

UK Economics Weekly

Inflation Convergence and Divergence

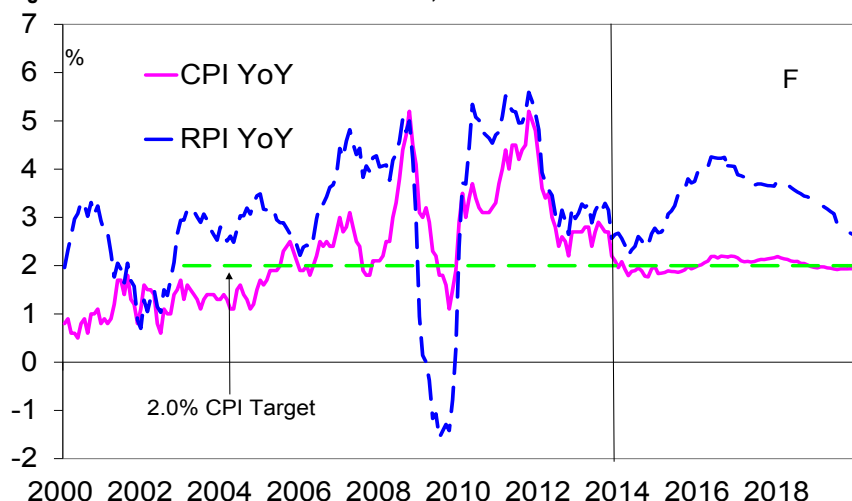
- After 60 consecutive months of above-target readings, we expect that CPI inflation will soon return to the 2% target. Indeed, this may even happen in the upcoming December data. Underlying inflation has been subdued for a while, and the boost from food, energy and regulatory-driven price hikes is diminishing. Barring fresh external shocks, CPI inflation is likely to drop a little below the 2% target during 2014. With the strong economic recovery and rising capacity use, CPI inflation is unlikely to undershoot the 2% target by a long way, and deflation risks are low. But, with weak domestic cost pressures and considerable labour market slack, the recovery is unlikely to produce significant upside inflation risks for the next 2-3 years.
- In the near term, RPI inflation also is likely to fall further. However, we expect a marked widening in the RPI-CPI wedge in 2014-17, with RPI inflation heading above 4% in 2016. In this piece we highlight key drivers for the RPI-CPI wedge, in particular the outlook for house prices, mortgage rates and the council tax.

Figure 1. Citi Market Forecasts

	Base Rate	QE Target	10 Year Yield	Spread vs. Bunds	\$/£	£/€
End 2014	0.50	£375bn	3.30	153bp	1.75	0.80
Mid 2015	1.00	£375bn	3.50	153bp	1.75	0.80

Source: Citi Research

Figure 2. UK — CPI Inflation and RPI Inflation, 2000-19F



F Citi forecast. Sources: ONS and Citi Research

Michael Saunders

+44-20-7986-3299
michael.saunders@citi.com

Ann O'Kelly

+44-20-7986-3297
ann.okelly@citi.com

For all distribution enquiries regarding Citi Economics research, including access via Citi websites and via third party distribution channels, please contact michael.saunders@citi.com or jan.maguire@citi.com

[Click to play](#)

Michael Saunders



See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

Citi Research is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Inflation Convergence and Divergence

CPI inflation is likely to return to the 2% target soon, perhaps even in the forthcoming December data

In recent quarters, inflation has generally come in below MPC and consensus forecasts

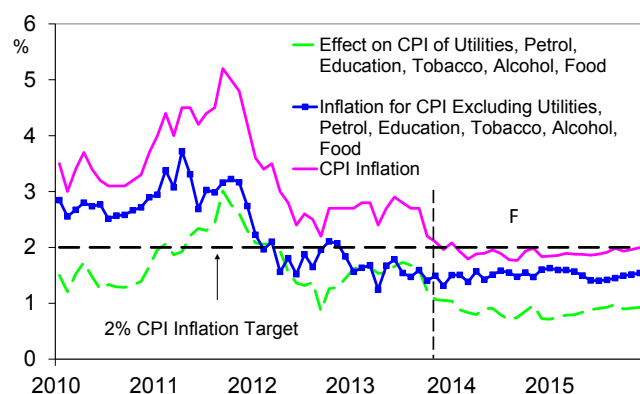
Inflation in 2012 and early 2013 had been boosted by regulatory effects and external cost pressures...

The long period of UK inflation overshoots is probably ending, with CPI inflation set to soon return to — and even a little below — the 2% target, after a persistent overshoot since end-2009. Indeed, our base case is that the 2% target will be hit in the upcoming December data (published 14 Jan). If this landmark is not reached this month, then it probably will be hit in the next few months. Barring fresh external shocks, CPI inflation is likely to drop a little below the 2% target during H1-2014.

The Dec-13 data probably will also show inflation again undershooting recent MPC forecasts. If the Dec-13 print is 2.0% YoY (as we expect) then the average CPI inflation rate for Q4-13 will be 2.1% YoY. This compares to MPC forecasts for Q4-13 of 3.1% YoY in the Feb-13 IR, 2.9% in the IRs of May-13 and Aug-13 and 2.2% in the Nov-13 IR. Comparing with the MPC's quarter-ahead forecast (ie in this case the Aug-13 IR forecast), Q4 may have seen the biggest undershoot of recent years apart from those in early 2009 when there was an unexpected VAT cut. Inflation is also running well below consensus expectations: the consensus for CPI inflation in Q4-13 was 2.3% as of Dec-13 and had hit 2.6% YoY earlier in 2013.

