

UK Rates Strategy

Trading implications of the gilt seasonals

- Seasonal trends are always a popular theme in the sterling market around this time of year, and for good reason. In this article, we examine the drivers of the seasonals - pension fund demand, coupons, index extension and light supply - and assess how they impact the market.
- Isolating seasonal trends can be difficult as there are, of course, many factors influencing the market at any one time. However, it is useful to examine historical patterns as a guide. Seasonals can offer an important overlay to trading strategies.
- The seasonals at this time of year are, in theory, particularly supportive for the very long-end of the curve. We examine seasonal patterns in the 15yr15yr GBP swap rate and 30yr gilt swap spreads before considering cross-market spreads.
- We make the following conclusions from a trading perspective:
 - Longs in long-end forwards, such as the 15yr15yr, should not be held beyond November.
 - November-January does not appear to be a good time to be long 30yr gilt swap spreads.
 - The 10yr gilt-Treasury spread exhibits a strong seasonal pattern of gilt outperformance in December and underperformance in January.
 - Don't be long gilts on a cross-market basis (either vs Treasuries or Bunds) in January.

Jamie Searle
+44-20-7986-9493
jamie.searle@citi.com

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.

Trading implications of the gilt seasonals

Jamie Searle
+44-20-7986-9493
jamie.searle@citi.com

Seasonal trends are always a popular theme in the sterling market around this time of year, and for good reason. In this article, we examine the drivers of the seasonals - pension fund demand, coupons, index extension and light supply - and assess how they impact the market. We focus on cross-market spreads and the long-end of the curve, in particular the widely watched 15yr15yr forward and 30yr swap spreads. We conclude that those received of the 15yr15yr should look to fade before the end of November; that this is not a good time of year to long 30yr gilts vs swaps; and, finally, that seasonals in gilts-Treasuries should be respected, but those for gilt-Bunds can largely be ignored.

What drives the seasonals?

There are various factors that drive the 'seasonals' at this time of year - pension fund demand, gilt coupons, light supply and, this year, a large 15yr+ index extension. These factors are, in theory, particularly supportive for the very long-end of the curve. We briefly examine each in turn.

Seasonal supports for gilts include pension fund demand, coupons, light supply and index extension

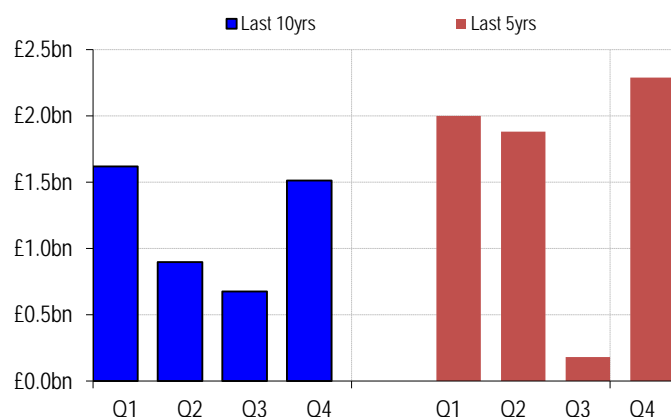
Higher one-off payments into pension funds around this time of year result in higher net investment in gilts

Regardless of seasonals, there has been a surge in demand for gilts this year from pension funds

■ **Seasonal pension fund demand:** Q4 is typically associated with increased demand for gilts from pension funds. The theory is that one-off contributions to pension funds tend to be higher in Q4 (and Q1) as this is around the time that year-end accounts are produced. Indeed, such a pattern shows up in the ONS data for net contributions (found in the MQ5 release). It also shows up in the data for net investments in gilts by pension funds, as shown by the quarterly averages in Figure 1 and the individual quarters in Figure 2. The pattern of relatively high demand in Q1 and Q4 stands out clearly in the longer 10yr averages shown on the left hand side of Figure 1. Zooming in to the last five years, on the right, shows that the demand deficit in Q2 has been significantly reduced. However, it also shows the sharp contrast between low demand in Q3 and high demand in Q4, which is the main driver of the often cited seasonal demand for gilts.

