

LIVERPOOL INVESTMENT LETTER

March 2017



Cardiff Business School

Ysgol Busnes Caerdydd

Julian Hodge Institute of Applied Macroeconomics

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LIVERPOOL RESEARCH GROUP IN MACROECONOMICS

LIVERPOOL RESEARCH GROUP IN MACROECONOMICS

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The Julian Hodge Institute was launched in autumn 1999 in a new collaboration between the Cardiff Business School of Cardiff University and Hodge. The aim of the Institute is to carry out research into the behaviour of the UK economy, and to study in particular its relationship with the other economies of Europe. The research has been particularly germane in recent years and has proved to be of significant social and political relevance as Europe has navigated the difficulties of the global financial crash, the Eurozone crisis and most recently the UK referendum on EU membership. The Liverpool Investment Letter is written by Patrick Minford, with the assistance of other members of the Group; in particular the emerging markets section is written by Anupam Rastogi, and the focus on Japan is written by Francesco Perugini. The Investment Letter is published monthly.

The Liverpool Research Group in Economics is pursuing a research programme involving the estimation and use of macroeconomic models for forecasting and policy analysis. The Group is now mainly based in Cardiff Business School, Cardiff University, and is indebted to the School and to the Hodge Foundation for their support. The Group's activities contribute to the programmes being pursued by the Julian Hodge Institute of Applied Macroeconomics. This Liverpool Investment Letter is typeset by David Meenagh and published on behalf of the group by Liverpool Macroeconomic Research Limited, which holds the copyright

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| <p>Forecasters are coming to their senses over the UK outlook, in line with the strength of the fourth quarter. The factor they have underestimated is the massive devaluation of sterling which lifts traded goods profits and stimulates its output and investment. Our evaluation of manufacturing suggests the percent margins would rise by about 16% of its value-added post-Brexit under unilateral WTO terms. It is hardly surprising the economy is booming.</p> | |
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THE RETURN OF NORMAL FORECASTING

After their disastrous efforts at forecasting doom and gloom from Brexit, the forecasting community has at last come to its senses and begun to forecast normally. The outlook among the key forecasters has moved to a growth forecast of 2% for 2017 for the UK, against an outturn for 2016 that has been revised down to 1.8% overall on the basis of a very weak (revised) first quarter. This is a surprising revision which may change yet again. But the basic point about it is that 2016 came in as a lamb and went out as a lion — so turning the ‘Brexit Disaster scenario’ on its head.

What to make of all this? Time and again the forecasters forgot the power of the exchange rate. For them it is all about the effect on the consumer price index, and not at all about the profitability of exports and import-substitutes. Yet go back to basic open economy macroeconomics and remind yourself that a large devaluation is like a large monetary stimulus that works by raising home producer prices relative to wages, with an impact on industrial profitability in selling to foreigners at the same dollar prices and in selling at home at prices that can rise to match much more expensively home-priced foreign products. No wonder that we have been hearing nothing but good news from industry, on sales, investment and output.

This devaluation has powered up an economy that was doing perfectly well already. On top of this world growth is strengthening, with even the euro-zone perking up and Trump’s America straining at the leash and slaving over the prospect of an Obama-free world of deregulation and tax cuts. Interest rates are rising in the US; QE will continue for a time in the euro-zone but with inflation there over 2% this will not go on for long now. Here it can only be a matter of time before the Bank moves to tighten monetary conditions, if only modestly in 2017. Inflation here is already over 2% and likely to rise further over the next year as price rises filter through from the devaluation and also push up wages. The Liverpool Macro Research forecast is for growth over 2% in 2017; it could well get up to 3% or more depending on just how much wages respond. So far it looks as if the response will be fairly muted, and that money and credit have also not responded as strongly as they would have in a less regulated world. Rather like in the post-ERM period from 1992, when also there was a large devaluation, there may be enough cooling sentiment around, due to fear of the unknown, to prevent a precipitate boom.

Meanwhile it is salutary to look at a table of post-Brexit manufacturing profitability (source: Patrick Minford and Edgar Miller, 2017, What shall we do if the EU will not play ball? UK WTO strategy in a non-cooperative continent, downloadable from www.economistsforfree.com

Table 1: Summary of Forecast

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----------------------------------|-------|--------|-------|-------|-------|-------|------|
| GDP Growth ¹ | 2.9 | 2.2 | 2.0 | 2.3 | 2.5 | 3.0 | 3.4 |
| Inflation CPI | 1.7 | 0.2 | 1.2 | 1.9 | 2.6 | 2.9 | 2.3 |
| Wage Growth | 1.2 | 2.5 | 2.8 | 3.9 | 5.7 | 6.2 | 5.5 |
| Unemployment (Mill.) ² | 1.1 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 |
| Exchange Rate ³ | 87.1 | 91.6 | 82.4 | 78.3 | 76.6 | 75.1 | 73.9 |
| 3 Month Interest Rate | 0.6 | 0.6 | 0.5 | 0.9 | 2.0 | 2.8 | 3.0 |
| 5 Year Interest Rate | 1.8 | 1.3 | 0.8 | 1.2 | 1.5 | 2.6 | 3.0 |
| Current Balance (£bn) | -99.9 | -103.7 | -99.6 | -55.8 | -42.6 | -20.5 | -9.9 |
| PSBR (£bn) | 83.3 | 71.2 | 57.1 | 43.7 | 30.3 | 16.9 | 3.4 |

¹Expenditure estimate at factor cost

²U.K. Wholly unemployed excluding school leavers (new basis)

³Sterling effective exchange rate, Bank of England Index (2005 = 100)

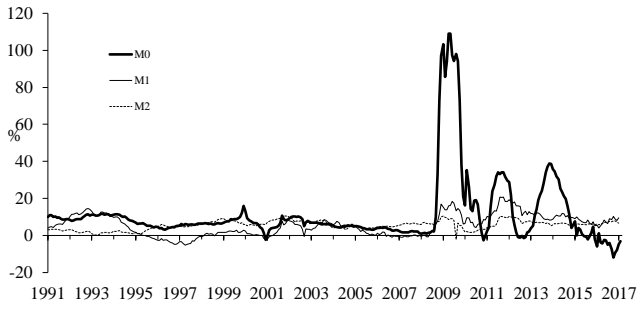
Table 2: Post-Brexit Manufacturing Profits

| | Home Market | EU Market | ROW Market | TOTAL |
|------------------|-------------|-----------|------------|--------|
| | (£100bn) | (£110bn) | (£115bn) | |
| Price Impact | -20% | 0 | 0 | |
| EU Tariff Impact | 0 | -3.5% | 0 | |
| Sterling Impact | +15% | +15% | +15% | |
| TOTAL | -£5bn | +£12.7bn | +£17.3bn | +£25bn |

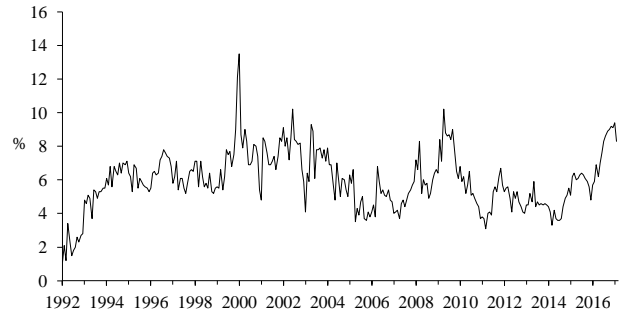
Notes on Table 2: The WTO Option in our World Trade Model assumes that initially, following the loss of EU protection, UK manufacturing prices will fall by 20% in the home market compared with current EU prices but eventually over, say 10 years, will settle to 10% lower than prices within the EU. This is because the EU is assumed to follow a slow trend towards reduced protectionism. It also assumes that our exports to the EU face the current EU MFN tariff but that a general pro-business industrial strategy support package is put in place by the government to allow industry to absorb this without putting up EU prices. The Sterling exchange rate has fallen about 15% post-Brexit. The total manufacturing home market is around £100 billion; total manufacturing exports to the EU are around £110 billion and to the ROW about the same at £115 billion. So while the exchange rate stays down, manufacturing makes profit gains of £25 billion, on total gross value added of about £160 billion equating to 16% extra gross margin on value added.

Manufacturing gets an immediate uplift once Brexit occurs of no less than 16% on its £160 billion value added, a huge rise in its margins. This is after assuming that the EU levies a tariff on UK exports, while the UK negotiates free trade agreements with the Rest of the World implying that manufacturers from the ROW enter here at world prices, 20% lower than current. It is no wonder that UK manufacturing is in high spirits.