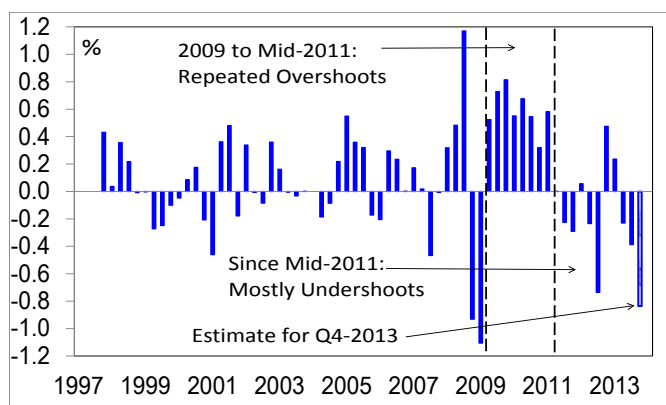
It may seem surprising that inflation is falling so quickly when the economy is picking up rapidly. Our base case for average CPI Inflation in 2014 (1.9%) is well below consensus (2.4%) and the MPC's Nov-13 IR forecast (2.2%). However, CPI inflation has been boosted over recent years by a series of hikes in prices for food, drink, tobacco, energy, petrol and utilities, reflecting global cost shocks and especially domestic regulatory and tax-driven effects. Underlying inflation — ie CPI inflation excluding utilities, education, food, drink, tobacco and petrol — has been subdued, at about 1½% YoY, since the last VAT hike dropped out in early 2012 (and a similar pace excluding tax effects in 2011). We do not expect much change either way in this measure in coming months.

Figure 3. UK — CPI Inflation, and Underlying Inflation, 2010-15F



F Citi Forecast. Sources: ONS and Citi Research

Figure 4. UK — Inflation Outturns Compared to MPC One-Quarter Ahead Forecasts, 1997-13F



Note: We show CPI inflation outturns (RPIX before 2004) versus the MPC forecast made at the start of each quarter, comparing the Q4 outturn with the August *Inflation Report* forecast and so forth. Sources: BoE, ONS and Citi Research

...and these effects are now diminishing

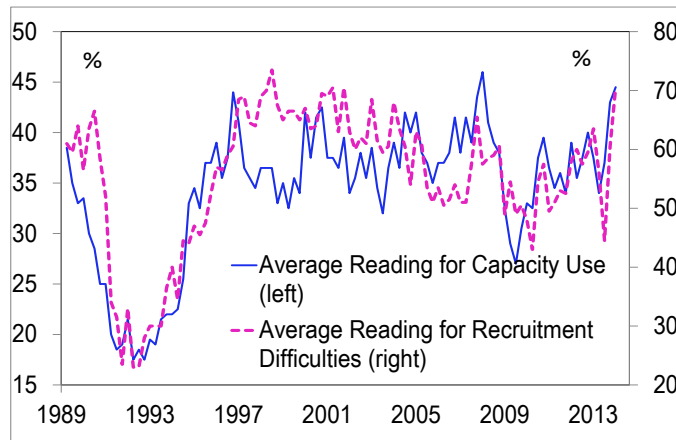
These regulatory and cost-driven effects are now diminishing, reflecting weakness in global commodity prices plus greater awareness in government that the relentless regulatory-driven price hikes were seriously hurting real incomes and alienating voters. The average inflation rate for food, drink, tobacco, energy, petrol and utilities (which have a CPI weight of 31%) has slowed from 5.6% YoY in July-13 to 3.5% YoY in Nov-13. As a result, their effect on the CPI has shrunk from 1.7% in the 12 months ended July to 1.1% in the 12 months ended November. Their 12-month effect on the CPI probably will drop to about 0.8% in coming months. Food

The recovery is reducing risks of a persistent inflation undershoot, but broad-based inflation pressures are subdued at present

price inflation already slowed from 4.8% YoY in Sep-13 to 3.0% in Nov-13, and probably will drop to about zero in early 2014 reflecting recent declines in producer prices and import prices for the food sector, as well as agricultural commodity prices. At the same time, this year's rise in rail fares will be less than in 2013, while the government has cut green surcharges on household electricity bills and repeatedly deferred planned hikes in petrol taxes.

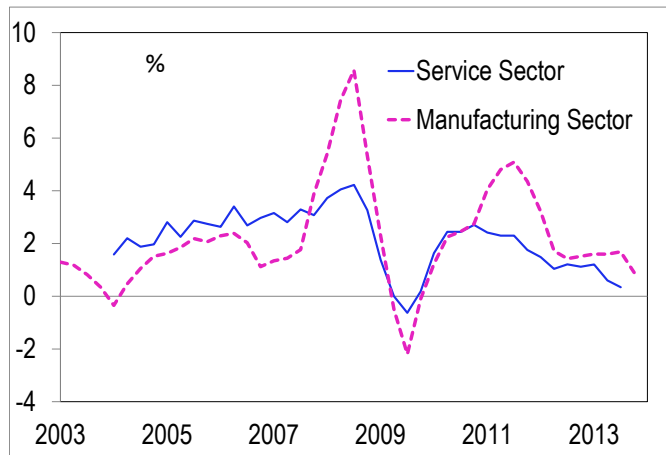
Further ahead, we look for a fairly long period with CPI inflation close to the 2% target. To be sure, with the strong economic recovery, underlying domestic pressures are unlikely to weaken further. The latest BCC quarterly survey shows a sharp rise in capacity use in both services and manufacturing, and also in the share of firms reporting recruitment difficulties. However, given the extreme weakness of price and cost pressures, we regard this rise in capacity use as a useful bulwark against risks of persistent inflation undershoots versus the 2% target (or even deflation) rather than an early sign of upside inflation risks. Unit labour cost growth over the last three years has been similar to the subdued trends in the US and euro area (about 1½% YoY), and is just 1.3% YoY at present. Producer price inflation has slowed sharply, and is running at just 0.3% YoY in the service sector and 0.8% YoY in manufacturing sectors: both measures are the lowest since 2009. Indeed, the six-month annualized rate for manufacturing output price inflation ex tax is zero. Moreover, as demand improves, firms may well be able to expand capacity further via higher investment and employment, and via higher productivity gains.