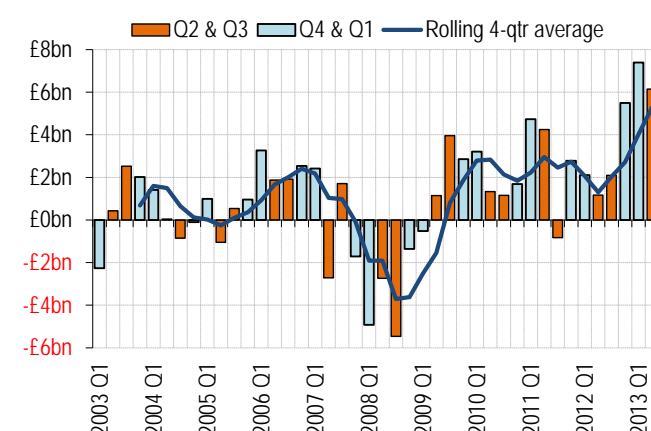
■ **Non-seasonal surge in demand:** It is also worth pointing out that this year may be a little different as the seasonals may be softened by the broader trend. The net investment data for Q3 2013 is yet to be released, but it is perhaps unlikely to show as large a drop-off as usual. The prevailing trend at the current time shows a surge in demand for gilts from pension funds in reaction to higher yields, regardless of the time of year. This is captured by the rolling four-quarter average in Figure 2.

Figure 1. Pension fund net investment in gilts – quarterly averages



Source: Citi Research, ONS.

Figure 2. Pension fund net investment in gilts – individual quarters



Source: Citi Research, ONS.

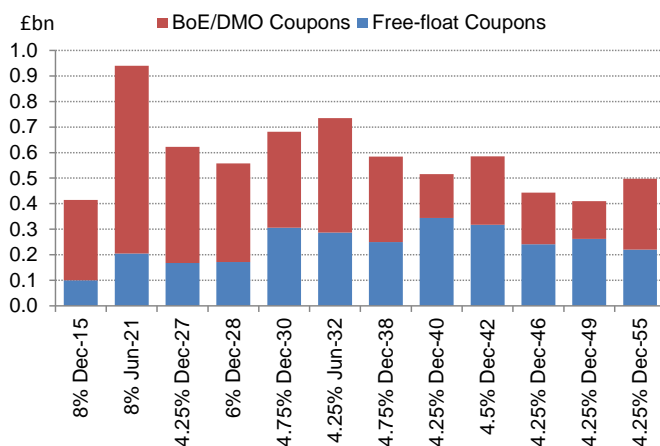
The December coupons are concentrated in the long-end

■ **December coupons:** The gilt coupon cycle largely falls on four dates: 7 March, 7 June, 7 September and 7 December. The June/December coupons are largely generated by gilts in the 15yr+ bucket, as shown in Figure 3. The coupons are often associated with seasonal demand. It is possible that the 'coupon effect' may be lower than in the past thanks to the significant QE holdings of the BoE. The December coupons total £7bn, but this falls to £2.9bn when BoE (and DMO) holdings are excluded.

A bucket change will result in a large extension in the 15yr+ index in early-December