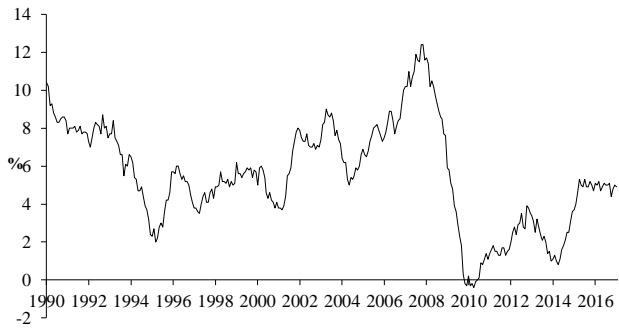
U.S.: Growth in Monetary Aggregates (Yr - on - Yr)



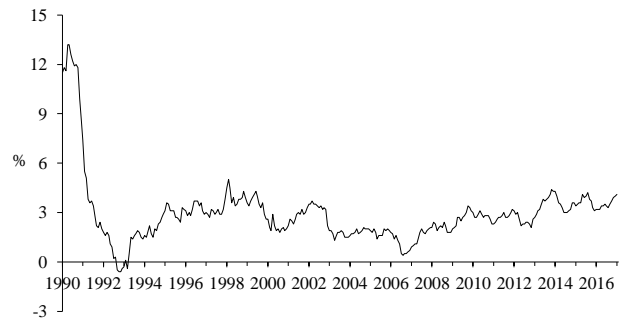
UK: Notes and Coins in Circulation Growth



Eurozone M3 Growth



Japan: Growth of M2+CD's



FOCUS ON JAPAN

Francesco Perugini

Japan 2016 GDP growth slowed

Japan's economy expanded for a fourth straight quarter in the October–December period as strong trade demand and a pickup in capital expenditure underscored a steady export-led recovery. Data released by the Cabinet Office early last month showed the economy grew 1.0% y-o-y in the final three months of 2016, roughly in line with the 1.1% increase markets had expected, following a revised 1.4% expansion in July–September. The preliminary reading for fourth-quarter GDP figure translated into 0.2% growth on a q-o-q basis, versus a 0.3% gain expected by analysts.

Looking at demand components external demand — exports minus imports — contributed 0.2 percentage points to GDP, due to a rise in shipments from a pickup in car demand from China and the US, and electronics parts from Asia. However, consumption was stagnant, with no growth in the fourth quarter compared with the third, suggesting that Japan's economy still lacks the internal demand pressure it needs to escape from two decades of on-and-off deflation. Rising prices of fresh food and vegetables are likely to have dented households' purchasing power. Capital expenditure, a key component of GDP, rose 0.9%, more than reversing a 0.3% decline in the third quarter. Housing investment, a bright spot in the economy helped by the central bank's aggressive monetary easing, rose 0.2%, but this was the slowest expansion in four quarters.

Observers and practitioners remain sceptical about Japan's economic prospects. First of all, they are troubled by the weakness of consumption which came despite a solid increase in total labour income last year as the number of people in work rose. Sluggish private consumption has been a headache for Abe since the country's sales tax increase in 2014. The prime minister has been calling on companies to raise wages to set in motion a wage growth cycle and the increased consumer spending that it would stimulate. "We believe a declining trend for the average propensity to consume suggests consumer anxiety about the future, as well as very cautious spending by pensioners, is weighing down on consumption," said Kiichi Murashima at Citi in Tokyo. Given consumption is much the largest part of total demand, it will be hard for Japan to sustain the kind of expansion it needs to create a virtuous cycle of rising wages, rising consumption and rising prices. Early signs from this year's spring wage round suggest pay rises will be similar to last year's. "The momentum will probably continue the same way: weak domestic demand offset by external demand and hence continuing moderate growth," said Harumi Taguchi, principal economist at IHS Markit, a private think-tank based in Tokyo.

Secondly, economists said that US President Donald Trump's protectionist stance on trade and his allegations of

currency manipulation are expected to remain sources of concern for the Japanese economy and for policymakers, although friction was absent when Trump and Prime Minister Shinzo Abe met early last month. "If a potential change in US trade policy heightens uncertainty about the global economic outlook, it could drag down the Japanese economy powered by external demand," said Shunsuke Kobayashi, an economist at the Daiwa Institute of Research. Japan saw increased shipments of cars and electronic parts, mainly for smart phones, helping it report two straight quarters of export growth. The yen's depreciation against the dollar in late 2016 gave a boost to exporters, although analysts believe a further sharp slide in the currency is unlikely as concerns over Trump's criticisms linger. "One scenario would be that an increase in exports will spur business spending (to boost output), but that won't be realistic at a time of increased uncertainty," said Toru Suehiro, senior market economist at Mizuho Securities Co. "Even without Trump's protectionist rhetoric, the US auto market has already shown signs of being saturated, which could slow the pace of growth in exports (from Japan) going forward," Suehiro added.

Overall, the ongoing mild expansion will sustain the political popularity of Prime Minister Shinzo Abe — whose approval rating has recently recovered to a level similar to that seen in December 2012, when it reached a high of 65% just after the second Abe Cabinet was formed — and suggests the Bank of Japan (BOJ) is unlikely to add any more monetary stimulus in the coming few months. However, so far Abe failed to boost the country's long-moribund economy out of decades of deflation. Under his second stint as leader, Japan's real GDP growth rate has shown a mixed performance. It posted a 1.4% gain in 2013, slipped to just 0.3% in 2014 (due to a consumption tax rise), grew by 1.2% in 2015, and only by 1% in 2016. Still, the Japanese economy remained "constrained by the low growth potential implied by a shrinking and aging labour force and heightened policy uncertainty in major trading partners", says a recent World Bank report. That low growth potential has contributed to "diminished expectations, which negatively affect investment spending as well as fiscal and monetary policy effectiveness."

What we see here is that the mechanism by which consumer and wages growth is stimulated is confidence in the future based on growth in the economy's productivity and the ensuing investment that this brings. Unfortunately Abe, for all his fine words, has done nothing to change the economy's supply side where productivity growth is generated. He, like his predecessors, has found that he cannot achieve any such change politically. Japan's political system is perfectly designed to stall supply-side reform, as power lies with rural voters, who are old and conservative, and enamoured of agricultural protection; meanwhile local commercial

interests prevent free competitive entry through the complex process of planning approval. It is no wonder that the Japanese economy is stagnant; however we should also remember that with a population shrinking by around 0.2%

a year per capita growth is between 1 and 2% a year. This growth rate seems not to be low enough to trigger political unrest and so stimulate any genuine reform.

MARKET DEVELOPMENTS

The bull market in equities has come in as we expected and bonds are in retreat. We think this environment will continue for the foreseeable future, with the world economy

strengthening and the Trump agenda enthusing business. Interest rates should now gradually rise everywhere, underlining the weakness of the bond outlook.

Table 1: Market Developments

| | Market Levels | | Prediction for Feb/Mar 2018 | |
|---|---------------|--------|-----------------------------|--------------|
| | Feb 6 | Mar 3 | Previous Letter | Current View |
| Share Indices | | | | |
| UK (FT 100) | 7172 | 7374 | 11827 | 12160 |
| US (S&P 500) | 2293 | 2382 | 2840 | 2951 |
| Germany (DAX 30) | 11826 | 12027 | 18634 | 19472 |
| Japan (Tokyo New) | 1520 | 1558 | 2171 | 2225 |
| Bond Yields (government) | | | | |
| UK | 1.32 | 1.11 | 1.20 | 1.20 |
| US | 2.43 | 2.51 | 2.80 | 2.80 |
| Germany | 0.37 | 0.35 | 0.70 | 0.70 |
| Japan | 0.10 | 0.06 | 0.10 | 0.10 |
| UK Index Linked | -1.64 | -1.63 | 0.10 | 0.10 |
| Exchange Rates | | | | |
| UK (\$ per £) | 1.24 | 1.23 | 1.40 | 1.40 |
| UK (trade weighted) | 77.00 | 76.85 | 77.30 | 77.00 |
| US (trade weighted) | 104.01 | 106.43 | 102.0 | 102.0 |
| Euro per \$ | 0.93 | 0.95 | 0.93 | 0.93 |
| Euro per £ | 1.16 | 1.16 | 1.30 | 1.30 |
| Japan (Yen per \$) | 112.4 | 114.5 | 112.0 | 112.0 |
| Short Term Interest Rates (3-month deposits) | | | | |
| UK | 0.32 | 0.31 | 1.00 | 1.50 |
| US | 1.10 | 1.15 | 1.30 | 1.30 |
| Euro | -0.38 | -0.39 | -0.20 | -0.20 |
| Japan | -0.10 | -0.15 | 0.00 | 0.00 |