Figure 5. UK — BCC Surveys of Capacity Use, 1989-2014



Sources: BCC and Citi Research

Figure 6. UK — Producer Prices YoY, 2003-13



Sources: ONS and Citi Research

Prospects for the RPI-CPI Wedge

We expect RPI inflation will undershoot consensus near term, overshoot further ahead...

In the near term, weakness in CPI inflation is likely to be reflected also in lower RPI inflation — which is crucial for the pricing of many index-linked assets and liabilities. We expect RPI Inflation will fall from 2.6% YoY in Nov-13 to about 2.2% YoY in early 2014. Our base case for RPI Inflation in Q4-14 (2.7%) is well below the consensus (3.1%). However, further ahead, we expect RPI inflation will rise well above consensus in 2015-16 (Citi forecasts 3.4% and 4.1% YoY respectively; consensus is 3.0% and 3.2% YoY respectively). Note that this reflects a different outlook for the RPI-CPI “wedge” — ie the gap between RPI inflation and CPI inflation — rather than an above-consensus outlook for CPI inflation.

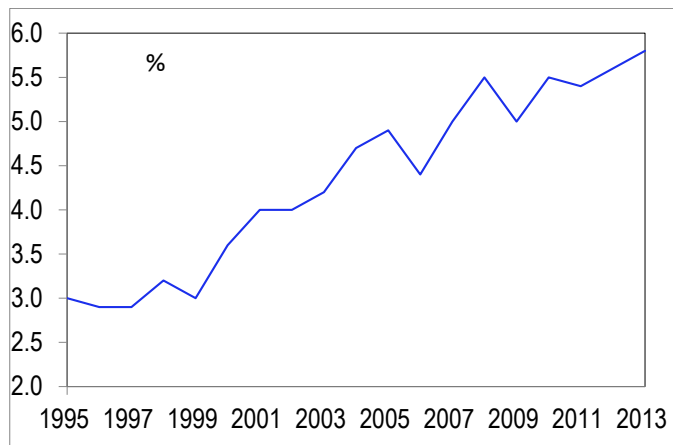
...reflecting a wider RPI-CPI wedge

Our forecast of a much wider RPI-CPI wedge in coming years reflects three main factors, the housing depreciation index (HDI), mortgage payments index (MPI) and council tax — which are all in the RPI but not the CPI:

The housing boom is likely to push the RPI housing depreciation index markedly higher in the coming year...

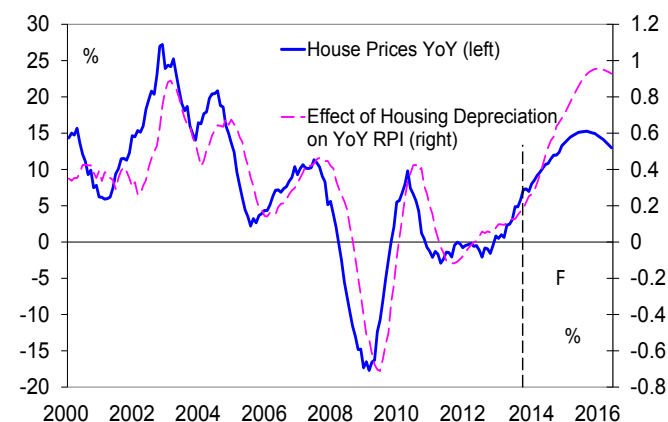
■ **Higher house price inflation feeding through to the housing depreciation index (HDI) of the RPI.** The HDI has been in the RPI since 1995, and is calculated as a lagged average of actual house price trends. The weight of the HDI in the RPI has risen from 3.0% in 1995, 3.6% in 2000, 4.5% on average in 2003-06 to 5.8% (record high) in 2013 — and is likely to rise further as house prices climb. Of course, the effect of a 10% gain in house prices (and hence the HDI) on the RPI has risen in line with its higher weight (ie a 10% rise in the HDI would have added 0.3% to the RPI in 1995, when it had a 3% weight, but would add nearly twice as much — 0.58% — now). With the housing upturn, the HDI already picked up to 3.9% YoY in Nov-13 (adding 0.22% to the RPI over the last year) from minus 1.0% YoY in Jan-12. House price inflation is currently at about 7% YoY, and — given the sharp upturn in the RICS survey and other guides — is likely to average 10-15% YoY in 2014-15 in our view. As a result, the HDI probably also will reach 10-15% YoY from late 2014, hence adding 0.7-1.0% to the RPI-CPI wedge from late 2014 and in 2015-16.

Figure 7. UK — Weight of Housing Depreciation Index in RPI, 1995-2013



Sources: ONS and Citi Research

Figure 8. UK — House Prices YoY and Impact of Housing Depreciation Index on RPI, 2000-2016F



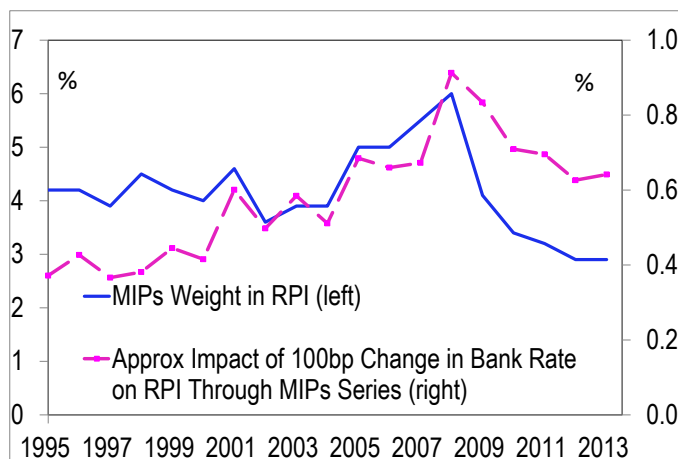
Note: House prices measured as an average of the main two monthly indices. F Forecast. Sources: ONS, DataStream and Citi Research

...while eventual hikes in Bank Rate also are likely to lift the RPI mortgage payments index...

