

31 JANUARY 2012

## Seasonal bias in sentiment indicators: reduced, but not eliminated

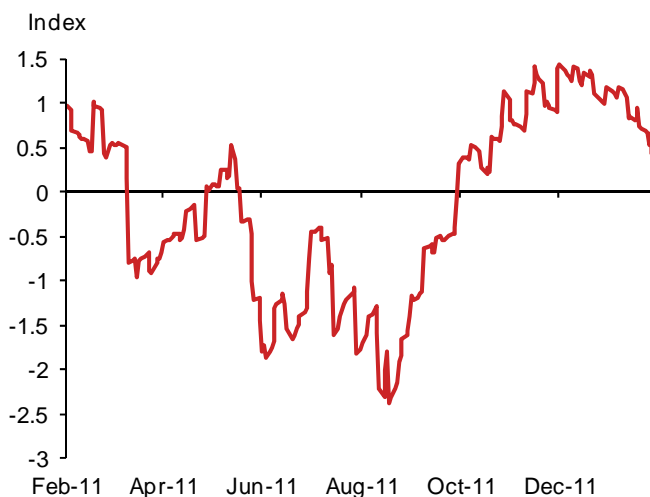
In October 2011, we first alerted readers to the likelihood of stronger data in the following months, driven largely by imperfect seasonal adjustment (see [Stronger data ahead: explanation and implication](#), 28 October 2011). And, by various measures, US economic data have been better than anticipated over the past few months (Figure 1). The flipside of our analysis was that come spring, these factors would reverse and reported data would be worse than the underlying state of the economy (see [Stubbornly High and Frustratingly Slow](#), 20 January 2012, for the impact on employment data).

Since much of our focus has been on national and regional manufacturing surveys, we paid special attention to annual revisions released recently and whether the releases acknowledged the distortion (see ['Tis the Seasonals](#), 16 December 2011). The first three releases of indicators we've tracked – Philly Fed's Business Outlook Survey (12 January), Empire State Manufacturing Survey (17 January) and the ISM-Chicago Business Survey (26 January) – did not explicitly acknowledge the issue. However, today, when the Institute for Supply Management (ISM) released its annual adjustment to the seasonal factors used when computing its manufacturing and non-manufacturing indices, the phenomenon we've identified was explicitly acknowledged (see the ISM [press release](#)).

*"In response to concerns that the unusually large declines in autumn 2008 associated with the recent recession that may not have been adequately handled with default settings, this year the Department of Commerce used lower thresholds (critical values) for detecting outliers."*

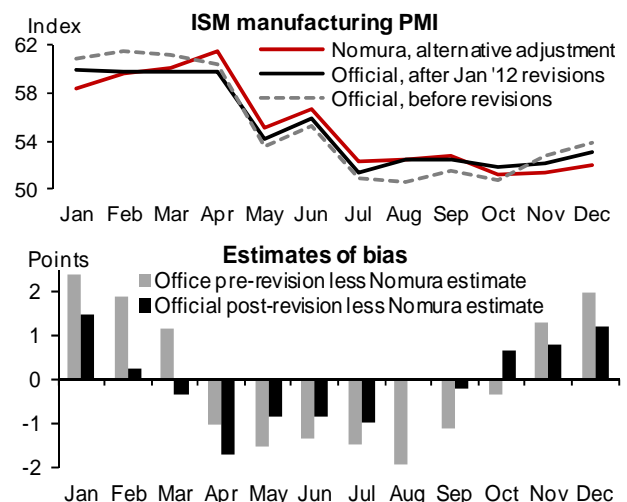
In many ways, the approach that the ISM, working with the Office of the Chief Economist of the Department of Commerce, implemented is similar to our alternative method of adjustment. As a result, the revised index is more aligned with our adjusted series than the originally-reported ISM manufacturing index. Importantly, month-to-month variation in 2011 is less pronounced in the revised series (Figure 2).

Fig. 1: Nomura USD Overall Surprise Index



Bloomberg: [NGISUSD Index<GO>](#); see [FX Quant Insights: Nomura growth surprise indices \(GSI\)](#) for details.