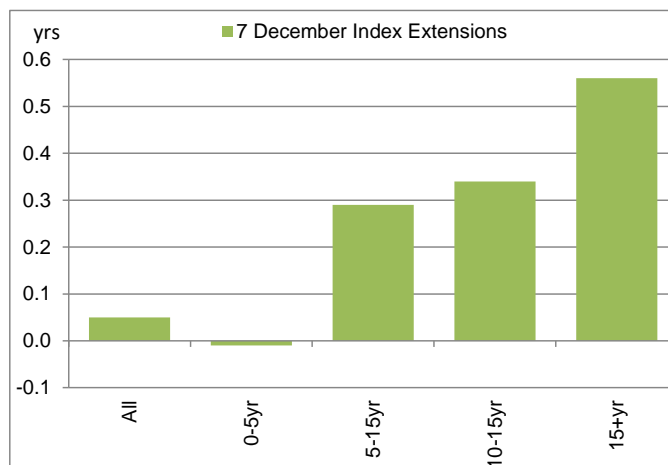
■ **Large 15yr+ extension:** This year's seasonals may be exaggerated by a large extension in the widely-followed 15yr+ gilt index on the 7 December (the same day as the coupons). In addition to the coupon payments, the extension is the result of a bucket shift with the 6% Dec28 falling below 15yrs to maturity. There was an even larger extension last year when the 4.25% Dec27s dropped out.

Figure 3. The 7 December coupon payments by issue



Source: Citi Research, DMO, BoE.

Figure 4. Projected index changes

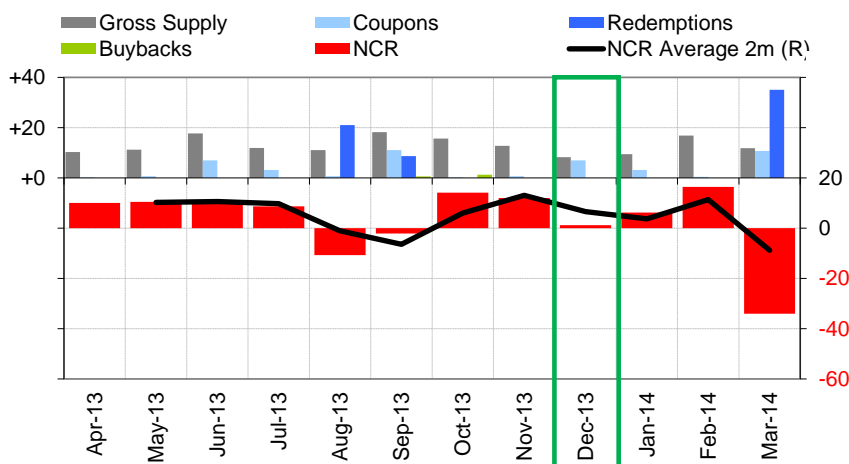


Source: Citi Research

Net cash-flows are supportive for gilts in December

■ **Supportive net cash-flows:** The combination of the coupon payments and light supply in December makes it a good month for gilts from a cash-flow perspective, Figure 5. The picture heading into Q1 2014 will depend on the timing of the scheduled syndication - we assume it will be in February. The cash-flows will then turn strongly supportive in March, thanks to the 2Q14 redemption.

Figure 5. Monthly gilt cash-flow profile



Source: Citi Research, DMO.

Market impact and trading implications

Seasonal patterns can offer an important overlay to trading strategies at this time of year

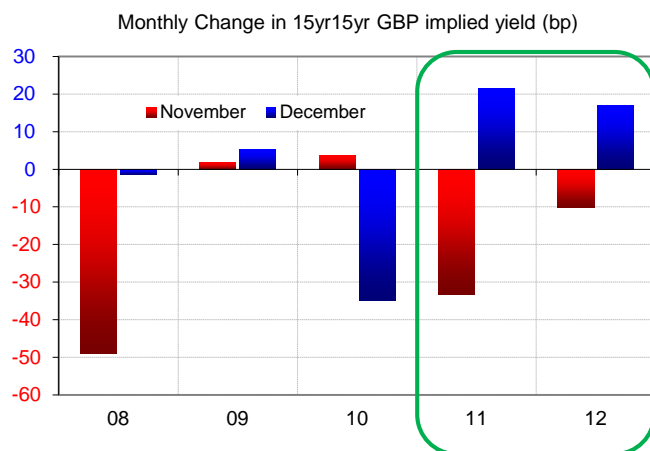
Isolating seasonal trends, with confidence, can be difficult as there are, of course, many factors influencing the market at any one time. However, it is useful to examine historical patterns as a guide, especially given the numerous factors supporting gilts at this time of year. Moreover, widely discussed seasonal patterns, such as those in gilts, can become self-fulfilling.