Table 2: Prospective Yields¹

| Equities: Contribution to £ yield of: | | | | | | |
|--|------------------|------------------------|-----------|-------------------------|----------|--------|
| | Dividend Yield | Real Growth | Inflation | Changing Dividend Yield | Currency | Total |
| UK | 3.60 | 2.5 | 2.4 | 60.00 | | 68.50 |
| US | 1.99 | 2.5 | 1.5 | 19.00 | -14.18 | 11.71 |
| Germany | 3.30 | 1.8 | 1.1 | 59.00 | -12.16 | 53.04 |
| Japan | 1.90 | 1.2 | 0.6 | 41.00 | -11.69 | 33.01 |
| UK indexed ² | -1.63 | | 1.5 | 2.00 | | 2.77 |
| Hong Kong ³ | 2.60 | 6.0 | 1.5 | -5.00 | -14.18 | -9.08 |
| Malaysia | 3.30 | 5.4 | 1.5 | 55.00 | -14.18 | 40.02 |
| Singapore | 3.50 | 2.0 | 1.5 | 23.00 | -14.18 | 1.82 |
| India | 1.40 | 8.0 | 1.5 | 24.00 | -14.18 | 25.72 |
| Korea | 1.10 | 3.0 | 1.5 | -19.00 | -14.18 | -27.58 |
| Indonesia | 2.20 | 5.2 | 1.5 | 31.00 | -14.18 | 24.72 |
| Taiwan | 2.80 | 3.4 | 1.5 | 14.00 | -14.18 | 6.52 |
| Thailand | 3.20 | 3.1 | 1.5 | 35.00 | -14.18 | 19.62 |
| Bonds: Contribution to £ yield of: | | | | | | |
| | Redemption Yield | Changing Nominal Rates | Currency | Total | | |
| UK | 1.11 | -0.90 | | | | 0.31 |
| US | 2.51 | -2.90 | -14.18 | | | -12.68 |
| Germany | 0.35 | -3.50 | -12.16 | | | -12.55 |
| Japan | 0.06 | -0.40 | -11.69 | | | -11.84 |
| Deposits: Contribution to £ yield of: | | | | | | |
| | Deposit Yield | Currency | Total | | | |
| UK | 0.31 | | 0.31 | | | |
| US | 1.50 | -14.18 | -12.68 | | | |
| Euro | -0.39 | -12.16 | -12.55 | | | |
| Japan | -0.15 | -11.69 | -11.84 | | | |

¹ Yields in terms of €s or \$s can be computed by adjusting the £-based yields for the expected currency change.

² UK index linked bonds All Stocks

³ Output based on China.

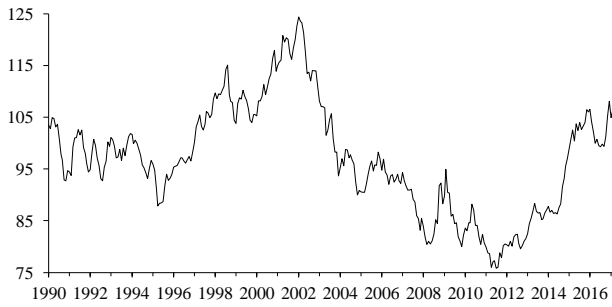
Table 3: Portfolio(%)

| | Sterling Based Investor | | Dollar Based Investor | | Euro Based Investor | |
|--------------------------|-------------------------|--------------|-----------------------|--------------|---------------------|--------------|
| | February Letter | Current View | February Letter | Current View | February Letter | Current View |
| UK Deposits (Cash) | 5 | 5 | 5 | 5 | 1 | 1 |
| US Deposits | - | - | - | - | - | - |
| Euro Deposits | - | - | - | - | - | - |
| Japanese Deposits | - | - | - | - | - | - |
| UK Bonds | - | - | - | - | - | - |
| US Bonds | - | - | - | - | - | - |
| German Bonds | - | - | - | - | - | - |
| Japanese Bonds | - | - | - | - | - | - |
| UK Shares | 19 | 19 | 14 | 14 | 17 | 17 |
| US Shares | 14 | 14 | 19 | 19 | 16 | 16 |
| German Shares | 14 | 14 | 14 | 14 | 21 | 21 |
| Japanese Shares | 9 | 9 | 9 | 9 | 11 | 11 |
| Hong Kong/Chinese Shares | 4 | 4 | 4 | 4 | 4 | 4 |
| Singaporean Shares | 4 | 4 | 4 | 4 | 4 | 4 |
| Indian Shares | 4 | 4 | 4 | 4 | 4 | 4 |
| Thai Shares | 3 | 3 | 3 | 3 | 3 | 3 |
| South Korean Shares | 4 | 4 | 4 | 4 | 4 | 4 |
| Taiwanese Shares | 4 | 4 | 4 | 4 | 3 | 3 |
| Brazilian Shares | 4 | 4 | 4 | 4 | 3 | 3 |
| Chilean Shares | 4 | 4 | 4 | 4 | 3 | 3 |
| Mexican Shares | 4 | 4 | 4 | 4 | 3 | 3 |
| Peruvian shares | 4 | 4 | 4 | 4 | 3 | 3 |
| Other: | | | | | | |
| Index-linked bonds (UK) | - | - | - | - | - | - |

INDICATORS AND MARKET ANALYSIS

FOREIGN EXCHANGE MARKETS

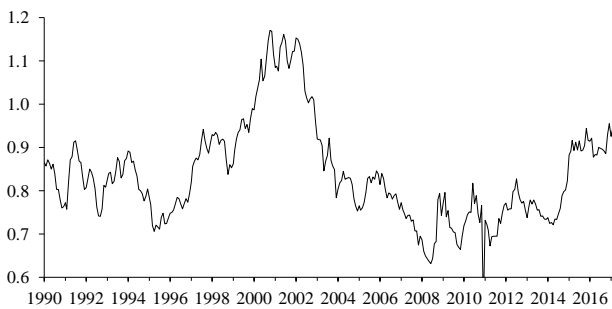
**US : Trade Weighted Index
(Bank of England 1990 = 100)**



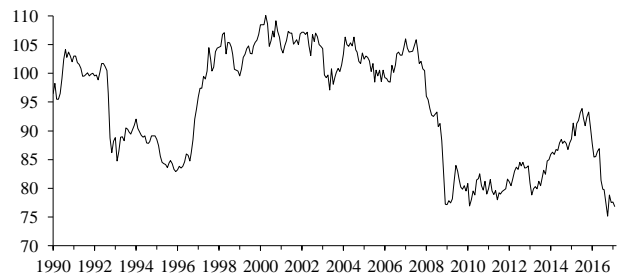
UK: Dollars Per Pound Sterling



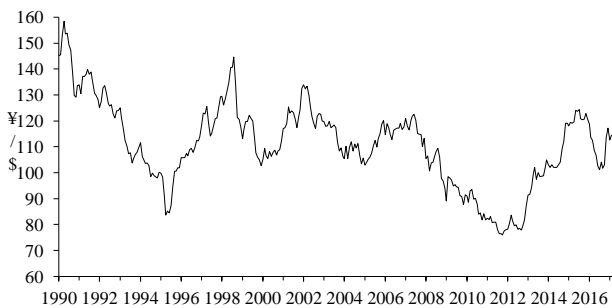
Euro per US dollar



**UK: Trade-Weighted Index
(Bank of England 1990 = 100)**



Japan : Yen Per U.S. Dollar

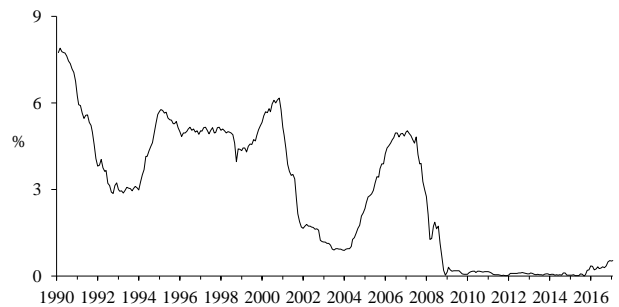


GOVERNMENT BOND MARKETS

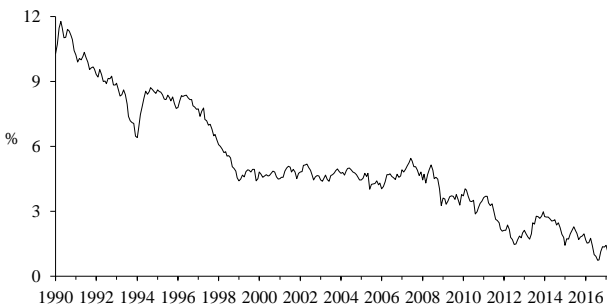
U.S.: Yield on Long-Term Government Bonds