Fig. 2: 2011 ISM manufacturing index: estimates of "seasonal bias" before and after revisions



Source: Nomura Global Economics; ISM.

### Global Economics

#### Contributing Economists

#### Lewis Alexander

+1 212 667 9665

[Lewis.Alexander@nomura.com](mailto:Lewis.Alexander@nomura.com)

#### Ellen Zentner

+1 212 667 9668

[ellen.zentner@nomura.com](mailto:ellen.zentner@nomura.com)

#### Jeffrey Greenberg

+1 212 667 2335

[jeffrey.greenberg@nomura.com](mailto:jeffrey.greenberg@nomura.com)

This report can be accessed electronically via: [www.nomura.com/research](http://www.nomura.com/research) or on Bloomberg (NOMR)

The revised ISM manufacturing index is both smoother and closer to our alternative seasonally adjusted series. For example, our alternative series suggested that the ISM manufacturing index ("PMI") was understated by 1.9 points in August in the original release, suggesting that the actual index was 52.5 (instead of the reported 50.6). Now, the index was revised up to precisely that number, 52.5 (Figure 3).

Fig. 3: ISM surveys: data before and after revisions

ISM manufacturing survey																
ISM manufacturing index (PMI) (quarterly avg.)				New orders index			Employment index			Production index						
	Revised	Original	Difference	Rev	Orig	Diff	Rev	Orig	Diff	Rev	Orig	Diff				
	Jan-11	59.9	60.8	-0.9			63.8	67.8	-4	60.7	61.7	-1	63.5	63.5	0	
Q1	Feb-11	59.8	61.4	-1.6	59.8	61.6	-1.8	62.7	68	-5.3	61.1	64.5	-3.4	64.4	66.3	-1.9
	Mar-11	59.7	61.2	-1.5			61.9	63.3	-1.4	62.1	63	-0.9	65.9	69	-3.1	
	Apr-11	59.7	60.4	-0.7			62.7	61.7	1	60.6	62.7	-2.1	60.8	63.8	-3	
Q2	May-11	54.2	53.5	0.7	56.6	56.4	0.2	55	51	4	58.3	58.2	0.1	54.6	54	0.6
	Jun-11	55.8	55.3	0.5			53.6	51.6	2	61	59.9	1.1	55.9	54.5	1.4	
	Jul-11	51.4	50.9	0.5			50.8	49.2	1.6	55.1	53.5	1.6	52.5	52.3	0.2	
Q3	Aug-11	52.5	50.6	1.9	52.1	51	1.1	51.8	49.6	2.2	53.6	51.8	1.8	51.5	48.6	2.9
	Sep-11	52.5	51.6	0.9			51.1	49.6	1.5	55.2	53.8	1.4	52.5	51.2	1.3	
	Oct-11	51.8	50.8	1			53.4	52.4	1	54	53.5	0.5	52.7	50.1	2.6	
Q4	Nov-11	52.2	52.7	-0.5	52.4	52.5	-0.1	55	56.7	-1.7	52.4	51.8	0.6	55.7	56.6	-0.9
	Dec-11	53.1	53.9	-0.8			54.8	57.6	-2.8	54.8	55.1	-0.3	58.9	59.9	-1	
ISM non-manufacturing survey																
ISM nonmanufacturing index (quarterly avg.)				New orders index			Employment index			Business activity index						
	Revised	Original	Difference	Rev	Orig	Diff	Rev	Orig	Diff	Rev	Orig	Diff	Rev	Orig	Diff	
	Jan-11	58.3	59.4	-1.1			63.2	64.9	-1.7	54.1	54.5	-0.4	62.4	64.6	-2.2	
Q1	Feb-11	59	59.7	-0.7	57.9	58.8	-0.9	62.8	64.4	-1.6	55.8	55.6	0.2	65.4	66.9	-1.5
	Mar-11	56.3	57.3	-1			60.9	64.1	-3.2	54.3	53.7	0.6	58.6	59.7	-1.1	
	Apr-11	54.4	52.8	1.6			55.3	52.7	2.6	53.3	51.9	1.4	56	53.7	2.3	
Q2	May-11	54.5	54.6	-0.1	54.1	53.6	0.5	55.9	56.8	-0.9	53.6	54	-0.4	54.5	53.6	0.9
	Jun-11	53.3	53.3	0			53.7	53.6	0.1	52.8	54.1	-1.3	54.5	53.4	1.1	
	Jul-11	53.4	52.7	0.7			53.3	51.7	1.6	52.7	52.5	0.2	57.2	56.1	1.1	
Q3	Aug-11	53.8	53.3	0.5	53.3	53	0.3	53.6	52.8	0.8	52.2	51.6	0.6	56.4	55.6	0.8
	Sep-11	52.6	53	-0.4			56.2	56.5	-0.3	47.9	48.7	-0.8	56.8	57.1	-0.3	
	Oct-11	52.6	52.9	-0.3			52.7	52.4	0.3	52.3	53.3	-1	53.3	53.8	-0.5	
Q4	Nov-11	52.6	52	0.6	52.7	52.5	0.2	54.1	53	1.1	50.3	48.9	1.4	56.1	56.2	-0.1
	Dec-11	53	52.6	0.4			54.6	53.2	1.4	49.8	49.4	0.4	55.9	56.2	-0.3	

