank may miss its 2% target in the near-term for the greater good of growth or financial stability) the MPC left policy unchanged in April. We do not expect further QE but do not see the first move up in rates until the end of 2014.

	Current	Jun13	Sep13	Mar14
Bank rate	0.50	0.50	0.50	0.50

Sweden

After the Riksbank's rate cut in December the risks remain for further action. However, household debt concerns should prevent this. Next meeting: 17 Apr.

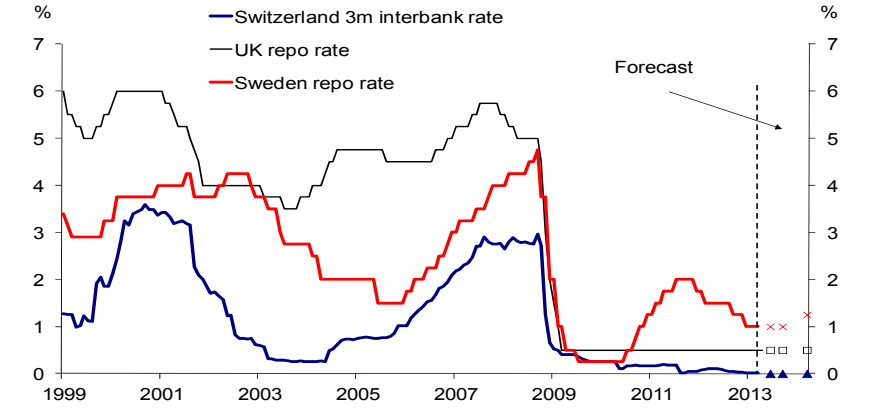
	Current	Jun13	Sep13	Mar14
Repo rate	1.00	1.00	1.00	1.25

Switzerland

The SNB opted to keep its EUR/CHF floor at 1.20 at its March meeting, but lowered the outlook for inflation. Next meeting: 20 Jun.

	Current	Jun13	Sep13	Mar 14
3M Libor tgt	0.00	0.00	0.00	0.00

Key rates in the peripheral European countries



Source: SRB, SNB, BoE, Haver Analytics, DB Global Markets Research

Canada

Although the release of the Bank of Canada Business Outlook Survey on Monday's (April 8) will give us a overview of business confidence and hiring plans over the next six to twelve months, the very sharp jump in the Ivey Purchasing Managers Index, also for March, suggests that firms remain positive about their near term purchasing plans. Nevertheless, in light of the sharp drop in total employment in Canada, .the deterioration in the trade deficit and the disappointing US job numbers, we continue to expect that the BoC will remain on the sidelines through the first half of this year and probably into the first quarter of 2014.

	Current	Jun-13	Dec-13	Mar-14
ON rate	1.00	1.00	1.00	1.50

Australia

RBA leaves rates on hold, little change in the post-meeting Statement which remains dovish. On the domestic economy the peak in the mining investment boom is now described as "drawing close", versus last month's "approaching". This may imply, at the margin, a greater urgency for demand outside of resource investment to pick-up. Interestingly the Bank has not made a comment on the labour market in the Statement - with the absence of any commentary here suggesting to us that little has changed over the past month from the Bank's perspective.

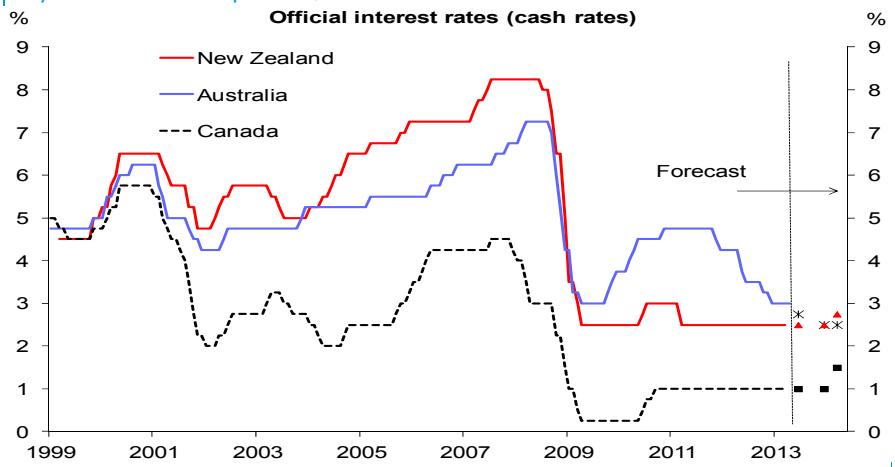
	Current	Jun-13	Dec-13	Mar-14
OC rate	3.00	2.75	2.50	2.50

New Zealand

Our outlook for the RBNZ is similar to the market and hence that of the Bank. Most likely we think the Bank will keep the OCR on hold in 2013 and then start to lift it at a modest pace in 2014. One risk to this outlook is the housing market. The Bank is making quite a bit of noise about the rise in house prices, with the Deputy Governor of the RBNZ saying on 8 April that "if the housing market momentum continues and adds inflationary pressures, a monetary response would become more likely." We think this is reasonable unlikely in 2013, but such sentiment does highlight that it will take quite a pronounced slowdown in housing for the RBNZ to contemplate a rate cut.