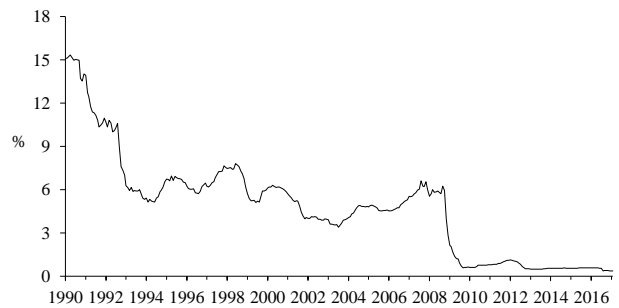
U.S. : 3-Month Treasury Bill



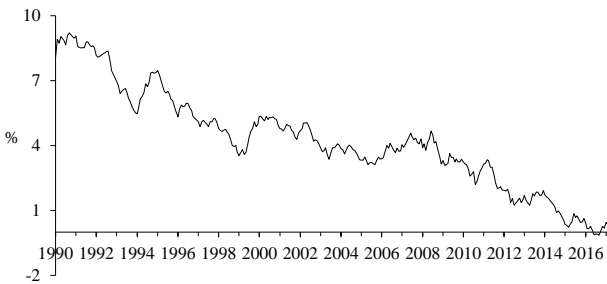
U.K.: Yield on Long-Term Government Bonds



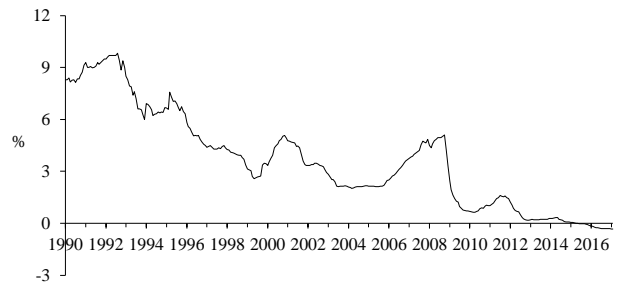
U.K. : 3-Month Interbank Rate



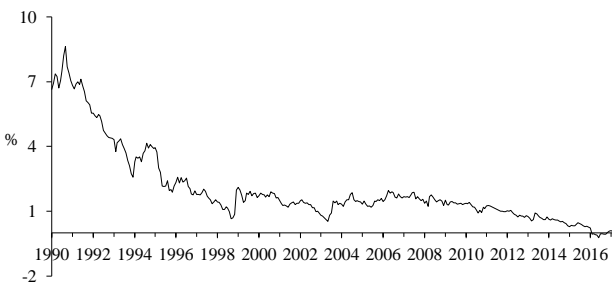
Germany: Yield on Public Authority Bonds



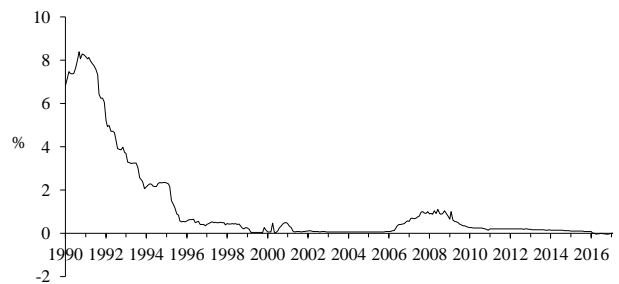
Germany : 3-Month Interbank Deposit Rate



Japan: Yield on Long-Term Government Bonds

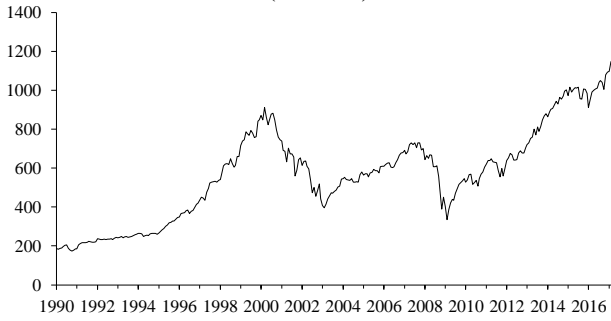


Japan : 3 Month Money Market Rate

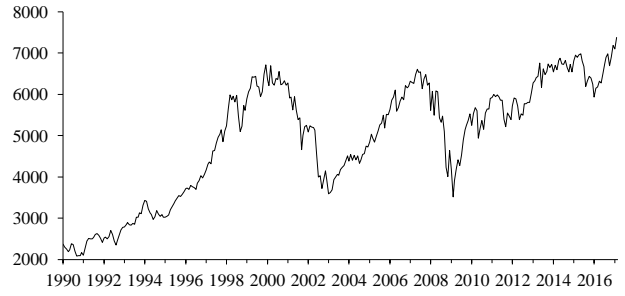


MAJOR EQUITY MARKETS

**U.S. : S & P 400 Industrial
(1985=100)**



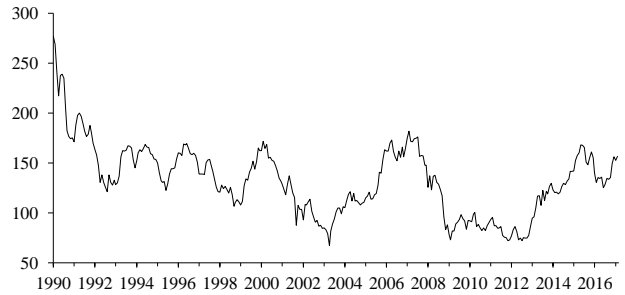
**U.K. : FTSE-100 Index
(10 April 1962=100)**



Germany : DAX 30



**Japan : Tokyo S.E. New
(1985=100)**



EMERGING MARKETS

Anupam Rastogi

India

India’s fiscal quarter ending in December expanded at an enviable 7% rate, putting to rest the fear that India’s GDP growth would tumble, in the current fiscal year 2016–17, after demonetization. The growth in the quarter was buoyed by a 12% increase in government spending — following a pay rise for civil servants — and robust 6% growth in agriculture, after a bountiful monsoon. According to the government sources, private consumption grew 10% — double the rate of the previous quarter, despite other indicators of a sharp slowdown in both rural and urban consumption after the cash crunch. The reason being that cash spending got declared in the quarter. The figures confirmed that India is still expanding at a faster pace than any of the major emerging markets — Brazil, China or Russia.

India’s benchmark consumer-inflation rate fell to 3.4% in December from a year earlier — its lowest level in two years and well below a 5% target set by the RBI for March 2017. But, the RBI has changed its stance to neutral, after switching to accommodative in December 2014, where it had remained since. The RBI’s decision signals the end of the loosening cycle in India. In the last meeting of the Monetary Policy Committee, the bank kept the repurchase rate at 6.25% — the lowest level since September 2010. The bank’s surprise decision is a sign that a global lull in inflation that has lasted for almost a decade is ending.

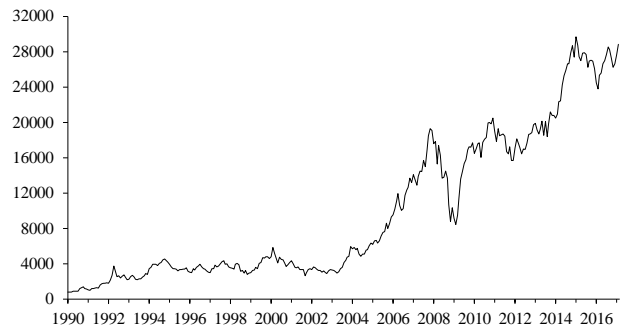
Over the last two quarters, the rupee has remained calm which underscores the degree to which India’s economy, now among the world’s 10 largest, remains relatively shielded from external developments.

After a 3,000-point, or 12%, rally in the S&P BSE Sensex from its December lows, the market is headed for a period of volatility, as it gears up for the outcome of the ongoing provincial state polls. PM Modi’s party is expected to win in many states that will strengthen the grip of PM Modi over the legislative agenda.

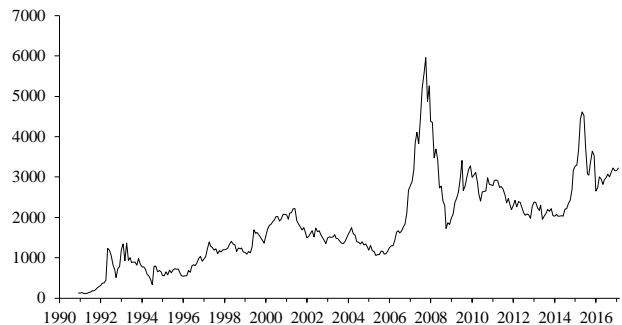
The work on implementation of the Goods and Services tax is reaching its final phase. The government has warned that businesses operating in India should be ready for “teething problems” when the country introduces the landmark tax reform in July 2017. The tax will broaden the country’s tax base, making business more efficient and slash the size of a huge “black economy”. The whole country will become a common market and India will have a free flow of goods and services.

| | 14–15 | 15–16 | 16–17 | 17–18 | 18–19 |
|-------------------------|-------|-------|-------|-------|-------|
| GDP (%p.a.) | 7.3 | 7.6 | 7.0 | 7.5 | 8.0 |
| WPI (%p.a.) | 6.0 | 5.2 | 4.5 | 4.0 | 4.0 |
| Current A/c(US\$ bill.) | -34.0 | -24.0 | -24.0 | -26.0 | -28.0 |
| Rs./\$(nom.) | 62.0 | 66.5 | 68.2 | 70.2 | 72.0 |

India: BSE Sensitive



China: SSE Composite Index



China

China’s Premier Li Keqiang announced a more modest economic growth target of ‘around 6.5%’ for the year 2017. China also revised downward its GDP growth of 2016 from 6.7% to 6.5%. China will raise its defence expenditure this year by “about 7%” keeping the rise in line with the country’s economic growth.