The seasonals at this time of year are particularly supportive for the very long-end of the curve. We begin by examining seasonal patterns in the 15yr15yr GBP swap rate and 30yr gilt swap spreads before considering cross-market spreads.

15yr15yr GBP may richen further in November, thanks to seasonal support, but longs should not be held into December

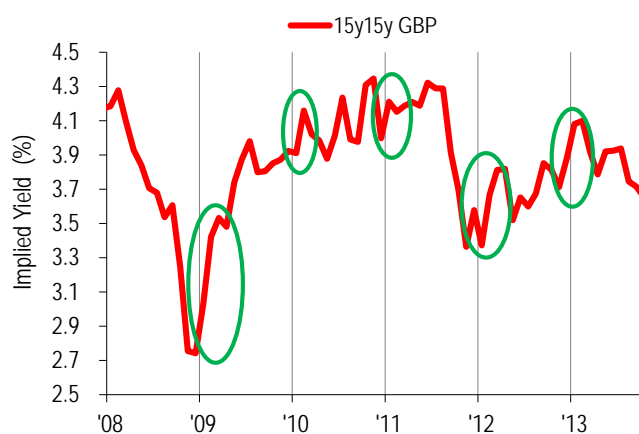
■ **Fade 15yr15yr GBP before December:** The longer-term seasonal pattern (using a 10yr history) for the 15yr15yr is quite mixed, but the last 5yrs does seem to show a pattern in November-December. In the last five years, the 15yr15yr has richened in November on three occasions by an average of 31bp. On the two occasions it has cheapened, it has been by an average of only 3bp. The picture for December is a bit more mixed, but the last two years have shown a clear reversal from the richening in November (Figure 6). Moreover, there appears to be a consistent, and fairly large, cheapening of the 15yr15yr either just before or just after year-end as shown by the time series chart in Figure 7 (the vertical lines mark year-end). The 15yr15yr has richened significantly in recent months. The seasonals suggest that some further gains are possible, but longs should not be held into December.

Figure 6. GBP 15yr15yr yield change in November and December



Source: Citi Research, Bloomberg.

Figure 7. History of the GBP 15yr15yr swap rate since 2008

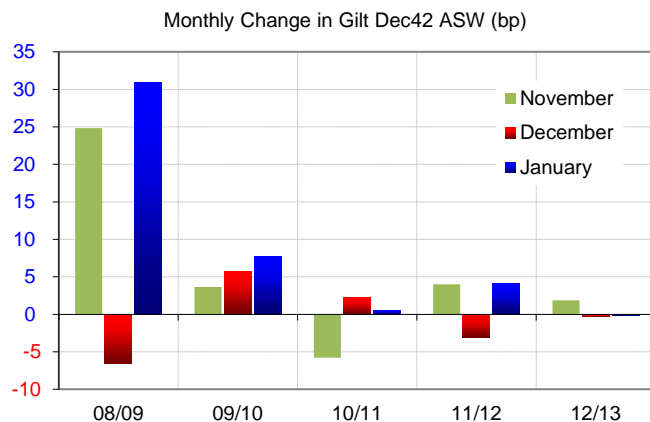


Source: Citi Research, Bloomberg.

There appears to be very marginal seasonal support for 30yr gilt asset-swap spreads in December, but the pattern is unconvincing and the trading signal is very weak.