	Current	Jun-13	Dec-13	Mar-14
OC rate	2.50	2.50	2.50	2.75

Key rates in the Peripheral $-bloc



Source: RBNZ, BoC, RBA, Haver Analytics, DB Global Markets Research

China

CPI inflation fell to 2.1% yoy in March, down from 3.2% in February. On a mom basis, the CPI fell by a sharp 0.9%. This decline in CPI should help alleviate some market concerns on monetary and credit tightening. This decline in CPI inflation reflects mainly the seasonal fall in food prices after the Chinese New Year, as well as the reduction in demand for pork and poultry due to the recent "dead pig incident" and the bird flu. Non-food inflation was a very modest 0.1% mom or an annualized 1.2%. Give this very modest non-food inflation, even if food prices rise by an annualized 6% (higher than the historical average), the annual average CPI inflation will be only 3.2%, below the government target of 3.5%.For April, we expect yoy CPI inflation to fall further to around 1.8%, as food prices continued to decline throughout March and thus the April average will likely be substantially lower than the March average. For H1 as a whole, we expect CPI inflation to be as low as 2.3%. Against this backdrop, we do not see major pressure for the central bank to tighten monetary and credit policies in the coming few months. The PPI declined 1.9% yoy in March, vs. the 1.6% yoy decline in February. Sequentially the PPI remained unchanged.

	Current	Mar13	Jun13	Sep13
1-year rate	3.00	3.00	3.00	3.25

India

Meeting consensus expectations, the Reserve Bank of India cut its policy repo and reverse repo rates by 25bps each in the March policy review meeting. The tone of the policy statement was mixed. Clearly the central bank is pleased with declining inflation, but it sees various lingering risks to prices, including the perennial demand-supply imbalance, ongoing increase in diesel price and probable second-round effects, as well as pipeline rise in food procurement price. Another contrast is seen between relatively buoyant asset prices and very weak real growth momentum. The central bank is also concerned about the high level of current account deficit and associated risks to external stability. Against this, the guidance from the central bank was that "the headroom for further monetary easing remains quite limited."We think that there are at least two more cuts (25bps each) ahead, but after that the cycle may well come to an end unless the growth-inflation nexus turns out to be poorer than expectations. We see the path of fiscal and inflation in the coming months conducive toward rate cuts in early-May and mid-June. We see the latest RBI guidance as a hedge against expectations of further cuts, but we think ultimately the need to support growth and asset markets would prevail, and further easing lies ahead.

	Current	Jun13	Sep13	Mar 14
Repo rate	7.50	7.00	7.00	7.00

Brazil

The Central Bank stayed put again in March, keeping the SELIC overnight rate target at 7.25%, in line with market expectations. However, the COPOM modified its official statement, signaling that the next decisions on monetary policy will be data-dependent. The latest indicators suggest that the economy is picking up momentum, albeit at a moderate pace. Consumer price inflation continues to surprise on the upside, and would be much higher had the government not reduced electricity prices and postponed some key increases in public transportation prices until July. Thus, although the authorities have stressed that the deterioration in the inflation outlook is essentially a short term phenomenon caused by transitory factors and stated that the economic recovery faces domestic and external risks, we expect the Central Bank to initiate a tightening cycle in May. However, since economic growth remains the government's top priority, we expect a very short cycle, with only three 25bp rate hikes.

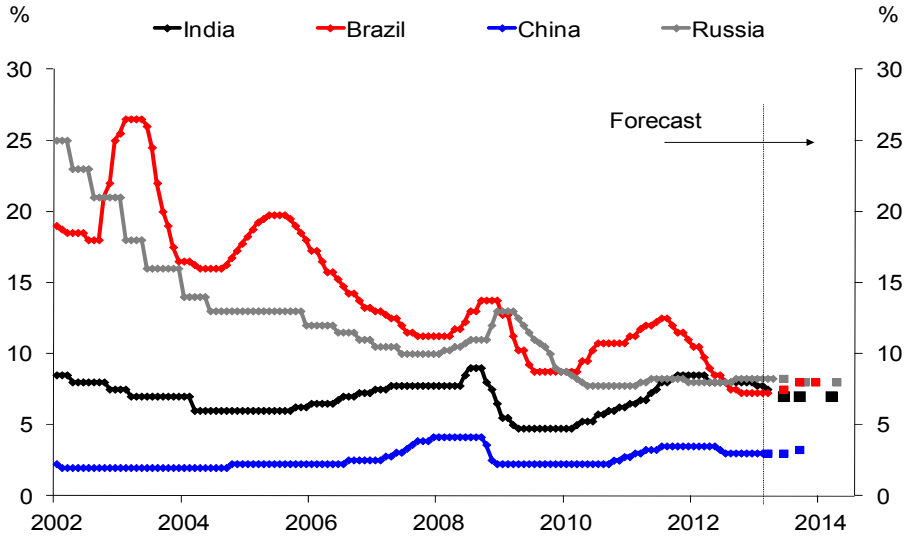
	Current	Jun13	Sep13	Dec13
CBR refi rate	7.25	7.50	8.00	8.00

Russia

The Central Bank of Russia (CBR) Tuesday announced its decision to keep key policy rates on hold, while cutting long-term liquidity provision/absorption rates by 25bps. We believe that the decision to lower long-term rates marks the start of a more dovish stance on the part of the monetary authorities, which may lead to further interest rate cuts this year to support growth. The CBR stated that the decision to lower long-term rates was supported by the assessment of inflation risks and economic growth prospects. According to the monetary authorities, the cut on liquidity provision operations will unlikely have a significant impact on the level of money market interest rates, but will improve the opportunities for banks to borrow at the rates closer to main liquidity provision operations. The CBR did not include the statement on the adequacy of interest rates into the note, which implies that changes in rates may continue in the near term, possibly encompassing a wider array of interest rates, including the refinancing rate. The latter, in our view, is likely to be lowered by 25 bps next month, given the more dovish statement released by the CBR. Overall, given the weakness in growth we believe the balance of risks for the government and the CBR has shifted more squarely towards supporting growth rather than keeping a lid on inflationary pressures. We believe that the measures to lower rates are unlikely to deliver a significant growth impulse in the near term, while inflationary risks may rise as prioritisation of inflation appears to be accorded secondary importance.