China is following a gradualist approach to change but it is undermined by instantaneous market reactions. There are many uncertainties over the economy right now and the President Xi Jinping is shaking up his economic team as China battles rising financial risks at home and friction with its trading partners. The new economic team faces a host of challenges from rising debt levels, asset bubbles, capital outflows and increased political tensions over trade. In the U.S., a key market for Chinese goods, President Donald Trump has pledged to be tough on China.

Due to the Lunar New Year demand for food and rising energy prices, China’s consumer price index increased 2.5% in January from a year earlier, compared with a 2.1% gain in December. The producer price index, which measures prices at the factory gate, hit a fresh five-year high in January, rising by a faster-than-expected 6.9% year over year in January, compared with a 5.5% increase in December. The higher inflation figures are likely to stem the criticism

abroad in recent years that China is exporting deflation, at least for now, economists said.

Chinese exports grew much faster than expected in January on rising global demand, producing the highest monthly trade surplus in nearly half a year. Exports jumped 7.9% in January from a year earlier, reversing December's 6.1% decline. Imports in January also surged by a greater-than-expected 16.7% from a year earlier, compared with 3.1% growth in December. China's trade surplus widened in January to \$51.35 billion compared to \$40.82 billion in December

The White House is exploring a new tactic to discourage China from undervaluing its currency to boost exports. Under the plan, the commerce secretary of the US would designate the practice of currency manipulation as an unfair subsidy when employed by any country, instead of singling out China. U.S. companies would then be in a position to bring anti-subsidy actions themselves to the U.S. Commerce Department against China or other countries.

China's foreign-exchange reserves dropped below \$3 trillion in January, the lowest level in almost six years. The decline was smaller than those seen in previous months. Only a mere \$1 billion drop was expected in reserves in light of the government's heightened controls on money leaving China. The larger-than-expected fall in reserves underscores the persistent pressure to move money out.

The renminbi weakened by 6.5% versus the dollar in 2016, its biggest annual decline on record. Chinese households expect the rate to hit 7.35 to a US dollar, according to a survey by FT Confidential. The survey result implies households expect another 5.5% depreciation over the course of this year. In our opinion, the renminbi path this year will be influenced by the dollar, which in turn will depend on the Federal Reserve and the Trump administration's economic policies.

China's equity market is evolving as domestic consumption gradually replaces investment as a main growth driver. Many global investors are missing out on China's strongest stock-market rally in years. The MSCI China index is up approximately 12% this year, making it the fourth-best performer among the 23 countries tracked by the MSCI Emerging Markets index.

| | 14 | 15 | 16 | 17 | 18 |
|---------------------------|-----|-----|-----|-----|-----|
| GDP (%p.a.) | 7.4 | 6.9 | 6.5 | 6.3 | 5.8 |
| Inflation (%p.a.) | 2.0 | 1.4 | 2.0 | 2.2 | 2.0 |
| Trade Balance(US\$ bill.) | 382 | 550 | 510 | 400 | 380 |
| Rmb/\$ (nom.) | 6.2 | 6.4 | 6.7 | 7.2 | 7.4 |

South Korea

Amidst the political and trade uncertainty the central bank has cut its 2017 growth forecast to 2.5% and trimmed its projected consumer inflation to 1.8% this year from its previous estimate of 1.9%. South Korea's industrial

Korea: Composite Index



production surged at its fastest pace in over seven years in January, driven by a jump in output in the nation's key electronics and semiconductor sectors in a sign of rising economic momentum as exports growth picked up. On a year-on-year basis, output rose 1.7%.

Domestic demand remains frail with continued corporate restructuring and a cooling housing market offering little hope of a turnaround in consumption on the horizon. Also weighing on the economy is the recent arrest of Samsung group heir-apparent Lee Jae-yong on bribery and other criminal charges in a corruption scandal that has already led to President Park Geun-hye's impeachment.

Consumer prices were up 0.9% on month in January, and inflation jumped 2.0% on a yearly basis. The Bank of Korea left interest rates unchanged for an eighth straight meeting, as widely expected amid mixed signals from South Korea's economy. The decision to hold the main policy rate at 1.25% reflects continued caution at the central bank as it balances its support for the economy against the need to keep a lid on rising household debt and to limit possible capital outflows as the U.S. Federal Reserve tightens policy.

South Korea is in hot water as it hosted a U.S. antimissile system known as Terminal High Altitude Area Defense, or Thaad, under an agreement with Washington to counter a nuclear threat from North Korea. However, China does not like it. China fears that the system's radar will snoop on its own nuclear force, and is putting pressure on South Korea to abandon the shield. China has blocked shipments of South Korean cosmetics, squeezed tourist flows, turned away K-pop singers, and harassed the China operations of the golf course owner, Lotte group. South Korea ships one-quarter of its exports to China. China's economy is slowing, but it is still expanding four times as fast as America's. If China can bend South Korea to its will through economic coercion, it would send a chilling message to a region beset by new unpredictability. Amidst all these uncertainties, a rogue neighbour and the threat of a trade war, the Korean won appreciated 5% so far this year.

South Korean exports grew for a third straight month in January, increasing hopes that a recovery in shipments overseas will offset sluggish domestic demand. Exports rose

11.2% from a year earlier to \$40.33 billion in January after a 6.4% gain in December. Imports rose 18.6% from a year earlier to \$37.13 billion in January following the previous month's revised 8% rise.

| | 14 | 15 | 16 | 17 | 18 |
|-------------------------|------|------|------|------|------|
| GDP (%p.a.) | 3.3 | 2.6 | 2.5 | 2.5 | 2.5 |
| Inflation (%p.a.) | 2.0 | 0.7 | 1.0 | 1.6 | 1.2 |
| Current A/c(US\$ bill.) | 80.0 | 90.0 | 88.0 | 88.0 | 86.0 |
| Won/\$(nom.) | 1080 | 1180 | 1160 | 1140 | 1140 |

Taiwan

The Taiwanese government now forecasts growth this year at 1.92% compared with an earlier projection of 1.87%. The government also revised up its quarterly gross domestic product data for the last three months of 2016. The growth figures are in line with improved export and production data in recent months that suggest the island's recovery is continuing, aided also by an uptick in capital spending by firms and firmer private consumption.

Taiwan's consumer price inflation accelerated at a faster-than-expected pace in January to the highest level in nearly a year. The index rose 2.25% year-over-year in January, faster than the 1.7% climb in December. The wholesale price inflation also quickened to 2.72% in January from 1.84% in the prior month.

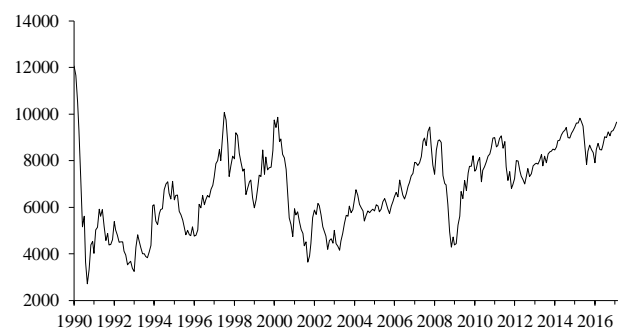
The central bank of Taiwan has submitted a report to parliament amid worries that the United States could label the island a "currency manipulator". It has declared that Taiwan does not deliberately weaken its currency to give the trade-dependent economy an "unfair competitive advantage". However, the bank maintains the dynamic stability of the Taiwan dollar and does not aim to seek unfair competitive advantage. This explains why the central bank, which frequently intervenes in the local currency market, has stayed put and allowed the Taiwan dollar to strengthen around 5% against its U.S. peer so far this year.

| | 14 | 15 | 16 | 17 | 18 |
|-------------------------|------|------|------|------|------|
| GDP (%p.a.) | 3.7 | 0.8 | 1.5 | 1.9 | 2.0 |
| Inflation (%p.a.) | 1.5 | 0.7 | 1.0 | 1.0 | 1.0 |
| Current A/c(US\$ bill.) | 57.4 | 60.0 | 64.0 | 68.0 | 68.0 |
| NT\$/\$(nom.) | 31.0 | 32.8 | 32.5 | 32.0 | 32.0 |