■ **Eventual hikes in Bank Rate feeding through to the mortgage interest payments component (MIPs) of the RPI.** The MIPs index is calculated as the combination of average mortgage rates and average household mortgage debt. The weight of MIPs in the RPI is down from 6.0% in 2008 to just 2.9% in 2013 (lowest since 1978). However, with the average mortgage rate at a record low of just 3.3%, the MIPs series is much more sensitive to a given change in Bank Rate: for example, assuming that about three-quarters of a change in Bank Rate is reflected in mortgage rates (the average pass through since 2000), a 100bp rise in Bank Rate currently would lift the average mortgage rate by about 75bp, a 22% rise. This would directly add about 0.65% to the RPI, only a little less than the effect five years ago (when MIPs had a much higher RPI weight, but a 100bp change in Bank Rate represented a smaller proportionate rise in mortgage rates). Of course, further ahead, a hike in Bank Rate might curb broad inflation pressures, but the initial direct effect is to expand the RPI-CI wedge. We expect the MPC will hike rates by 150bp from early 2015 to early 2016¹, and hence the MIPs series will add about 0.7% to the RPI in 2015 and a bit less in 2016.

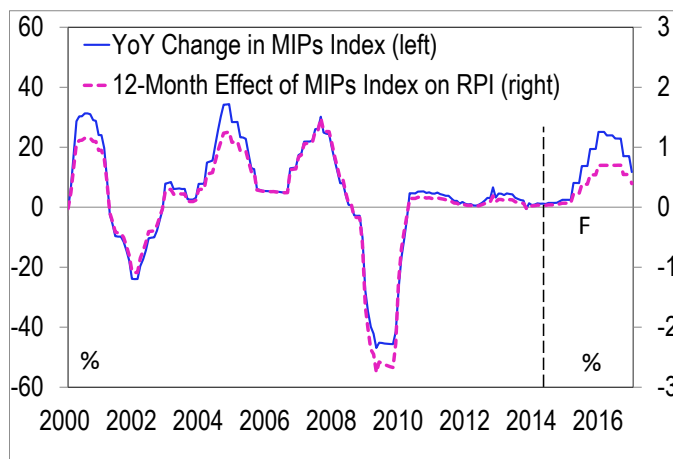
¹ See "2014 Outlook — Recovery and the New Normal", Michael Saunders, UK Economics Weekly, 8 January 2014, Citi.

Figure 9. UK — Mortgage Interest Payments RPI Weight and Theoretical Direct Impact on the RPI of 100bp Change in Bank Rate, 1995-2013



Note: We assume that a 100bp change in Bank Rate changes mortgage rates by 73bp, the average impact since 2000. Sources: ONS and Citi Research

Figure 10. UK — Mortgage Payments Index and Impact on RPI, 2000-2016F



Note: We assume that a 100bp change in Bank Rate changes mortgage rates by 73bp, the average impact since 2000. Sources: ONS and Citi Research

...and the council tax may not remain frozen after the 2015 election

■ **Pre-election freeze and possible post-election hikes in the council tax,** which has a weight of 4.3% in the RPI, but is not in the CPI. During the Labour government of 1997-2010 it rose by an average of 6.0% YoY but it has risen by an average of just 0.5% YoY in 2011-13 (during the coalition government). We assume it will be frozen for 2014 and 2015, but then rise by 2% YoY thereafter. Clearly, however, there is considerable uncertainty over this. It is quite possible, for example, that if there is a Labour majority government post-2015 then (faced with the need to cut the fiscal deficit further but reluctant to cut public spending so much) the UK will revert to relatively high council tax hikes, hence slightly expanding the RPI-CPI wedge. Note that if there is a post-election “Mansion Tax”, as the Lib Dems seem to propose, then it probably would not greatly affect the RPI since this excludes the top 4% of households measured by income (which probably would be the people most affected by a “Mansion Tax”).

There are also various other factors that could affect the RPI-CPI wedge in coming years

There are various other differences between the RPI and CPI. The items above are in the RPI but not the CPI, but some items are in the CPI but not the RPI (eg financial services). Moreover, the CPI aims to cover typical spending patterns of all UK households, whereas the RPI excludes the top 4% of the income distribution and pensioners mainly reliant on state benefits. As a result, there are slightly different weights for the same items: eg the weight of food is 9.3% in the CPI, 11.6% in the RPI, whereas the weight of imported consumer goods is higher in the CPI than the RPI. In addition, there also are differences in the measures used for similar items (eg the RPI records used car prices, the CPI uses a mix of prices for new and used cars) and in the methods used to aggregate prices (geometric means in the CPI, arithmetic means in the RPI). The impact of this “formula effect” has risen in recent years, averaging about 0.9 percentage points since 2010, reflecting in part the more disaggregated measurement of clothing and footwear prices (up 1.1% YoY in the CPI, 9.4% YoY in the RPI). Changes in any of these items (or other differences) are possible in light of the Johnson review launched by the UK Statistics Authority into UK price indices (due to report by summer 2014), and could impact the RPI-CPI wedge, either temporarily or on a lasting basis.

Economic Indicators

Tue	Consumer Prices (Dec)	Forecast: 0.4% MoM, 2.0% YoY	Prior: 0.1% MoM, 2.1% YoY
14 Jan	CPI Ex Food, Drink, Tobacco, Energy (Dec)	Forecast: 0.2% MoM, 1.8% YoY	Prior: 0.1% MoM, 1.8% YoY
	Retail Prices (Dec)	Forecast: 0.5% MoM, 2.7% YoY	Prior: 0.1% MoM, 2.6% YoY
	RPIX – Excludes Mortgages (Dec)	Forecast: 0.5% MoM, 2.7% YoY	Prior: 0.1% MoM, 2.7% YoY

We expect these figures will show CPI inflation falling back to the 2% target, after a long period of above-target inflation since 2009. Petrol prices rose slightly in December, but food price inflation is likely to slow further, reflecting recent weakness in import prices and producer prices for the food sector. Barring fresh external shocks, inflation is likely to dip a little below target in early 2014.