	Current	Jun13	Oct13	Apr14
CBR refi rate	8.25	8.25	8.00	8.00

Key rates in major emerging markets



Source: PBoC, RBI, BCB, CBRF, Haver Analytics, DB Global Markets Research

Global central bank policy rate changes since August 2009

	Trough policy rate	2009 Aug	Sep	Oct	Nov	Dec	2010 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Jan	Feb	Mar	Apr	Net Change
Israel	0.50	0.75			1.00	1.25			1.50				1.75		2.00				2.25	2.50	3.00		3.25				3.00		2.75		2.50					2.25					2.00		1.75				125
Australia	3.00			3.25	3.50	3.75			4.00	4.25	4.50						4.75												4.50	4.25				3.75	3.50			3.25		3.00					0
Norway	1.25			1.50		1.75					2.00												2.25						1.75			1.50														25
Vietnam	7.00					8.00											9.00			11.00	12.00	13.00	14.00					15.00				14.00	13.00	12.00	11.00	10.00					9.00		8.00			100
Malaysia	2.00								2.25		2.50		2.75										3.00																							100
India	4.75								5.00	5.25			5.75		6.00		6.25		6.50		6.75		7.25	7.50	8.00		8.25	8.50					8.00									7.75		7.50		275
Brazil	8.75									9.50		10.25	10.75						11.25		11.75	12.00		12.25	12.5		12.00	11.50	11.00		10.50		9.75	9.00	8.50		8.00	7.50		7.25					-150
Peru	1.25										1.50	1.75	2.00	2.50	3.00				3.25	3.50	3.75	4.00	4.25																							300
Canada	0.25											0.50	0.75		1.00																															75
Chile	0.50											1.00	1.50	2.00	2.50	2.75	3.00	3.25		3.50	4.00	4.50	5.00	5.25							5.00															450
New Zealand	2.50											2.75	3.00								2.50																									0
Taiwan	1.25											1.38			1.50			1.63			1.75			1.88																						63
Sweden	0.25												0.50		0.75	1.00		1.25		1.50		1.75			2.00					1.75		1.50						1.25		1.00					75
S Korea	2.00												2.25				2.50		2.75		3.00			3.25												3.00				2.75						75
Thailand	1.25												1.50	1.75				2.00	2.25		2.50	2.75		3.00	3.25	3.50			3.25		3.00								2.75							150
Serbia	8.00													8.50	9.00	9.50	10.50	11.50	12.00		12.25	12.50		12.00	11.75		11.25	10.75	10.00	9.75	9.50					10.00	10.25	10.50		10.75	10.95	11.25	11.50	11.75			375
Uruguay	6.25	8.00				6.25									6.50						7.50			8.00						8.75									9.00		9.25					300
Nigeria	6.00														6.25				6.50		7.50		8.00		8.75		9.25	12.00																	600
China	2.25															2.50		2.75		3.00		3.25			3.50											3.25	3.00									75
Hungary	5.25	8.0	7.5	7.0	6.5	6.25	6	5.75	5.5	5.25							5.50	5.75	6.00										6.50	7.00								6.75	6.50	6.25	6.00	5.75	5.50	5.25	5.00	-25
Poland	3.75																		3.75			4.00	4.25	4.50										4.75						4.50	4.25	4.00	3.75	3.25		-50
Indonesia	5.75																			6.75							6.50	6.00			5.75														0
Colombia	3.00	4.5	4.0		3.5						3.0								3.25	3.50	3.75	4.00	4.25	4.50				4.75		5.00	5.25					5.00	4.75		4.50	4.25	4.00	3.75	3.25		25
Russia	7.75	10.75	10.5	10.0	9.0	8.75		8.5	8.25	8.0	7.75								8.00		8.25							8.00								8.25									50
Philippines	4.00																				4.25		4.50							4.25		4.00			3.75			3.50							-50
Kazakhstan	7.00	7.5	7.0																		7.50										7.00	6.50		6.00		5.50									-150
Euroland	1.00																					1.25			1.50				1.25	1.00					0.75										-25
Denmark	0.80	1.35	1.25				1.05															1.30			1.55				1.20	0.80	0.70			0.60	0.45	0.20					0.30				-50
Iceland	4.25	12.00			11.00	10.0	9.50		9.00		8.50	8.00		7.00	6.25		5.50	4.50		4.25						4.50		4.75				5.00		5.50	5.75				6.00					175
Czech Republic	0.75	1.25	1.0								0.75																								0.50				0.25	0.05					-70
Romania	5.25	8.50	8.00				7.50	7.00	6.50		6.25																		6.00		5.75	5.50	5.25												0
Sri Lanka	8.50	11.0	10.5		9.75								9.5	9.0					8.5												9.00		9.75							9.50					100
South Africa	5.50	7.0							6.5						6.0		5.5																				5.00									-50
Switzerland	0.00																									0.00																				0
Egypt	8.25																												9.25														9.75		150
Turkey	5.75										7							6.5	6.25							5.75																5.50				-25

Source: Deutsche Bank; government data

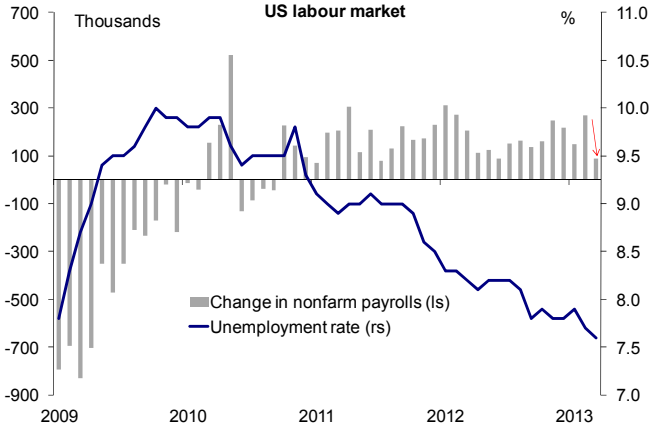
Global data monitor :Recent developments and near term forecasts