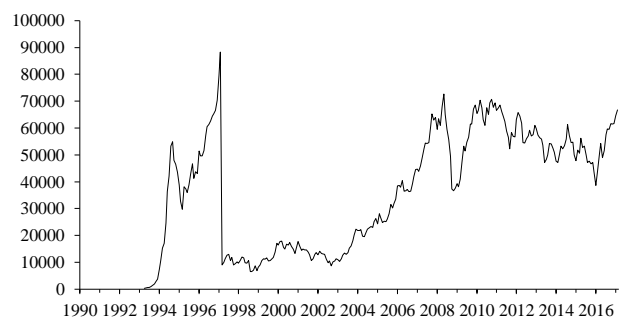
Brazil

The good news for Brazil at this point of time is that it has stopped contracting and the improvement is expected to be more concentrated during the second half of the year. We maintain that the economy would grow 0.5% in 2017 and 1.5% in 2018. Between November–January period, last year, joblessness rose to 12.6% from 11.8% in the previous three-month period. Consumer confidence in Brazil increased in February for the third consecutive month, reaching its highest level since December 2014, as inflation slowed. Brazil's main consumer-confidence index was at 81.8 points, up from 79.3 points in January. But, the index remains well below the neutral level. The confidence index

Taiwan: Weighted TAIEX Price Index



Brazil: Bovespa



has a 1-to-200-point range, with 100 considered an indicator of neutral sentiment.

The rolling 12-month consumer price index ended in mid-February slowed to 5.02%, from 5.94% in mid-January. With the slowdown, inflation is below the 6% ceiling set by the central bank for this year and approaching the target of 4.5%. In the last week of February,

Brazil's central bank cut its benchmark interest rate, as expected, by 75 basis points to 12.25%, and is expected to cut even more through the end of the year, possibly reaching single digits by the end of the year.

The government was aiming to pass a law this year to tackle Brazil's rigid labour code, which employers argue, deters hiring, and the country's moribund school education system which produced results near the bottom of global rankings. Once these reforms are passed, the government would try to simplify the country's convoluted tax code, often cited as a key reason for Brazil's lack of competitiveness. Despite the reforms, the present government, headed by Mr. Temer, remains one of the most unpopular in recent Brazilian history, with only 15% as approval rating of the president.

Investors, however, are more optimistic. The Bovespa equities index is up more than 9% this year, while the currency has gained about 3.5% against the dollar. Last year, as the economy tanked, Brazilian stocks outperformed emerging markets as a whole by 55%, as optimism surged on the impeachment of leftist President Dilma Rousseff and her replacement in August with pro-business, former Vice

President Michel Temer. But now, some fear, the market is running too far ahead of the reality.

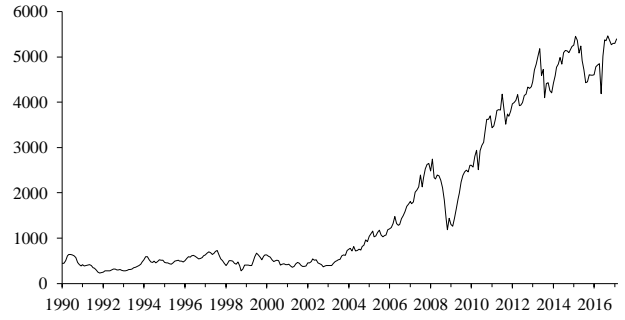
| | 14 | 15 | 16 | 17 | 18 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|
| GDP (%p.a.) | 0.1 | -3.8 | -3.2 | 1.0 | 1.5 |
| Inflation (%p.a.) | 6.5 | 10.3 | 6.4 | 5.0 | 5.0 |
| Current A/c(US\$ bill.) | -104.0 | -70.0 | -28.0 | -25.0 | -25.0 |
| Real/\$(nom.) | 2.4 | 3.9 | 3.5 | 3.4 | 3.2 |

Other Emerging Markets

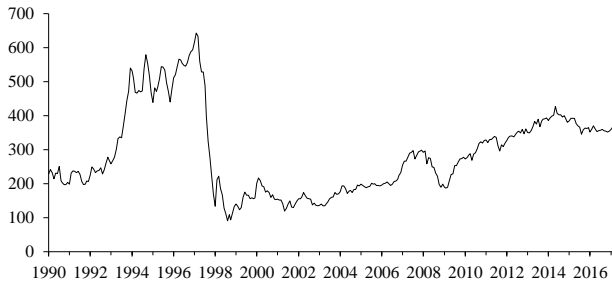
Hong Kong: FT-Actuaries



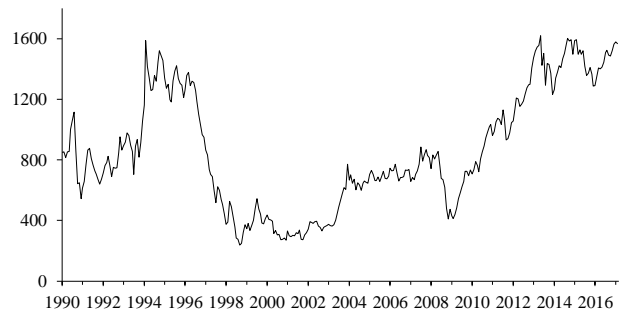
Indonesia: Jakarta Composite



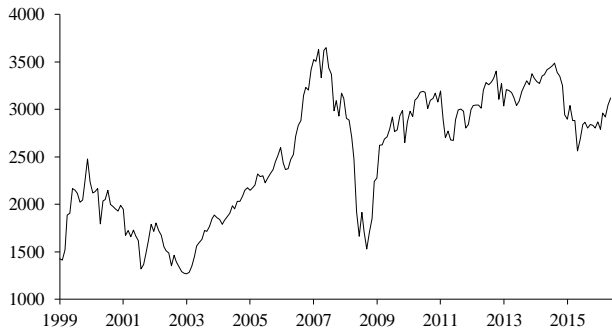
**Malaysia: FT-Actuaries
(US\$ Index)**



Thailand: Composite Index



Singapore: Straits Times Index

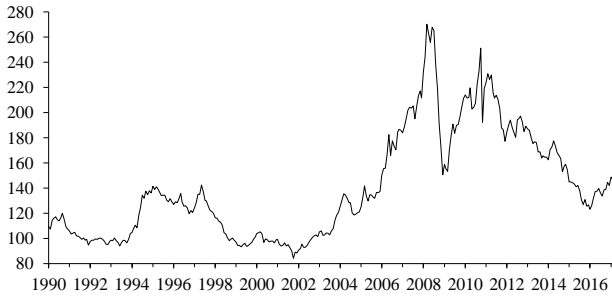


Philippines: Manila Composite

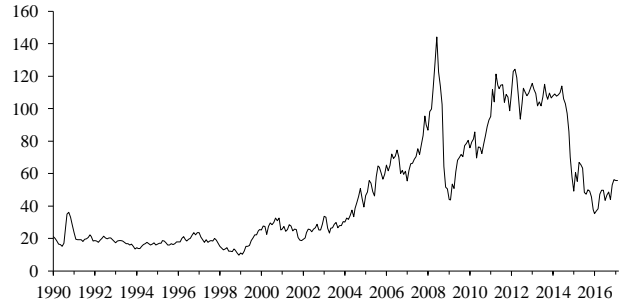


COMMODITY MARKETS

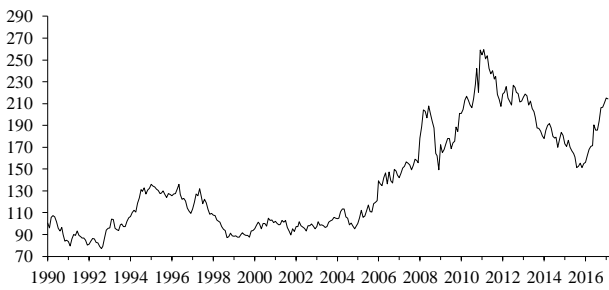
Commodity Price Index (Dollar)
(Economist, 2000=100)



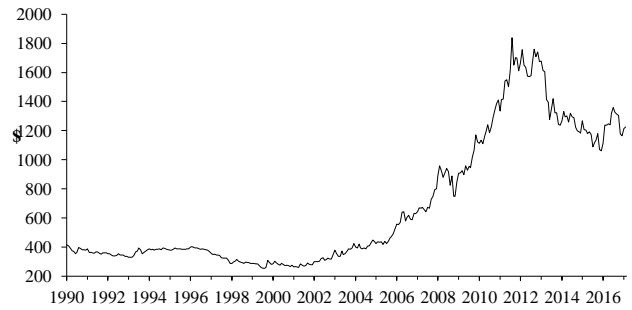
Oil Price: North Sea Brent (in Dollars)