Tue	Producer Input Prices (Dec)	Forecast: -0.3% MoM, -1.8% YoY	Prior: -0.7% MoM, -1.0% YoY
14 Jan			

With commodity prices falling further and sterling continuing to appreciate, we expect that input prices will register a fifth consecutive fall, and the eighth drop in the last nine months. This decline is likely to help cap CPI inflation in the year ahead.

Tue	Producer Output Prices (Dec)	Forecast: -0.1% MoM, 0.9% YoY	Prior: -0.2% MoM, 0.8% YoY
14 Jan	Output Prices Ex Tax (Dec)	Forecast: -0.1% MoM, 0.9% YoY	Prior: -0.2% MoM, 0.9% YoY
	Excluding Food, Drink, Tobacco, Energy (Dec)	Forecast: 0.0% MoM, 0.9% YoY	Prior: -0.1% MoM, 0.7% YoY

These figures are likely to show continued weakness in output price inflation. The six-month annualised rate for output prices ex tax already is down to zero and on our forecast will turn slightly negative this month – for the first time since 2009.

Fri	Retail Sales Volumes (Dec)	Forecast: 0.4% MoM, 2.6% YoY	Prior: 0.3% MoM, 2.0% YoY
17 Jan			

The weather in December was relatively warm and wet, with the third highest average December temperature of the last 20 years and rainfall well above average. Warmer weather in December tends to be relatively good for retail sales, and hence on balance we go for a further gain in sales. However, it is possible that sales in the crucial days just after Christmas were hit by the heavy rainfall of those days, and some major retailers have reported that sales were quite disappointing.

Tue	CBI Industrial Trends Survey (Jan)		
21 Jan	Quarterly Industrial Confidence Net Balance (Jan)	Forecast: +30%	Prior: +24%
	Monthly Output Expectations Net Balance (Jan)	Forecast: +20%	Prior: +16%
	Monthly Order Books Net Balance (Jan)	Forecast: +10%	Prior: +12%
	Monthly Selling Prices Net Balance (Jan)	Forecast: +15%	Prior: +11%

The last quarterly survey showed the business confidence index at the highest since 1994, and we look for a further improvement this time, taking the index to the highest since 1987. The monthly survey readings are likely to show strong trends in orders and output, with the usual January bounce in expectations for selling prices (Jan-2013 reading was +21%).

Wed	LFS Unemployment (Sep-Nov)	Forecast: -144,000 QoQ, 7.2% Rate	Prior: -99,000 QoQ, 7.4% Rate
22 Jan	Claimant Count Unemployment (Dec)	Forecast: -35,000 MoM, 3.7% Rate	Prior: -36,700 MoM, 3.8% Rate

The single month figures already have shown the jobless rate at 7.1% for September and 7.0% for October. The November figures are likely to be higher – we suspect about 7.5% – with this cohort having recorded a jobless rate of 8.0% in both May and August. So this would put the three-month average at 7.2%, within a whisker of the MPC's 7% threshold.

Economic Calendar, 6 January — 24 January 2014

6 January	7 January	8 January	9 January	10 January
Services PMI (Dec) Nov 60.0 Dec 58.8	British Chambers of Commerce Quarterly Economic Survey (Q4) (00:01)	Halifax House Prices (Dec) (08:00) Nov 0.9% MoM, 8.2% YoY Dec -0.6% MoM, 5.7% YoY	Trade Balance – Goods & Services (Nov) Oct £-3.5bn Nov £-3.2bn Profitability of UK Companies (Q3) MPC Meeting Ends: Rates Unchanged at 0.5%, APF Unchanged at £375bn ECB Meeting: Refi Rate Unchanged at 0.25%	Industrial Production (Nov) Oct 0.3% MoM, 3.2% YoY Nov 0.0% MoM, 2.5% YoY Manufacturing Output (Nov) Oct 0.2% MoM, 2.6% YoY Nov 0.0% MoM, 2.8% YoY Construction Output (Nov)
13 January	14 January	15 January	16 January	17 January
	Consumer Prices (Dec) Nov 0.1% MoM, 2.1% YoY DecE 0.4% MoM, 2.0% YoY CPI ex Food, Drink, Tobacco, Energy (Dec) Nov 0.1% MoM, 1.8% YoY DecE 0.2% MoM, 1.8% YoY Retail Prices (Dec) Nov 0.1% MoM, 2.6% YoY DecE 0.5% MoM, 2.7% YoY RPIX – Ex Mortgages (Dec) Nov 0.1% MoM, 2.7% YoY DecE 0.5% MoM, 2.7% YoY Producer Input Prices (Dec) Nov -0.7% MoM, -1.0% YoY DecE -0.3% MoM, -1.8% YoY Prod. Output Prices (Dec) Nov -0.2% MoM, 0.8% YoY DecE -0.1% MoM, 0.9% YoY PPI Ex F, D, T, E (Dec) Nov -0.1% MoM, 0.7% YoY DecE 0.0% MoM, 0.9% YoY			Retail Sales Volumes (Dec) Nov 0.3% MoM, 2.0% YoY DecE 0.4% MoM, 2.6% YoY
20 January	21 January	22 January	23 January	24 January
	CBI Qrtly Ind. Trends (Jan) (11:00) Qrtly Ind. Confidence (Jan) Oct +24% JanE +30% Mthly Output Expectns (Jan) Dec +16% JanE +20% Mthly Order Books (Jan) Dec +12% JanE +10% Mthly Selling Prices (Jan) Dec +11% JanE +15%	LFS Unemployment (Sep-Nov) Aug-Oct -99K QoQ Sep-NovE -144K QoQ LFS Unemployment Rate Aug-Oct 7.4% Sep-NovE 7.2% Claimant Count (Dec) Nov -36.7K MoM, 3.8% Rate DecE -35.0K MoM, 3.7% Rate Public Sector Net Borrowing – Ex RM, APF & Fin. Intervent'n (Dec) MPC Minutes		BBA Mortgage Advances (Dec)

E Citi estimate. B Billion. P Provisional. R Revised. Note: All data are released at 9.30 a.m., except those marked otherwise.