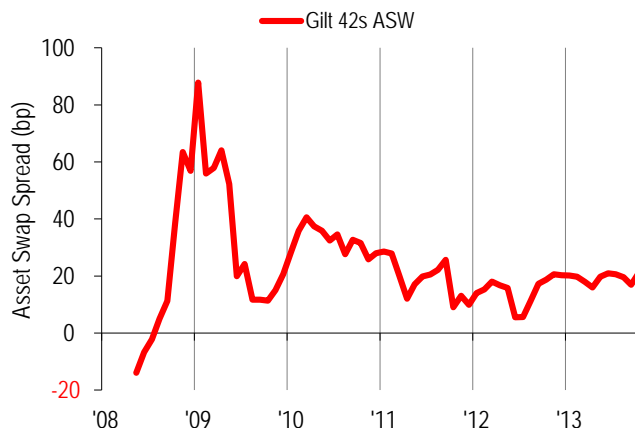
■ **This is not a good time of year to be long 30yr gilt asset-swaps:** Seasonal support for gilts at this time of year does not seem to translate into significant outperformance vs swaps. With 30yr swap spreads operating in a relatively tight-range, any seasonal effect is hard to identify. There does appear to be a pattern of 30yr swap spreads cheapening in November and January (4 out of the last 5 years for both months), but the magnitudes involved are quite small (apart from 2008/09, Figure 8). Swap spreads do fair better in December with richening in 3 out of the last 5 years, but again by small magnitudes. This may be the result of seasonal supports for gilts, but the trading signal is weak. The best we can say is that November-January is not a good time to be long 30yr swap spreads. Spreads tend to cheapen during these months, despite the richening trend which has prevailed for much of the last five years (Figure 9).

Figure 8. Gilt Dec42 ASW change in November, December & January



Source: Citi Research, Bloomberg.

Figure 9. History of gilt Dec42 asset-swap spread since 2008



Source: Citi Research, Bloomberg.

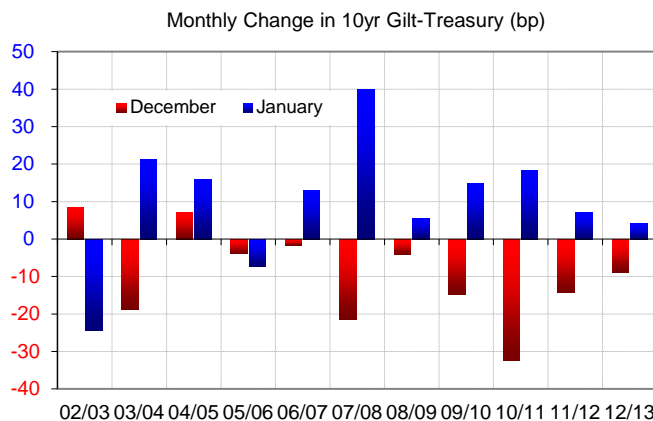
The seasonals suggest buying 10yr gilts vs Treasuries in December and then the opposite in January

■ **10yr gilt-Treasury exhibits strong seasonality:** When it comes to cross-market spreads, it is relative seasonality that counts. For the 10yr gilt-Treasury spread there appears to be a very consistent pattern around year-end. Gilts have outperformed Treasuries in December for the last eight years consecutively. On each occasion, apart from the very first in 2005/06, this has subsequently been followed by gilt underperformance vs Treasuries in January (Figure 10).

The seasonal pattern for gilt-Bunds is not reliable enough, in our view, to inform trading strategies

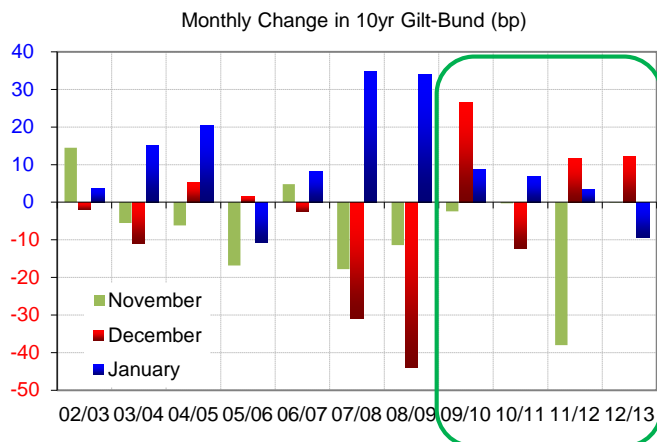
■ **10yr gilt-Bund seasonality is more mixed:** Gilts tend to perform well vs Bunds in November (outperforming in 9 of the last 10 years), but the magnitude has been extremely small in the last five years (with the exception of 2011, Figure 11). December is more mixed, but gilts have actually underperformed Bunds in three of the last four years, perhaps reflecting a change in year-end seasonality in Bunds. January offers the most reliable pattern with gilts tending to underperform Bunds, but this was broken in January of this year for the first time since 2006. The seasonal pattern for gilt-Bunds is not reliable enough, in our view, to inform trading strategies.