Source: ISM; Nomura Global Economics.

In our earlier analysis, we found the ISM seasonal factors for both manufacturing and non-manufacturing anticipated weaker data in the fourth and first quarters, and stronger data in the second and third, relative to both the pre-financial-crisis period and our alternative estimate. Figure 3 shows that the revisions to the ISM data resolve some of these issues by showing more strength in Q2 and Q3 than the understated first report, and conversely removing part of the boost to Q1 and Q4. In retrospect, this suggests that in 2011, the second year of economic recovery, manufacturing activity likely occurred in less "fits and starts" than initial estimates suggested.

## Reduced, but not eliminated

Despite the reduction of detected seasonal bias in the revised ISM series, we do not believe that it has been completely eliminated. Figure 2 continues to show some residual bias related to the sharp contraction in late 2008 and early 2009. While we do not have any illusions that our own seasonal adjustment approach, which excludes the critical months of the financial crisis for the purposes of seasonal adjustment, is ideal, we find our analysis helpful in highlighting risks around month-to-month changes and monthly forecasts.

This especially true for economic data series where the seasonal bias is still pronounced. For the Chicago-ISM's business barometer index, revisions were also released in January. Similar to ISM, these adjustments did resolve a portion of the

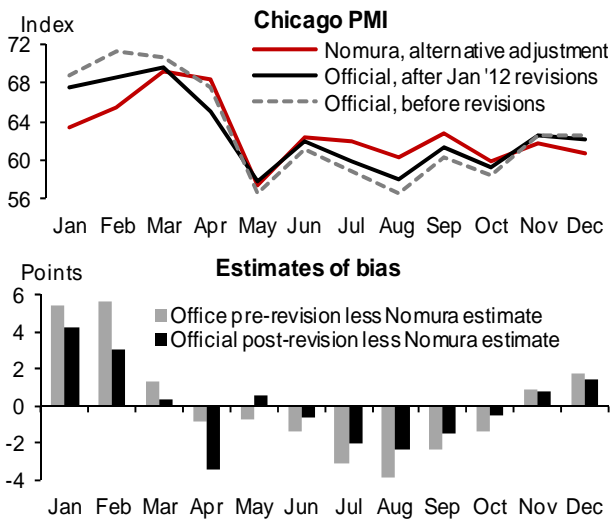
seasonal bias (an improvement is indicated by the gray bars in the lower chart of Figure 4 being smaller than the black bars); however, the residual bias remains.

The biggest risk to underlying activity being *misinterpreted* arises from the month-to-month swings in the seasonal bias. For instance, this occurs when the bias leads to official reports overstating an indicator in one month followed by understating in the next. For both the ISM manufacturing index and Chicago PMI, this phenomenon is not pronounced in January (Figure 5). So, we cannot use the seasonal argument to explain the disappointing Chicago PMI in January 2012, which declined 2 points from December to 60.2 and was lower than expected (Bloomberg consensus forecast: 63.0) (see [Chicago PMI weaker in January](#), 31 January 2012).