Sources: BoE, CBI, ONS, national sources and Citi Research.

Notes

Appendix A-1

Analyst Certification

The research analyst(s) primarily responsible for the preparation and content of this research report are named in bold text in the author block at the front of the product except for those sections where an analyst's name appears in bold alongside content which is attributable to that analyst. Each of these analyst(s) certify, with respect to the section(s) of the report for which they are responsible, that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc and its affiliates. No part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this report.

IMPORTANT DISCLOSURES

Analysts' compensation is determined based upon activities and services intended to benefit the investor clients of Citigroup Global Markets Inc. and its affiliates ("the Firm"). Like all Firm employees, analysts receive compensation that is impacted by overall firm profitability which includes investment banking revenues.

For important disclosures (including copies of historical disclosures) regarding the companies that are the subject of this Citi Research product ("the Product"), please contact Citi Research, 388 Greenwich Street, 28th Floor, New York, NY, 10013, Attention: Legal/Compliance [E6WYB6412478]. In addition, the same important disclosures, with the exception of the Valuation and Risk assessments and historical disclosures, are contained on the Firm's disclosure website at https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures. Valuation and Risk assessments can be found in the text of the most recent research note/report regarding the subject company. Historical disclosures (for up to the past three years) will be provided upon request.

NON-US RESEARCH ANALYST DISCLOSURES

Non-US research analysts who have prepared this report (i.e., all research analysts listed below other than those identified as employed by Citigroup Global Markets Inc.) are not registered/qualified as research analysts with FINRA. Such research analysts may not be associated persons of the member organization and therefore may not be subject to the NYSE Rule 472 and NASD Rule 2711 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account. The legal entities employing the authors of this report are listed below:

Citigroup Global Markets Ltd

Michael Saunders; Ann O'Kelly

OTHER DISCLOSURES

For securities recommended in the Product in which the Firm is not a market maker, the Firm is a liquidity provider in the issuers' financial instruments and may act as principal in connection with such transactions. The Firm is a regular issuer of traded financial instruments linked to securities that may have been recommended in the Product. The Firm regularly trades in the securities of the issuer(s) discussed in the Product. The Firm may engage in securities transactions in a manner inconsistent with the Product and, with respect to securities covered by the Product, will buy or sell from customers on a principal basis.

Securities recommended, offered, or sold by the Firm: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. Although information has been obtained from and is based upon sources that the Firm believes to be reliable, we do not guarantee its accuracy and it may be incomplete and condensed. Note, however, that the Firm has taken all reasonable steps to determine the accuracy and completeness of the disclosures made in the Important Disclosures section of the Product. The Firm's research department has received assistance from the subject company(ies) referred to in this Product including, but not limited to, discussions with management of the subject company(ies). Firm policy prohibits research analysts from sending draft research to subject companies. However, it should be presumed that the author of the Product has had discussions with the subject company to ensure factual accuracy prior to publication. All opinions, projections and estimates constitute the judgment of the author as of the date of the Product and these, plus any other information contained in the Product, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice. Notwithstanding other departments within the Firm advising the companies discussed in this Product, information obtained in such role is not used in the preparation of the Product. Although Citi Research does not set a predetermined frequency for publication, if the Product is a fundamental research report, it is the intention of Citi Research to provide research coverage of the/those issuer(s) mentioned therein, including in response to news affecting this issuer, subject to applicable quiet periods and capacity constraints. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. Any decision to purchase securities mentioned in the Product must take into account existing public information on such security or any registered prospectus.

Investing in non-U.S. securities, including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Net dividends to ADR investors are estimated, using withholding tax rates conventions, deemed accurate, but investors are urged to consult their tax advisor for exact dividend computations. Investors who have received the Product from the Firm may be prohibited in certain states or other jurisdictions from purchasing securities mentioned in the Product from the Firm. Please ask your Financial Consultant for additional details. Citigroup Global Markets Inc. takes responsibility for the Product in the United States. Any orders by US investors resulting from the information contained in the Product may be placed only through Citigroup Global Markets Inc.

The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by. The Product is made available in **Australia** through Citi Global Markets Australia Pty Ltd. (ABN 64 003 114 832 and AFSL No. 240992), participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is