Figure 10. Gilt-Treasury spread change in December and January



Source: Citi Research, Bloomberg.

Figure 11. Gilt-Bund spread change in November, December & January



Source: Citi Research, Bloomberg.

No two years are the same, but the
seasonals offer a guide

Seasonal strategies - summary

No two years are the same, but the gilt market does appear to exhibit some seasonal trends around this time of year. The analysis above points to the following conclusions from a trading perspective:

- Longs in long-end forwards, such as the 15yr15yr, should not be held beyond November as there tends to be a correction around year-end.
- The trading signal from seasonals in 30yr gilt asset-swap spreads is weak. However, November-January does not appear to be a good time to be long 30yr swap spreads.
- The 10yr gilt-Treasury spread exhibits a strong seasonal pattern of gilt outperformance in December and underperformance in January. We are reluctant to enter the trade now ahead of the event risk of non-farm payrolls on Friday and next week's BoE Inflation Report. However, we would look to fade any underperformance of gilts vs Treasuries, especially as December nears.
- Don't be long gilts on a cross-market basis (either vs Treasuries or Bunds) in January.

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

Within the past 12 months, Citigroup Global Markets Inc. or its affiliates has acted as manager or co-manager of an offering of securities of United States, United Kingdom.

Citigroup Global Markets Inc. or its affiliates has received compensation for investment banking services provided within the past 12 months from United States, Germany, United Kingdom.

Citigroup Global Markets Inc. or its affiliates expects to receive or intends to seek, within the next three months, compensation for investment banking services from United States, Germany, United Kingdom.

Citigroup Global Markets Inc. or an affiliate received compensation for products and services other than investment banking services from United States, Germany, United Kingdom in the past 12 months.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as investment banking client(s): United States, Germany, United Kingdom.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, securities-related: United States, Germany, United Kingdom.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, non-securities-related: United States, Germany, United Kingdom.

United States or its affiliates beneficially owns 5% or more of any class of common equity securities of Citigroup Inc.

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

Jamie Searle

OTHER DISCLOSURES

Citigroup Global Markets Inc. and/or its affiliates has a significant financial interest in relation to United Kingdom. (For an explanation of the determination of significant financial interest, please refer to the policy for managing conflicts of interest which can be found at www.citiVelocity.com.)

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, APISEC - 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 made available in **France** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 1-5 Rue Paul Cézanne, 8ème, Paris, France. 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 and regulated by Financial Services Authority. 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/frs/dis2/fundMgr/DISFundMgrAnalystPop.jsp?companyCd=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 Comisión Nacional Bancaria y de Valores. Reforma 398, Col. Juárez, 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 **Spain** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 29 Jose Ortega Y Gasset, 4th Floor, Madrid, 28006, Spain. 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, Bangkok, Bangkok 10500, Thailand. The Product is made available in **Turkey** through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Buyukdere 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 ("DFSA") 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 and regulated by Financial Services Authority. This material may relate to investments or services of a person outside of the UK or to other matters which are not regulated by the FSA 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 regulated by Financial Services Authority. 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 may have been distributed simultaneously, in multiple formats, to the Firm's worldwide institutional and retail customers. 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 Reuters and Datastream.

© 2013 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