	B'bergcode	Q2-12	Q3-12	Q4-12	Q1-13	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13
OECD leading indicators											
(6M change, %, ann.)											
OECD		0.5	0.9	1.2		1.2	1.2	1.2			
US	OLEDUSA	1.2	1.8	1.9		2.0	2.0	1.8			
Euro area	OLEDEU12	-1.6	-1.2	-0.5		-0.7	-0.5	-0.3			
Japan	OLEDJAPN	0.4	0.3	0.3		0.3	0.3	0.4			
China	OLEDCHIN	0.4	0.3	0.3		0.3	0.3	0.4			
India	OLEDINDI	5.7	5.5			5.4					
Russia	OLEDRUSS	0.4	-0.5			-1.0					
Brazil	OLEDBRAZ	2.0	3.5	4.2		4.2	4.3	4.2			
Purchasing manager indices											
Global (manufacturing)	50	49.9	48.9	49.2	50.7	49.3	49.2	49.3	51.0	51.1	50.0
US (manufacturing ISM)	NAPMPMI	52.3	50.9	50.6	52.9	51.7	49.9	50.2	53.1	54.2	51.3
Euro area (composite)	46.4	46.4	46.3	46.5	47.7	45.7	46.5	47.2	48.6	47.9	46.5
Japan (manufacturing)	SEASPMI	50.4	47.9	46.1	48.9	46.9	46.5	45.0	47.7	48.5	50.4
China (manufacturing)	EC11CHPM	48.6	48.3	50.5	51.5	49.5	50.5	51.5	52.3	50.4	51.6
India (manufacturing)	54.9	54.9	52.8	53.7	53.1	52.9	53.7	54.7	53.2	54.2	52.0
Russia (manufacturing)	52.3	52.3	51.8	51.7	51.6	52.9	52.2	50.0	52.0	52.0	50.8
Other business surveys											
US dur. goods orders (%pop1)	DGNOCHNG	0.9	-0.2	1.8	0.9	1.1	0.6	3.6	-3.7	5.6	0.5
Japanese Tankan (LI)	JNTSMFG	-1.0	-3.0	-12.0	-8.0						
Euro area EC sentiment	EUESEMU	92.4	87.4	87.0	90.2	85.7	87.2	88.0	89.5	91.1	90.0
Industrial production (%pop1)											
US	IP CHNG	2.9	0.3	2.4	4.2	-0.1	1.2	0.1	0.1	0.8	0.3
Euro area	EUITEMUM	-1.9	0.4	-8.1		-0.8	-0.8	0.9	-0.4		
Japan	JNIPMOM	-7.7	-15.8	-7.2	5.8	1.6	-1.4	2.4	0.3	-0.1	
Retail sales (%pop1)											
US	RSTAMOM	-0.3	5.3	6.1	5.1	-0.2	0.5	0.5	0.2	1.1	0.3
Euro area	RSSAEMUM	-3.0	0.1	-6.0	1.1	-0.5	0.2	-0.7	0.9	-0.3	
Japan (household spending)	0.8	0.8	-3.4	-0.1	12.1	0.4	0.1	-0.1	1.9	2.2	
Labour market											
US non-farm payrolls2	NFP TCH	108	152	209	168	160	247	219	148	268	88
Euro area unemployment (%)	UMRTEMU	11.3	11.5	11.8	12.0	11.7	11.8	11.8	12.0	12.0	
Japanese unemployment (%)	JNUE	4.4	4.3	4.2	4.3	4.2	4.2	4.3	4.2	4.3	
CP inflation (%yoy)											
US	CPICHNG	1.9	1.7	1.9	1.5	2.2	1.8	1.7	1.6	2.0	1.7
Euro area	ECCPEMUY	2.5	2.5	2.3	1.9	2.5	2.2	2.2	2.0	1.8	
Japan	JNCPIYOY	0.2	-0.4	-0.2	-0.7	-0.4	-0.2	-0.1	-0.3	-0.6	
China	CNCPIYOY	2.8	1.8	2.0	2.3	1.6	1.9	2.4	1.9	3.1	2.0
India		7.5	7.9	7.3	6.3	7.3	7.2	7.3	6.6	6.8	
Russia	RUCPIYOY	3.8	6.0	6.5	7.1	6.6	6.5	6.6	7.1	7.3	7.0
Brazil		5.0	5.2	5.6	6.1	5.4	5.5	5.8	6.2	6.3	
Current account (USD bn)3											
US (trade balance, g+s)	USTBTOT	-45.9	-41.6	-42.8	-43.7	-42.0	-48.2	-38.1	-44.5	-43.0	
Euro area		11.4	12.6	17.3		10.4	20.4	21.0	19.7		
Japan		6.3	3.7	3.2	2.0	4.7	3.0	1.8	4.1	0.0	
China (trade in goods)	23.6	23.6	20.9	22.7	26.6	22.8	17.9	27.4	21.7	39.3	18.6
Russia (trade in goods)	16.3	16.2	14.8	15.9		16.5	16.4	14.9	13.8		
Other indicators											
Oil prices (Brent, USD/b)	EUCRBRDT	108.5	109.7	110.3	112.6	111.9	109.4	109.6	113.0	116.2	108.5
FX reserves China (USD bn)	CNGFOREX	3240.0	3285.1	3311.6		3287.4	3297.7	3311.6			

Quarterly data in shaded areas are quarter-to-date. Monthly data in the shaded areas are forecasts.
% pop = % change this period over previous period. Quarter on quarter growth rates is annualised.
pop change in '000, quarterly data are averages of monthly changes.
Quarterly data are averages of monthly balances.
Sources: Bloomberg Finance LP, Reuters, Eurostat, European Commission, OECD, Bank of Japan, National statistical offices, Deutsche Bank

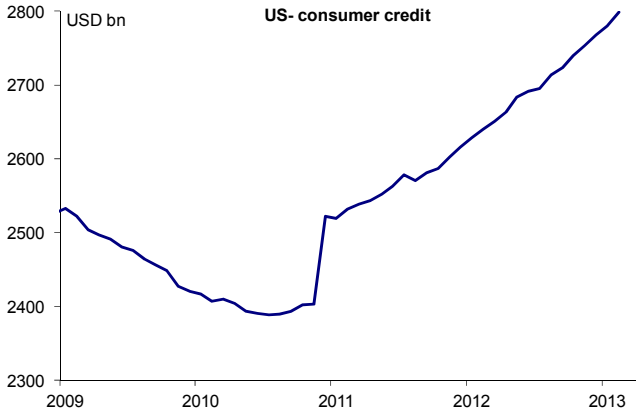
Charts of the Week

Chart 1. In the US, employment stumbled as nonfarm payrolls rose just 88k in March…



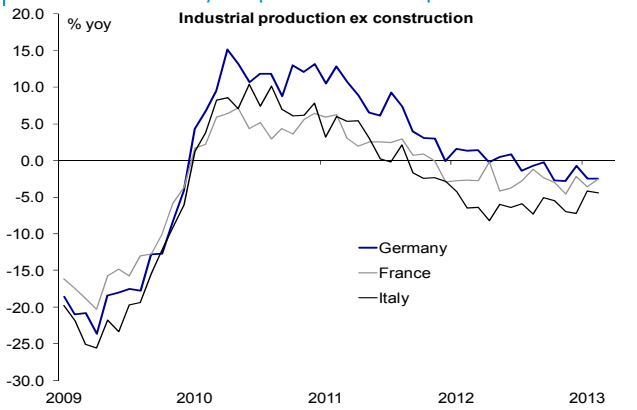
Source: BLS, Deutsche Bank

Chart 2… however credit continued to rise indicating expanding consumer spending and economic recovery.



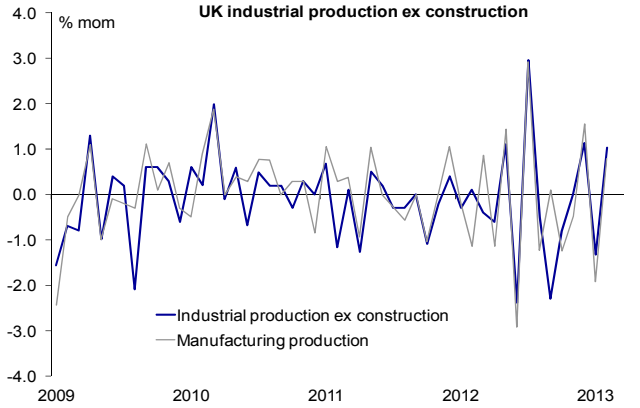
Source: FRB, Deutsche Bank

Chart 3. In Euro area, industrial production for the month of February surprised on the upside in France...



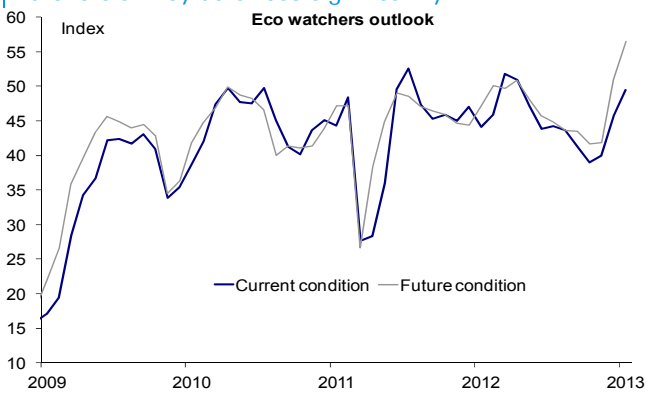
Source: Eurostat, DB Global Markets Research

Chart 4….also in UK, production rose 1.0% mom in February following a huge slump in the previous month.



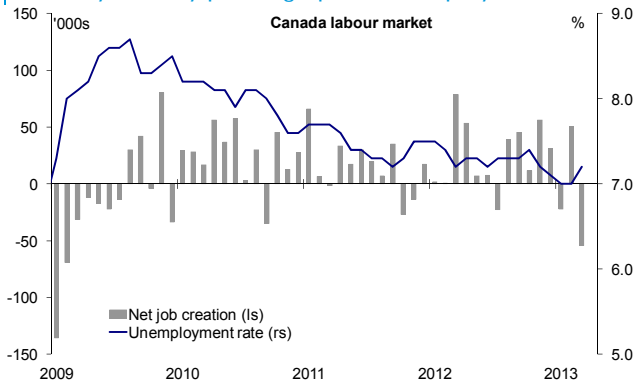
Source: ONS, Deutsche Bank

Chart 5. In Japan, near term outlook improved as Eco watchers survey data rose significantly…



Source: METI, Deutsche Bank

Chart 6…while in Canada, employment fell by 54.5k in February thereby pushing up the unemployment rate



Source: STCA, Deutsche Bank

Global Week Ahead: Thursday, 11 April – Friday, 19 April

- **Dollar Bloc:** In the **US**, markets will be focused on March IP, CPI and retail sales figures – IP is expected to grow by 0.3% mom after a growth of 0.7% mom last month, while retail sales are expected to grow only by 0.3% after growing at 1.1% mom last month. The release of housing starts & building permits together with the NAHB housing index will shed light on the housing market. In soft data, we expect the NY Fed, Philly Fey surveys and UoM consumer sentiment to improve from last month. In **Australia**, the Mar unemployment rate is expected to remain unchanged at 5.4%. In **Canada** the central bank rate meeting will be the major highlight of the week.
- **Europe:** In the **Eurozone**, focus will be on the Euroland IP, trade balance and construction output. Markets will pay heed to IP data and HICP data from across the board. In soft data the ZEW reports will give an insight into the economic sentiment in the region. Elsewhere Italian orders and sales are also due. In **UK**, the BoE's minutes from the Mar 6-7 MPC is due. Data-wise, prices, unemployment rate and trade balance are the major releases. In **Scandinavia,** the Riksbank interest rate meeting will be held.
- **Asia incl. Japan:** In **Japan**, trade balance will be the major release. In **China**, we have a host of data releases in the week ahead - Real GDP, IP, retail sales etc. In **India**, IP and inflation data will be crucial.

Country	GMT	Release	DB Expected	Consensus	Previous
		Thursday, 11 April			
AUSTRALIA	01:30	Labour force unemployment rate (Mar)	5.4%	5.4%	5.4%
GERMANY	06:00	HICP (Mar)		0.4% (1.8%)	0.8% (1.8%)
FRANCE	06:45	HICP (Mar)	0.7% (1.0%)	0.8% (1.0%)	0.3% (1.2%)
SWEDEN	07:30	CPI headline (Mar)	0.3% (-0.2%)	0.4% (-0.2%)	0.4% (-0.2%)
US	12:30	Initial jobless claims (Apr -6)		360.0k	385.0k
US	12:30	Export prices (Mar)		0.1%	0.8% (1.5%)
US	12:30	Import prices (Mar)	0.0%	-0.5%	1.1% (-0.3%)
US	12:30	Non-petroleum import prices (Mar)			0.0% (0.3%)
CHILE	21:00	Nominal overnight rate target (May)	5.00%	5.00%	5.00%
JAPAN	23:50	Tertiary industry index (Feb)		0.7	-1.1%

Events and meetings: EUROLAND: EU's Barnier to hold speech in London. **US:** Fed's Plosser to hold speech in Hong Kong – 10:00 GMT. **US:** Fed's Bullard to hold speech in Washington – 12:30 GMT. **UK**: BoE's Tucker to hold speech in Dublin – 13:00 GMT. **CHILE**: Central Bank of Chile to announce nominal overnight rate target – 21:00 GMT.

		Friday, 12 April			
INDIA	05:30	Industrial production (Feb)	(-2.0%)	(-1.2%)	(2.4%)
SPAIN	07:00	HICP (Mar)	1.9% (2.6%)	1.9% (2.6%)	0.1% (2.9%)
ITALY	08:00	HICP (Mar)	2.3% (1.8%)	2.3% (1.8%)	-0.2% (2.0%)
EUROLAND	09:00	Industrial production (Feb)		0.2% (-2.5%)	-0.4% (-1.3%)
US	12:30	PPI (Mar)	0.2%	-0.2%	0.7% (1.7%)
US	12:30	Retail sales (Mar)	0.3%	0.0%	1.1% (4.6%)
US	13:55	Consumer sentiment prelim (Apr)	79.0	78.5	78.6
US	14:00	Business inventories (Feb)	0.5%	0.4%	1.0% (5.6%)

Events and meetings: **EUOLAND:** ECB's Knot to hold speech in Dublin. **JAPAN:** BOJ's Kuroda to hold speech in Yomiuri – 03:10 GMT. **EUROLAND:** Euro group finance minister to meet in Dublin – 07:00 GMT. **US**: Fed's Rosengren to hold speech in Boston – 12:45 GMT. **EUROLAND**: EU's Almunia to hold speech in Washington – 14:00 GMT. **US**: Fed's Bernanke to hold speech in Washington– 16:30 GMT.

		Saturday, 13 April			

Events and meetings: **EUROLAND**: EU finance ministers (EcoFin) to meet in Dublin – 07:00 GMT. **US:** Fed's Evans & Kocherlakota to hold speech in Boston – 16:30 GMT. **UK:** BOE's Miles to hold speech in Boston – 18:30 GMT. **US:** Fed's Lockhart to hold speech in Iowa – 18:35 GMT

		Monday, 15 April			
CHINA	02:00	GDP constant price (Q1)	(7.9%)	(8.0%)	(7.9%)
CHINA	05:30	Industrial production (Mar)	(9.9%)	(9.9%)	(9.9%)
CHINA	05:30	Retail sales (Mar)	(12.0%)	(12.5%)	(12.3%)
INDIA	05:30	WPI monthly (Mar)	(6.2%)	(6.3%)	(6.8%)
EUROLAND	09:00	Trade balance (Feb)			-EUR3.9bn
US	12:30	NY fed empire state survey (Apr)	10.0	7.0	9.2
US	14:00	NAHB housing market index (Apr)	45.0	45.0	44.0

Events and meetings: EUROLAND: EU's Barroso to hold speech in New York. **JAPAN:** BOJ's Kuroda to hold speech in Tokyo – 00:30 GMT.

Country	GMT	Release	DB Expected	Consensus	Previous
		Tuesday, 16 April			
SWITZERLAND	07:15	Combined PPI and IPI (Mar)			0.1% (0.1%)
ITALY	08:00	Trade balance (Feb)			-EUR1.6bn
UK	08:30	Input PPI (Mar)			3.2% (2.5%)
UK	08:30	Output PPI (Mar)			0.8% (2.3%)
UK	08:30	CPI (Mar)			0.7% (2.8%)
UK	08:30	RPI (Mar)			0.7% (3.2%)
GERMANY	09:00	ZEW survey (current situation) (Apr)			13.6
GERMANY	09:00	ZEW survey (economic sentiment) (Apr)			48.5
EUROLAND	09:00	ZEW survey (current situation) (Apr)			-76.1
EUROLAND	09:00	ZEW survey (economic sentiment) (Apr)			33.4
EUROLAND	09:00	HICP (Mar)	1.1% (1.7%)		0.4% (1.8%)
EUROLAND	09:00	Core HICP (Mar)	(1.3%)		(1.3%)
TURKEY	11:00	MPC meeting (May)			5.50%
US	12:30	Building permits (Mar)	920.0k	945.0k	946.0k
US	12:30	Housing starts (Mar)	920.0k	935.0k	917.0k
US	12:30	CPI (Mar)	0.1%	0.0% (1.7%)	0.7% (2.0%)
US	13:15	Capacity utilization (Mar)	78.7%	78.4%	79.6%
US	13:15	Industrial production (Mar)	0.3%	0.2%	0.7% (2.5%)
NEW ZEALAND	22:45	Consumer price index (Q1)			-0.2% (0.9%)

Events and meetings: AUSTRALIA: Reserve bank of Australia to release minutes of its April MPC meeting – 01:30 GMT. **TURKEY:** Central Bank of Turkey to announce interest rate decision – 11:00 GMT. **US:** Fed's Dudley to hold speech in New York – 12:00 GMT. **US:** Fed's Duke to hold speech in Washington – 16:00 GMT. **US:** Fed's Kocherlakota to hold speech in Minneapolis – 19:30 GMT.

		Wednesday, 17 April			
BRAZIL	-	SELIC target - central bank (Apr)		7.25%	7.25%
EUROLAND	06:00	New car registration (Mar)			(-10.5%)
SWEDEN	07:30	Riksbank interest rate (Apr)			1.00%
UK	08:30	Unemployment rate (Mar)			4.7%
UK	08:30	Claimant count change (Mar)			-1.5k
UK	08:30	ILO unemployment rate (Feb)			7.8%
UK	08:30	ILO unemployment change (Feb)			7.0k
EUROLAND	09:00	Construction output (Feb)			-1.4% (-7.3%)
CANADA	14:00	BoC rate announcement (Apr)			1.00%
JAPAN	23:50	Merchandise trade balance (Mar)			-JPY1,086.6bn

Events and meetings: BRAZIL: Central Bank of Brazil to announce SELIC target rate. **EUROLAND:** ECB's Praet to hold speech in Beijing – 06:00 GMT. **SWEDEN:** Riksbank to announce interest rate decision – 07:30 GMT. **UK:** Bank of England to publish minutes of its Mar 6-7 MPC meeting –08:30 GMT. **US:** Fed's Bullard to hold speech in New York – 13:30 GMT. **CANADA:** BOC's Carney to hold speech in Ottawa – 15:15 GMT. **US:** Fed's Rosengren to hold speech in New York – 16:00 GMT. **US:** Federal Reserve to publish Beige Book – 18:00 GMT.

		Thursday, 18 April			
UK	08:30	Retail sales (Mar)			
US	14:00	Philly fed (Apr)	5.0	3.3	2.0

Events and meetings: US: Fed's Kocherlakota to hold speech in New York – 13:00 GMT **US:** Fed's Lacker to hold speech in North Carolina – 13:30 GMT. **US:** Fed's Raskin to hold speech in New York – 16:00 GMT

		Friday, 19 April			
ITALY	08:00	Industrial orders (Feb)			-1.4% (-3.3%)
ITALY	08:00	Industrial sales (Feb)			-1.3% (-3.4%)

Events and meetings: US: Fed's Stein to hold speech in Charlotte – 16:00 GMT. **EUROLAND:** ECB's Liikanen to hold speech in New York – 17:30 GMT.

Source: Australian Bureau of Statistics; Bank of Canada; Bank of Japan; BEA; BLS; Bundesbank; Bureau of Labor Statistics, U.S.

Department of Labor; Cabinet Office, Government of Japan; ECB; Eurostat; Indian Central Statistical Organization; INE; INSEE; ISTAT; ISTAT.IT; Ministry of Finance Japan; National Association of Realtors; National Bureau of Statistics; National Statistics Office; OECD - Composite Leading Indicator; People's Bank of China; Reserve Bank of Australia; Reserve Bank of New Zealand; Statistics Canada; Statistics Netherlands; Statistics of New Zealand; U.S. Census Bureau; U.S. Department of Labor, Employment & Training Administration; U.S. Department of the Treasury; U.S. Federal Reserve.

Note: Unless otherwise indicated, numbers without parenthesis are either % month-on-month or % quarter-on-quarter, depending on the frequency of release, while numbers in parenthesis are % year-on-year. * on the release time means indicative release time. * on indicator name means indicative/earliest release date