made available in Australia to Private Banking wholesale clients through Citigroup Pty Limited (ABN 88 004 325 080 and AFSL 238098). Citigroup Pty Limited provides all financial product advice to Australian Private Banking wholesale clients through bankers and relationship managers. If there is any doubt about the suitability of investments held in Citigroup Private Bank accounts, investors should contact the Citigroup Private Bank in Australia. Citigroup companies may compensate affiliates and their representatives for providing products and services to clients. The Product is made available in **Brazil** by Citigroup Global Markets Brasil - CCTVM SA, which is regulated by CVM - Comissão de Valores Mobiliários, BACEN - Brazilian Central Bank, APIMEC - Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais and ANBID - Associação Nacional dos Bancos de Investimento. Av. Paulista, 1111 - 11º andar - CEP. 01311920 - São Paulo - SP. If the Product is being made available in certain provinces of **Canada** by Citigroup Global Markets (Canada) Inc. ("CGM Canada"), CGM Canada has approved the Product. Citigroup Place, 123 Front Street West, Suite 1100, Toronto, Ontario M5J 2M3. This product is available in **Chile** through Banchile Corredores de Bolsa S.A., an indirect subsidiary of Citigroup Inc., which is regulated by the Superintendencia de Valores y Seguros. Agustinas 975, piso 2, Santiago, Chile. The Product is distributed in **Germany** by Citigroup Global Markets Deutschland AG ("CGMD"), which is regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin). CGMD, Reuterweg 16, 60323 Frankfurt am Main. Research which relates to "securities" (as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong)) is issued in **Hong Kong** by, or on behalf of, Citigroup Global Markets Asia Limited which takes full responsibility for its content. Citigroup Global Markets Asia Ltd. is regulated by Hong Kong Securities and Futures Commission. If the Research is made available through Citibank, N.A., Hong Kong Branch, for its clients in Citi Private Bank, it is made available by Citibank N.A., Citibank Tower, Citibank Plaza, 3 Garden Road, Hong Kong. Citibank N.A. is regulated by the Hong Kong Monetary Authority. Please contact your Private Banker in Citibank N.A., Hong Kong, Branch if you have any queries on or any matters arising from or in connection with this document. The Product is made available in **India** by Citigroup Global Markets India Private Limited, which is regulated by Securities and Exchange Board of India. Bakhtawar, Nariman Point, Mumbai 400-021. The Product is made available in **Indonesia** through PT Citigroup Securities Indonesia. 5/F, Citibank Tower, Bapindo Plaza, Jl. Jend. Sudirman Kav. 54-55, Jakarta 12190. Neither this Product nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable capital market laws and regulations. This Product is not an offer of securities in Indonesia. The securities referred to in this Product have not been registered with the Capital Market and Financial Institutions Supervisory Agency (BAPEPAM-LK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market laws and regulations. The Product is made available in **Israel** through Citibank NA, regulated by the Bank of Israel and the Israeli Securities Authority. Citibank, N.A. Platinum Building, 21 Ha'arba'ah St, Tel Aviv, Israel. The Product is made available in **Italy** by Citigroup Global Markets Limited, which is authorised by the PRA and regulated by the FCA and the PRA. Via dei Mercanti, 12, Milan, 20121, Italy. The Product is made available in **Japan** by Citigroup Global Markets Japan Inc. ("CGMJ"), which is regulated by Financial Services Agency, Securities and Exchange Surveillance Commission, Japan Securities Dealers Association, Tokyo Stock Exchange and Osaka Securities Exchange. Shin-Marunouchi Building, 1-5-1 Marunouchi, Chiyoda-ku, Tokyo 100-6520 Japan. If the Product was distributed by SMBC Nikko Securities Inc. it is being so distributed under license. In the event that an error is found in an CGMJ research report, a revised version will be posted on the Firm's Citi Velocity website. If you have questions regarding Citi Velocity, please call (81 3) 6270-3019 for help. The Product is made available in **Korea** by Citigroup Global Markets Korea Securities Ltd., which is regulated by the Financial Services Commission, the Financial Supervisory Service and the Korea Financial Investment Association (KOFIA). Citibank Building, 39 Da-dong, Jung-gu, Seoul 100-180, Korea. KOFIA makes available registration information of research analysts on its website. Please visit the following website if you wish to find KOFIA registration information on research analysts of Citigroup Global Markets Korea Securities Ltd. <http://dis.kofia.or.kr/fs/dis2/fundMgr/DISFundMgrAnalystPop.jsp?companyCd2=A03030&pageDiv=02>. The Product is made available in Korea by Citibank Korea Inc., which is regulated by the Financial Services Commission and the Financial Supervisory Service. Address is Citibank Building, 39 Da-dong, Jung-gu, Seoul 100-180, Korea. The Product is made available in **Malaysia** by Citigroup Global Markets Malaysia Sdn Bhd (Company No. 460819-D) ("CGMM") to its clients and CGMM takes responsibility for its contents. CGMM is regulated by the Securities Commission of Malaysia. Please contact CGMM at Level 43 Menara Citibank, 165 Jalan Ampang, 50450 Kuala Lumpur, Malaysia in respect of any matters arising from, or in connection with, the Product. The Product is made available in **Mexico** by Acciones y Valores Banamex, S.A. De C. V., Casa de Bolsa, Integrante del Grupo Financiero Banamex ("Accival") which is a wholly owned subsidiary of Citigroup Inc. and is regulated by Comision Nacional Bancaria y de Valores. Reforma 398, Col. Juarez, 06600 Mexico, D.F. In **New Zealand** the Product is made available to 'wholesale clients' only as defined by s5C(1) of the Financial Advisers Act 2008 ('FAA') through Citigroup Global Markets Australia Pty Ltd (ABN 64 003 114 832 and AFSL No. 240992), an overseas financial adviser as defined by the FAA, participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is made available in **Pakistan** by Citibank N.A. Pakistan branch, which is regulated by the State Bank of Pakistan and Securities Exchange Commission, Pakistan. AWT Plaza, 1.1. Chundrigar Road, P.O. Box 4889, Karachi-74200. The Product is made available in the **Philippines** through Citicorp Financial Services and Insurance Brokerage Philippines, Inc., which is regulated by the Philippines Securities and Exchange Commission. 20th Floor Citibank Square Bldg. The Product is made available in the Philippines through Citibank NA Philippines branch, Citibank Tower, 8741 Paseo De Roxas, Makati City, Manila. Citibank NA Philippines NA is regulated by The Bangko Sentral ng Pilipinas. The Product is made available in **Poland** by Dom Maklerski Banku Handlowego SA an indirect subsidiary of Citigroup Inc., which is regulated by Komisja Nadzoru Finansowego. Dom Maklerski Banku Handlowego S.A. ul.Senatorska 16, 00-923 Warszawa. The Product is made available in the **Russian Federation** through ZAO Citibank, which is licensed to carry out banking activities in the Russian Federation in accordance with the general banking license issued by the Central Bank of the Russian Federation and brokerage activities in accordance with the license issued by the Federal Service for Financial Markets. Neither the Product nor any information contained in the Product shall be considered as advertising the securities mentioned in this report within the territory of the Russian Federation or outside the Russian Federation. The Product does not constitute an appraisal within the meaning of the Federal Law of the Russian Federation of 29 July 1998 No. 135-FZ (as amended) On Appraisal Activities in the Russian Federation. 8-10 Gasheka Street, 125047 Moscow. The Product is made available in **Singapore** through Citigroup Global Markets Singapore Pte. Ltd. ("CGMSPL"), a capital markets services license holder, and regulated by Monetary Authority of Singapore. Please contact CGMSPL at 8 Marina View, 21st Floor Asia Square Tower 1, Singapore 018960, in respect of any matters arising from, or in connection with, the analysis of this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). The Product is made available by The Citigroup Private Bank in Singapore through Citibank, N.A., Singapore Branch, a licensed bank in Singapore that is regulated by Monetary Authority of Singapore. Please contact your Private Banker in Citibank N.A., Singapore Branch if you have any queries on or any matters arising from or in connection with this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). This report is distributed in Singapore by Citibank Singapore Ltd ("CSL") to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of