The month-to-month variation in seasonal bias also has import for the ISM manufacturing index. However, despite new information from the ISM revisions, we have not made material changes to our forecast for the January ISM manufacturing index (released on February 1). We did revise down our forecast from 54.6 to 54.2 (Consensus: 54.6), reflecting a level change in the December 2011 base, which was revised from 53.0 to 52.6. Beyond the limited boost from the December 2011-January 2012 change in seasonal bias, we also emphasize that often the indicators which can be readily used to forecast Chicago PMI and ISM manufacturing already incorporate a seasonal bias. These forecast inputs include regional manufacturing surveys, such as the Empire State Manufacturing Survey and the Philly Fed Business Outlook.

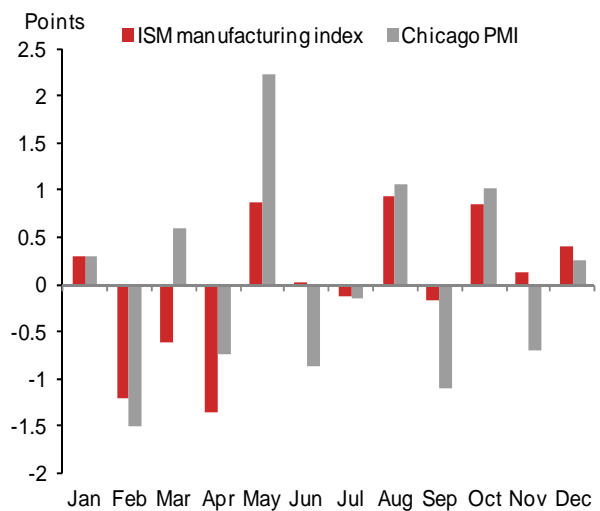
Looking ahead, for both the ISM manufacturing index and the Chicago PMI, the most pronounced swing in the bias – when it changes from overstated to understated – occurs in the reports for February (released in March) and April (released in May) (Figure 5). This suggests that, in addition to the potential for downside risks to emerge from abroad in the coming months, the lingering effects of the financial crisis in seasonal adjustments, too, are likely to be a headwind.

**Fig. 4: 2011 Chicago PMI: estimates of “seasonal bias” before and after revisions**



Source: ISM-Chicago; ISM: Nomura Global Economics.

**Fig. 5: Seasonal bias impact on month-to-month changes**



Notes: Based on 2011 data

Source: ISM-Chicago; ISM: Nomura Global Economics.

## Disclosure Appendix A-1

### ANALYST CERTIFICATIONS

We, Lewis Alexander, Ellen Zentner and Jeffrey Greenberg, hereby certify (1) that the views expressed in this Research report accurately reflect our personal views about any or all of the subject securities or issuers referred to in this Research report, (2) no part of our compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this Research report and (3) no part of our compensation is tied to any specific investment banking transactions performed by Nomura Securities International, Inc., Nomura International plc or any other Nomura Group company.

### Important Disclosures

#### Online availability of research and conflict-of-interest disclosures

Nomura research is available on [www.nomuranow.com](http://www.nomuranow.com), Bloomberg, Capital IQ, Factset, MarkitHub, Reuters and ThomsonOne. Important disclosures may be read at <http://go.nomuranow.com/research/globalresearchportal/pages/disclosures/disclosures.aspx/> or requested from Nomura Securities International, Inc., on 1-877-865-5752. If you have any difficulties with the website, please email [grpsupport-eu@nomura.com](mailto:grpsupport-eu@nomura.com) for help.

The analysts responsible for preparing this report have received compensation based upon various factors including the firm's total revenues, a portion of which is generated by Investment Banking activities. Unless otherwise noted, the non-US analysts listed at the front of this report are not registered/qualified as research analysts under FINRA/NYSE rules, may not be associated persons of NSI, and may not be subject to FINRA Rule 2711 and NYSE Rule 472 restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

#### ADDITIONAL DISCLOSURES REQUIRED IN THE U.S.

Principal Trading: Nomura Securities International, Inc and its affiliates will usually trade as principal in the fixed income securities (or in related derivatives) that are the subject of this research report. Analyst Interactions with other Nomura Securities International, Inc Personnel: The fixed income research analysts of Nomura Securities International, Inc and its affiliates regularly interact with sales and trading desk personnel in connection with obtaining liquidity and pricing information for their respective coverage universe.

#### Valuation Methodology - Global Strategy

A "Relative Value" based recommendation is the principal approach used by Nomura's Fixed Income Strategists / Analysts when they make "Buy" (Long) "Hold" and "Sell"(Short) recommendations to clients. These recommendations use a valuation methodology that identifies relative value based on:

- Opportunistic spread differences between the appropriate benchmark and the security or the financial instrument,
- Divergence between a country's underlying macro or micro-economic fundamentals and its currency's value and
- Technical factors such as supply and demand flows in the market that may temporarily distort valuations when compared to an equilibrium priced solely on fundamental factors.

In addition, a "Buy" (Long) or "Sell" (Short) recommendation on an individual security or financial instrument is intended to convey Nomura's belief that the price/spread on the security in question is expected to outperform (underperform) similarly structured securities over a three to twelve-month time period. This outperformance (underperformance) can be the result of several factors, including but not limited to: credit fundamentals, macro/micro economic factors, unexpected trading activity or an unexpected upgrade (downgrade) by a major rating agency.

### Disclaimers

This document contains material that has been prepared by the Nomura entity identified at the top or bottom of page 1 herein, if any, and/or, with the sole or joint contributions of one or more Nomura entities whose employees and their respective affiliations are specified on page 1 herein or identified elsewhere in the document. Affiliates and subsidiaries of Nomura Holdings, Inc. (collectively, the 'Nomura Group'), include: Nomura Securities Co., Ltd. ('NSC') Tokyo, Japan; Nomura International plc ('Nlplc'), UK; Nomura Securities International, Inc. ('NSI'), New York, US; Nomura International (Hong Kong) Ltd. ('NIHK'), Hong Kong; Nomura Financial Investment (Korea) Co., Ltd. ('NFIK'), Korea (Information on Nomura analysts registered with the Korea Financial Investment Association ('KOFIA') can be found on the KOFIA Intranet at <http://dis.kofia.or.kr>); Nomura Singapore Ltd. ('NSL'), Singapore (Registration number 197201440E, regulated by the Monetary Authority of Singapore); Capital Nomura Securities Public Company Limited ('CNS'), Thailand; Nomura Australia Ltd. ('NAL'), Australia (ABN 48 003 032 513), regulated by the Australian Securities and Investment Commission ('ASIC') and holder of an Australian financial services licence number 246412; P.T. Nomura Indonesia ('PTNI'), Indonesia; Nomura Securities Malaysia Sdn. Bhd. ('NSM'), Malaysia; Nomura International (Hong Kong) Ltd., Taipei Branch ('NITB'), Taiwan; Nomura Financial Advisory and Securities (India) Private Limited ('NFASL'), Mumbai, India (Registered Address: Ceejay House, Level 11, Plot F, Shivsagar Estate, Dr. Annie Besant Road, Worli, Mumbai- 400 018, India; Tel: +91 22 4037 4037, Fax: +91 22 4037 4111; SEBI Registration No: BSE INB011299030, NSE INB231299034, INF231299034, INE 231299034, MCX: INE261299034); Banque Nomura France ('BNF'), regulated by the Autorité des marchés financiers and the Autorité de Contrôle Prudentiel; Nlplc, Dubai Branch ('Nlplc, Dubai'); Nlplc, Madrid Branch ('Nlplc, Madrid') and Nlplc, Italian Branch ('Nlplc, Italy').

This material is: (i) for your private information, and we are not soliciting any action based upon it; (ii) not to be construed as an offer to sell or a solicitation of an offer to buy any security in any jurisdiction where such offer or solicitation would be illegal; and (iii) based upon information from sources that we consider reliable, but has not been independently verified by Nomura Group.