Source: Deutsche Bank

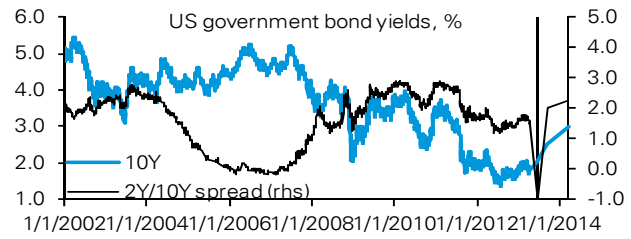
Financial Forecasts

		US	Jpn	Euro	UK	Swe*	Swiss*	Can*	Aus*	NZ*
3M Interest	Actual	0.28	0.24	0.21	0.51	1.00	0.00	1.00	3.00	2.50
Rates1	Jun-13	0.35	0.30	0.25	0.51	1.00	0.00	1.00	2.75	2.50
DB forecasts	futures	(0.30)	(0.24)	(0.23)	(0.51)	---	---	---	---	---
& Futures	Sep-13	0.35	0.30	0.25	0.52	1.00	0.00	1.00	2.50	2.50
	futures	(0.32)	(0.24)	(0.25)	(0.48)	---	---	---	---	---
	Mar-14	0.35	0.30	0.35	0.60	1.25	0.00	1.75	2.50	2.75
	futures	(0.37)	(0.25)	(0.32)	(0.47)	---	---	---	---	---
10Y Gov't2	Actual	1.77	0.58	1.29	1.76	1.71	0.67	1.77	3.29	3.38
Bond	Jun-13	2.00	0.70	1.65	2.25	1.90	0.95	2.25	3.75	4.00
Yields/	futures	1.85	0.61	1.35	1.83	---	---	---	---	---
Spreads3	Sep-13	2.50	0.80	1.75	2.45	1.95	1.10	2.75	4.25	4.25
DB forecasts	futures	1.94	0.65	1.42	1.90	---	---	---	---	---
& Forwards	Mar-14	3.00	0.90	2.00	2.90	2.20	1.35	3.50	4.25	4.50
	futures	2.11	0.72	1.55	2.05	---	---	---	---	---

		EUR/ USD	USD/ JPY	EUR/ GBP	GBP/ USD	EUR/ SEK	EUR/ CHF	CAD/ USD	AUD/ USD	NZD/ USD
Exchange	Actual	1.31	99.4	0.85	1.53	8.34	1.22	1.01	1.05	0.86
Rates	3M	1.26	96.0	0.87	1.45	8.20	1.25	0.98	1.04	0.83
	6M	1.23	98.0	0.86	1.43	8.00	1.25	0.98	1.02	0.82
	12M	1.20	100.0	0.85	1.41	7.80	1.25	1.00	1.00	0.80

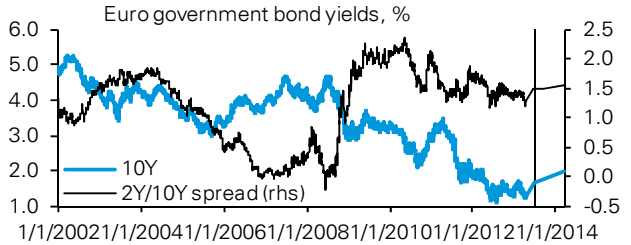
*(1) Future rates calculated from the June, September and March 3M contracts. Forecasts are for the same dates. * indicates policy interest rates.*
(2) Forecasts in this table are produced by the regional fixed income strategists. Forwards estimated from the asset swap curve for 2Y and 10Y yields.
(3)Bond yield spreads are versus Euroland. US 10Y Govt. bond yield forecasts has been taken from US Fixed Income Weekly.
Sources: Bloomberg Finance LP, Deutsche Bank . Revised forecasts in bold type. All current rates taken as at Tuesday at 11:00 GMT.

US 10Y rates



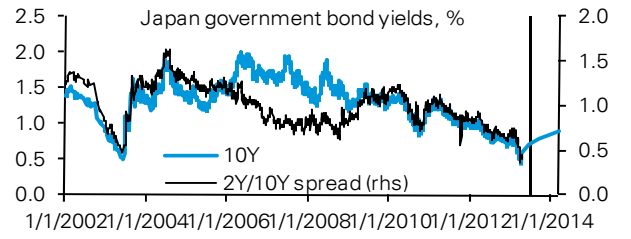
Source: Deutsche Bank , Bloomberg Finance LP

Euroland 10Y rates



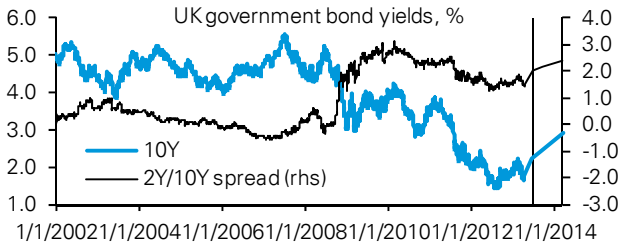
Source: Deutsche Bank , Bloomberg Finance LP

Japan 10Y rates



Source: Deutsche Bank , Bloomberg Finance LP

UK 10Y rates



Source: Deutsche Bank , Bloomberg Finance LP

Appendix 1

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David Folkerts-Landau
Global Head of Research

Marcel Cassard
Global Head
CB&S Research

Ralf Hoffmann & Bernhard Speyer
Co-Heads
DB Research

Guy Ashton
Chief Operating Officer
Research

Richard Smith
Associate Director
Equity Research

Asia-Pacific
Fergus Lynch
Regional Head

Germany
Andreas Neubauer
Regional Head

North America
Steve Pollard
Regional Head

International Locations

Deutsche Bank AG
Deutsche Bank Place
Level 16
Corner of Hunter & Phillip Streets
Sydney, NSW 2000
Australia
Tel: (61) 2 8258 1234

Deutsche Bank AG
Große Gallusstraße 10-14
60272 Frankfurt am Main
Germany
Tel: (49) 69 910 00

Deutsche Bank AG
Filiale Hongkong
International Commerce Centre,
1 Austin Road West,Kowloon,
Hong Kong
Tel: (852) 2203 8888

Deutsche Securities Inc.
2-11-1 Nagatacho
Sanno Park Tower
Chiyoda-ku, Tokyo 100-6171
Japan
Tel: (81) 3 5156 6770

Deutsche Bank AG London
1 Great Winchester Street
London EC2N 2EQ
United Kingdom
Tel: (44) 20 7545 8000

Deutsche Bank Securities Inc.
60 Wall Street
New York, NY 10005
United States of America
Tel: (1) 212 250 2500

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