this report. Please contact your Citigold/Citigold Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this report. This report is intended for recipients who are accredited investors as defined under the Securities and Futures Act (Cap. 289). Citigroup Global Markets (Pty) Ltd. is incorporated in the **Republic of South Africa** (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty) Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa. The Product is made available in the **Republic of China** through Citigroup Global Markets Taiwan Securities Company Ltd. ("CGMTS"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan and/or through Citibank Securities (Taiwan) Company Limited ("CSTL"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan, subject to the respective license scope of each entity and the applicable laws and regulations in the Republic of China. CGMTS and CSTL are both regulated by the Securities and Futures Bureau of the Financial Supervisory Commission of Taiwan, the Republic of China. No portion of the Product may be reproduced or quoted in the Republic of China by the press or any third parties [without the written authorization of CGMTS and CSTL]. If the Product covers securities which are not allowed to be offered or traded in the Republic of China, neither the Product nor any information contained in the Product shall be considered as advertising the securities or making recommendation of the securities in the Republic of China. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security or financial products. Any decision to purchase securities or financial products mentioned in the Product must take into account existing public information on such security or the financial products or any registered prospectus. The Product is made available in **Thailand** through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 18/F, 22/F and 29/F, 82 North Sathorn Road, Silom, Bangrak, Bangkok 10500, Thailand. The Product is made available in **Turkey** through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Büyükdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey. In the **U.A.E**, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFS") to Professional Clients and Market Counterparties only and should not be relied upon or distributed to Retail Clients. A distribution of the different Citi Research ratings distribution, in percentage terms for Investments in each sector covered is made available on request. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties. The Product is made available in **United Kingdom** by Citigroup Global Markets Limited, which is authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA. This material may relate to investments or services of a person outside of the UK or to other matters which are not authorised by the PRA nor regulated by the FCA and the PRA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB. The Product is made available in **United States** by Citigroup Global Markets Inc, which is a member of FINRA and registered with the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013. Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Limited, which is authorised by the PRA and regulated by the FCA and the PRA.

Pursuant to Comissão de Valores Mobiliários Rule 483, Citi is required to disclose whether a Citi related company or business has a commercial relationship with the subject company. Considering that Citi operates multiple businesses in more than 100 countries around the world, it is likely that Citi has a commercial relationship with the subject company.

Many European regulators require that a firm must establish, implement and make available a policy for managing conflicts of interest arising as a result of publication or distribution of investment research. The policy applicable to Citi Research's Products can be found at https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures.

Compensation of equity research analysts is determined by equity research management and Citigroup's senior management and is not linked to specific transactions or recommendations.

The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted.

Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant offer document for the product and consider it before making a decision as to whether to purchase the product. Citi Research generally disseminates its research to the Firm's global institutional and retail clients via both proprietary (e.g., Citi Velocity and Citi Personal Wealth Management) and non-proprietary electronic distribution platforms. Certain research may be disseminated only via Citi's proprietary distribution platforms; however such research will not contain changes to earnings forecasts, target price, investment or risk rating or investment thesis or be otherwise inconsistent with the author's previously published research. Certain research is made available only to institutional investors to satisfy regulatory requirements. Individual Citi Research analysts may also opt to circulate published research to one or more clients by email; such email distribution is discretionary and is done only after the research has been disseminated.

The level and types of services provided by Citi Research analysts to clients may vary depending on various factors such as the client's individual preferences as to the frequency and manner of receiving communications from analysts, the client's risk profile and investment focus and perspective (e.g. market-wide, sector specific, long term, short-term etc.), the size and scope of the overall client relationship with Citi and legal and regulatory constraints. Citi Research product may source data from dataCentral. dataCentral is a Citi Research proprietary database, which includes Citi estimates, data from company reports and feeds from Thomson Reuters.

© 2014 Citigroup Global Markets Inc. Citi Research is a division of Citigroup Global Markets Inc. Citi and Citi with Arc Design are trademarks and service marks of Citigroup Inc. and its affiliates and are used and registered throughout the world. All rights reserved. Any unauthorized use, duplication, redistribution or disclosure of this report (the "Product"), including, but not limited to, redistribution of the Product by electronic mail, posting of the Product on a website or page, and/or providing to a third party a link to the Product, is prohibited by law and will result in prosecution. The information contained in the Product is intended solely for the recipient and may not be further distributed by the recipient to any third party. Where included in this report, MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, redisseminated or used to create any financial products, including any indices. This information is

provided on an "as is" basis. The user assumes the entire risk of any use made of this information. MSCI, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the information have any liability for any damages of any kind. MSCI, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates. The Firm accepts no liability whatsoever for the actions of third parties. The Product may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Product refers to website material of the Firm, the Firm has not reviewed the linked site. Equally, except to the extent to which the Product refers to website material of the Firm, the Firm takes no responsibility for, and makes no representations or warranties whatsoever as to, the data and information contained therein. Such address or hyperlink (including addresses or hyperlinks to website material of the Firm) is provided solely for your convenience and information and the content of the linked site does not in anyway form part of this document. Accessing such website or following such link through the Product or the website of the Firm shall be at your own risk and the Firm shall have no liability arising out of, or in connection with, any such referenced website.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST