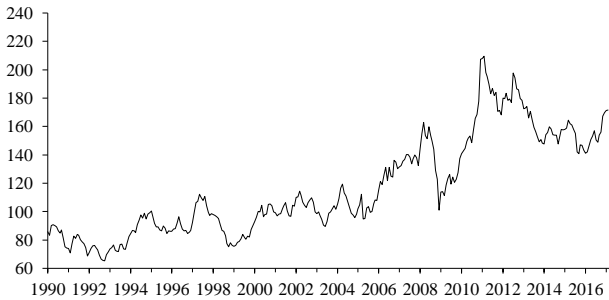
Commodity Price Index (Sterling)
(Economist, 2000=100)



Gold Price (in Dollars)



Commodity Price Index (Euro)
(Economist)



UK FORECAST DETAIL

Prices, Wages, Interest Rates and Exchange Rate Forecast (Seasonally Adjusted)

| | Inflation % ¹ (CPI) | Short Dated (5 Year) Interest Rates | 3 Month Int. Rates | Nominal Exchange Rate (2005=100) ² | Real Exchange Rate ³ | Real 3 Month Int. Rates % ⁴ | Inflation (RPIX) | Real Short Dated Rate of Interest ⁵ |
|--------|-----------------------------------|---|-----------------------|---|------------------------------------|---|---------------------|--|
| 2015 | 0.2 | 1.3 | 0.6 | 91.6 | 91.6 | 0.4 | 1.0 | -1.0 |
| 2016 | 1.2 | 0.8 | 0.5 | 82.4 | 81.1 | -1.1 | 1.9 | -1.5 |
| 2017 | 1.9 | 1.2 | 0.9 | 78.3 | 76.5 | -1.8 | 2.6 | -1.2 |
| 2018 | 2.6 | 1.5 | 2.0 | 76.6 | 75.2 | -0.9 | 3.2 | -0.9 |
| 2019 | 2.9 | 2.6 | 2.8 | 75.1 | 74.7 | 0.5 | 3.5 | 0.5 |
| 2020 | 2.3 | 3.0 | 3.0 | 73.9 | 74.5 | 1.0 | 3.5 | 1.0 |
| 2016:1 | 0.6 | 0.9 | 0.7 | 87.2 | 87.1 | -0.2 | 1.4 | -1.3 |
| 2016:2 | 0.9 | 0.8 | 0.7 | 85.6 | 84.6 | -0.8 | 1.6 | -1.5 |
| 2016:3 | 1.4 | 0.6 | 0.4 | 78.9 | 76.6 | -1.5 | 2.0 | -1.7 |
| 2016:4 | 1.8 | 0.9 | 0.3 | 78.0 | 75.9 | -1.8 | 2.5 | -1.4 |
| 2017:1 | 1.8 | 1.0 | 0.5 | 79.2 | 77.5 | -1.9 | 2.5 | -1.4 |
| 2017:2 | 1.8 | 1.2 | 0.5 | 79.3 | 77.5 | -2.0 | 2.5 | -1.2 |
| 2017:3 | 1.9 | 1.2 | 1.0 | 77.6 | 75.4 | -1.8 | 2.6 | -1.2 |
| 2017:4 | 2.1 | 1.2 | 1.5 | 77.1 | 75.5 | -1.3 | 2.8 | -1.2 |
| 2018:1 | 2.4 | 1.3 | 1.5 | 77.0 | 75.5 | -1.5 | 3.0 | -1.1 |
| 2018:2 | 2.4 | 1.5 | 2.0 | 77.2 | 75.5 | -1.0 | 3.0 | -0.9 |
| 2018:3 | 2.8 | 1.5 | 2.0 | 75.9 | 74.6 | -0.8 | 3.3 | -0.8 |
| 2018:4 | 2.8 | 1.5 | 2.5 | 76.2 | 75.4 | -0.3 | 3.3 | -0.8 |

¹ Consumer's Expenditure Deflator

² Sterling Effective Exchange Rate Bank of England

³ Ratio of UK to other OECD consumer prices adjusted for nominal exchange rate

⁴ Treasury Bill Rate less one year forecast of inflation

⁵ Short Dated 5 Year Interest Rate less average of predicted 5 year ahead inflation rate

Labour Market and Supply Factors (Seasonally Adjusted)

| | Average Earnings (1990=100) ¹ | Wage Growth ² | Unemployment (New Basis) Percent ³ | Millions | Real Wage Rate ⁴ (1990=100) |
|--------|--|-----------------------------|---|----------|--|
| 2015 | 247.3 | 2.5 | 2.3 | 0.8 | 141.2 |
| 2016 | 254.2 | 2.8 | 2.2 | 0.77 | 143.5 |
| 2017 | 264.0 | 3.9 | 2.2 | 0.78 | 146.3 |
| 2018 | 279.0 | 5.7 | 2.1 | 0.75 | 150.8 |
| 2019 | 296.3 | 6.2 | 2.0 | 0.73 | 155.6 |
| 2020 | 312.5 | 5.5 | 1.9 | 0.72 | 159.5 |
| 2016:1 | 252.0 | 2.1 | 2.1 | 0.74 | 143.1 |
| 2016:2 | 252.1 | 2.5 | 2.2 | 0.77 | 142.9 |
| 2016:3 | 254.4 | 2.4 | 2.2 | 0.79 | 143.5 |
| 2016:4 | 258.2 | 4.1 | 2.2 | 0.78 | 144.5 |
| 2017:1 | 261.2 | 3.7 | 2.2 | 0.78 | 145.7 |
| 2017:2 | 260.1 | 3.2 | 2.2 | 0.79 | 144.9 |
| 2017:3 | 264.7 | 4.0 | 2.2 | 0.78 | 146.5 |
| 2017:4 | 270.1 | 4.6 | 2.2 | 0.78 | 148.1 |
| 2018:1 | 273.6 | 4.7 | 2.1 | 0.77 | 149.1 |
| 2018:2 | 276.1 | 6.1 | 2.1 | 0.76 | 150.2 |
| 2018:3 | 280.8 | 6.1 | 2.1 | 0.75 | 151.4 |
| 2018:4 | 285.7 | 5.8 | 2.0 | 0.74 | 152.5 |

¹ Whole Economy

² Average Earnings

³ Wholly unemployed excluding school leavers as percentage of employed and unemployed, self employed and HM Forces

⁴ Wage rate deflated by CPI

Estimates and Projections of the Gross Domestic Product¹ (£ Million 1990 Prices)

| | Expenditure Index | £ Million '90 prices | Non-Durable Consumption ² | Private Sector Gross Investment Expenditure ³ | Public Authority Expenditure ⁴ | Net Exports ⁵ | AFC |
|---------|-------------------|----------------------|--------------------------------------|--|---|--------------------------|----------|
| 2015 | 156.5 | 749593.1 | 430478.9 | 302953.3 | 196562.0 | -50539.3 | 129861.8 |
| 2016 | 159.7 | 764884.7 | 440989.7 | 291942.7 | 198146.5 | -50493.6 | 115700.9 |
| 2017 | 163.4 | 782270.2 | 458510.3 | 271594.3 | 201835.6 | -31228.2 | 118441.5 |
| 2018 | 167.4 | 801747.2 | 469801.9 | 270784.6 | 205872.3 | -23275.3 | 121434.6 |
| 2019 | 172.4 | 825316.6 | 481547.0 | 269609.6 | 209989.8 | -11175.3 | 125137.9 |
| 2020 | 178.2 | 853470.1 | 493585.6 | 281097.0 | 214189.6 | -5675.3 | 129723.2 |
| 2015/14 | 2.2 | | 1.4 | 4.0 | 1.0 | | 1.3 |
| 2016/15 | 2.0 | | 2.4 | -3.6 | 0.8 | | -10.8 |
| 2017/16 | 2.3 | | 4.0 | -6.8 | 1.9 | | 2.4 |
| 2018/17 | 2.5 | | 2.5 | -0.3 | 2.0 | | 2.5 |
| 2019/18 | 3.0 | | 2.5 | -0.4 | 2.0 | | 3.1 |
| 2020/19 | 3.4 | | 2.5 | 4.3 | 2.0 | | 3.7 |
| 2016:1 | 158.3 | 189484.5 | 108439.3 | 72922.4 | 50700.0 | -13273.4 | 29303.9 |
| 2016:2 | 159.3 | 190701.5 | 109534.3 | 74622.5 | 48658.8 | -12532.0 | 29582.1 |
| 2016:3 | 160.2 | 191772.1 | 110077.5 | 75935.4 | 49283.1 | -15879.9 | 27643.9 |
| 2016:4 | 161.1 | 192926.6 | 112938.5 | 68462.4 | 49504.7 | -8808.3 | 29171.0 |
| 2017:1 | 162.0 | 193975.7 | 113610.1 | 65697.2 | 52080.7 | -7810.2 | 29602.1 |
| 2017:2 | 162.8 | 194936.9 | 114285.7 | 68754.0 | 49227.3 | -7808.3 | 29521.9 |
| 2017:3 | 163.8 | 196090.5 | 114965.4 | 68406.0 | 50032.9 | -7808.4 | 29505.3 |
| 2017:4 | 164.8 | 197267.1 | 115649.0 | 68737.0 | 50494.7 | -7801.3 | 29812.3 |
| 2018:1 | 166.0 | 198778.8 | 116365.2 | 65511.1 | 53122.3 | -6097.5 | 30122.2 |
| 2018:2 | 167.1 | 200001.7 | 117085.7 | 68792.4 | 50211.8 | -5798.5 | 30289.0 |
| 2018:3 | 167.6 | 200680.2 | 117810.8 | 67504.2 | 51033.6 | -5290.7 | 30377.1 |
| 2018:4 | 169.0 | 202286.5 | 118540.3 | 68976.9 | 51504.6 | -6088.6 | 30646.2 |

¹ GDP at factor cost. Expenditure measure; seasonally adjusted

² Consumers expenditure less expenditure on durables and housing

³ Private gross domestic capital formation plus household expenditure on durables and clothing plus private sector stock building

⁴ General government current and capital expenditure including stock building

⁵ Exports of goods and services less imports of goods and services

Financial Forecast

| | PSBR/GDP % ¹ | GDP ¹ (£bn) | PSBR (£bn) | Debt Interest (£bn) | Current Account (£ bn) |
|--------|-------------------------|------------------------|----------------|---------------------|------------------------|
| | | | Financial Year | | |
| 2015 | 4.6 | 1533.1 | 71.2 | 52.0 | -103.7 |
| 2016 | 3.6 | 1576.1 | 57.1 | 52.0 | -99.6 |
| 2017 | 2.7 | 1646.3 | 43.7 | 55.8 | -55.8 |
| 2018 | 1.7 | 1738.2 | 30.3 | 62.2 | -42.6 |
| 2019 | 0.9 | 1842.5 | 16.9 | 68.0 | -20.5 |
| 2020 | 0.2 | 1460.0 | 3.4 | 52.9 | -9.9 |
| 2016:1 | 0.2 | 385.4 | 0.6 | 13.1 | -24.4 |
| 2016:2 | 5.7 | 388.7 | 22.3 | 13.1 | -22.8 |
| 2016:3 | 4.3 | 389.1 | 16.8 | 12.9 | -26.4 |
| 2016:4 | 5.4 | 397.2 | 21.5 | 12.9 | -26.0 |
| 2017:1 | -0.9 | 401.0 | -3.5 | 13.2 | -15.8 |
| 2017:2 | 4.4 | 403.3 | 17.8 | 13.2 | -15.3 |
| 2017:3 | 3.8 | 407.7 | 15.7 | 13.8 | -12.1 |
| 2017:4 | 4.3 | 414.7 | 17.8 | 14.4 | -12.6 |
| 2018:1 | -1.8 | 420.6 | -7.6 | 14.5 | -13.1 |
| 2018:2 | 3.1 | 423.8 | 13.3 | 15.0 | -12.0 |
| 2018:3 | 4.1 | 429.5 | 17.7 | 15.2 | -7.7 |
| 2018:4 | 2.4 | 437.5 | 10.7 | 15.9 | -9.8 |

¹ GDP at market prices (Financial Year)

WORLD FORECAST DETAIL

Growth Of Real GNP

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|------|
| U.S.A. | 1.5 | 2.4 | 2.4 | 2.1 | 2.4 | 2.5 |
| U.K. | 2.2 | 2.9 | 2.2 | 2.0 | 2.3 | 2.5 |
| Japan | 1.4 | -0.1 | 0.5 | 1.0 | 0.8 | 0.8 |
| Germany | 0.3 | 1.6 | 1.7 | 1.8 | 1.5 | 1.6 |
| France | 0.7 | 0.2 | 1.1 | 1.4 | 1.5 | 1.6 |
| Italy | -1.7 | -0.3 | 0.8 | 1.1 | 1.3 | 1.5 |

Growth Of Consumer Prices

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|------|
| U.S.A. | 1.5 | 1.6 | 0.1 | 1.3 | 2.2 | 2.0 |
| U.K. | 2.3 | 1.7 | 0.2 | 1.2 | 1.9 | 2.6 |
| Japan | 0.4 | 2.7 | 0.8 | 0.2 | 1.8 | 2.0 |
| Germany | 1.5 | 0.9 | 0.3 | 0.5 | 1.6 | 2.0 |
| France | 0.9 | 0.5 | 0.0 | 0.4 | 1.2 | 1.8 |
| Italy | 1.2 | 0.2 | 0.1 | 0.2 | 1.1 | 1.7 |

Real Short-Term Interest Rates

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|------|
| U.S.A. | -1.5 | -0.1 | -1.1 | -1.2 | -0.7 | -0.5 |
| U.K. | -0.8 | -2.2 | 0.4 | -1.1 | -1.8 | -0.9 |
| Japan | -2.5 | -0.6 | 0.0 | -1.8 | -2.0 | -1.8 |
| Germany | -0.6 | -0.2 | -0.6 | -1.8 | -2.2 | -2.2 |
| France | -0.2 | 0.1 | -0.5 | -1.4 | -2.0 | -2.0 |
| Italy | 0.1 | 0.0 | -0.3 | -1.3 | -1.9 | -1.9 |

Nominal Short-Term Interest Rates

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|------|
| U.S.A. | 0.1 | 0.0 | 0.2 | 1.0 | 1.3 | 1.5 |
| U.K. | 0.6 | 0.6 | 0.6 | 0.5 | 0.9 | 2.0 |
| Japan | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.2 |
| Germany | 0.3 | 0.1 | -0.1 | -0.2 | -0.2 | -0.2 |
| France | 0.3 | 0.1 | -0.1 | -0.2 | -0.2 | -0.2 |
| Italy | 0.3 | 0.1 | -0.1 | -0.2 | -0.2 | -0.2 |

Real Long-Term Interest Rates

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|------|
| U.S.A. | 1.6 | 0.7 | 0.3 | 0.4 | 0.8 | 1.0 |
| U.K. | -0.8 | -0.7 | -1.0 | -1.5 | -1.2 | -0.9 |
| Japan | -0.8 | -1.1 | -1.3 | -2.0 | -1.9 | -1.7 |
| Germany | 0.8 | -0.8 | -1.0 | -1.5 | -1.3 | -1.1 |
| France | 1.1 | -0.5 | -0.8 | -1.3 | -1.1 | -0.9 |
| Italy | 1.2 | -0.5 | -0.7 | -1.2 | -1.0 | -0.8 |

Nominal Long-Term Interest Rates

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|------|
| U.S.A. | 3.0 | 2.2 | 2.2 | 2.4 | 2.8 | 3.0 |
| U.K. | 1.3 | 1.8 | 1.3 | 0.8 | 1.2 | 1.5 |
| Japan | 0.7 | 0.3 | 0.3 | 0.0 | 0.1 | 0.3 |
| Germany | 1.9 | 0.5 | 0.6 | 0.4 | 0.7 | 0.9 |
| France | 1.9 | 0.5 | 0.6 | 0.4 | 0.7 | 0.9 |
| Italy | 1.9 | 0.5 | 0.6 | 0.4 | 0.7 | 0.9 |

Index Of Real Exchange Rate(2000=100)¹

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|-------|-------|-------|-------|-------|-------|
| U.S.A. | 82.1 | 83.9 | 93.0 | 94.0 | 94.5 | 94.8 |
| U.K. | 86.5 | 93.1 | 91.6 | 81.1 | 76.5 | 75.2 |
| Japan | 63.5 | 59.8 | 56.0 | 58.4 | 58.5 | 58.6 |
| Germany | 99.0 | 99.9 | 94.7 | 95.0 | 95.2 | 95.1 |
| France | 100.7 | 100.8 | 96.2 | 96.0 | 95.9 | 95.7 |
| Italy | 106.9 | 107.5 | 102.1 | 102.0 | 101.8 | 101.7 |

¹ The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation in the real exchange rate.

Nominal Exchange Rate

(Number of Units of Local Currency To \$1)

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------------|-------|--------|--------|--------|--------|--------|
| U.S.A. ¹ | 85.61 | 89.04 | 103.08 | 101.91 | 102.20 | 102.40 |
| U.K. | 1.55 | 1.65 | 1.53 | 1.35 | 1.27 | 1.26 |
| Japan | 98.20 | 106.70 | 120.00 | 118.40 | 112.00 | 113.00 |
| Eurozone | 0.75 | 0.76 | 0.90 | 0.95 | 0.93 | 0.92 |

¹ The series for the USA is a trade weighted index (1990=100); the series for the UK is \$ per £

* Forecasts based on the Liverpool World Model