Nomura Group does not warrant or represent that the document is accurate, complete, reliable, fit for any particular purpose or merchantable and does not accept liability for any act (or decision not to act) resulting from use of this document and related data. To the maximum extent permissible all warranties and other assurances by Nomura group are hereby excluded and Nomura Group shall have no liability for the use, misuse, or distribution of this information.

Opinions or estimates expressed are current opinions as of the original publication date appearing on this material and the information, including the opinions and estimates contained herein, are subject to change without notice. Nomura Group is under no duty to update this document. Any comments or statements made herein are those of the author(s) and may differ from views held by other parties within Nomura Group. Clients should consider whether any advice or recommendation in this report is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. Nomura Group does not provide tax advice.

Nomura Group, and/or its officers, directors and employees, may, to the extent permitted by applicable law and/or regulation, deal as principal, agent, or otherwise, or have long or short positions in, or buy or sell, the securities, commodities or instruments, or options or other derivative instruments based thereon, of issuers or securities mentioned herein. Nomura Group companies may also act as market maker or liquidity provider (as defined within Financial Services Authority ('FSA') rules in the UK) in the financial instruments of the issuer. Where the activity of

market maker is carried out in accordance with the definition given to it by specific laws and regulations of the US or other jurisdictions, this will be separately disclosed within the specific issuer disclosures.

This document may contain information obtained from third parties, including ratings from credit ratings agencies such as Standard & Poor's.

Reproduction and distribution of third party content in any form is prohibited except with the prior written permission of the related third party. Third party content providers do not guarantee the accuracy, completeness, timeliness or availability of any information, including ratings, and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such content. Third party content providers give no express or implied warranties, including, but not limited to, any warranties of merchantability or fitness for a particular purpose or use. Third party content providers shall not be liable for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including lost income or profits and opportunity costs) in connection with any use of their content, including ratings. Credit ratings are statements of opinions and are not statements of fact or recommendations to purchase hold or sell securities. They do not address the suitability of securities or the suitability of securities for investment purposes, and should not be relied on as investment advice.

Any MSCI sourced information in this document is the exclusive property of MSCI Inc. ('MSCI'). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, re-disseminated 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 and the MSCI indexes are services marks of MSCI and its affiliates.

Investors should consider this document as only a single factor in making their investment decision and, as such, the report should not be viewed as identifying or suggesting all risks, direct or indirect, that may be associated with any investment decision. Nomura Group produces a number of different types of research product including, among others, fundamental analysis, quantitative analysis and short term trading ideas; recommendations contained in one type of research product may differ from recommendations contained in other types of research product, whether as a result of differing time horizons, methodologies or otherwise. Nomura Group publishes research product in a number of different ways including the posting of product on Nomura Group portals and/or distribution directly to clients. Different groups of clients may receive different products and services from the research department depending on their individual requirements.

Figures presented herein may refer to past performance or simulations based on past performance which are not reliable indicators of future performance. Where the information contains an indication of future performance, such forecasts may not be a reliable indicator of future performance. Moreover, simulations are based on models and simplifying assumptions which may oversimplify and not reflect the future distribution of returns.

Certain securities are subject to fluctuations in exchange rates that could have an adverse effect on the value or price of, or income derived from, the investment.

The securities described herein may not have been registered under the US Securities Act of 1933 (the '1933 Act'), and, in such case, may not be offered or sold in the US or to US persons unless they have been registered under the 1933 Act, or except in compliance with an exemption from the registration requirements of the 1933 Act. Unless governing law permits otherwise, any transaction should be executed via a Nomura entity in your home jurisdiction.

This document has been approved for distribution in the UK and European Economic Area as investment research by Nlplc, which is authorized and regulated by the FSA and is a member of the London Stock Exchange. It does not constitute a personal recommendation, as defined by the FSA, or take into account the particular investment objectives, financial situations, or needs of individual investors. It is intended only for investors who are 'eligible counterparties' or 'professional clients' as defined by the FSA, and may not, therefore, be redistributed to retail clients as defined by the FSA. This document has been approved by NIHK, which is regulated by the Hong Kong Securities and Futures Commission, for distribution in Hong Kong by NIHK. This document has been approved for distribution in Australia by NAL, which is authorized and regulated in Australia by the ASIC. This document has also been approved for distribution in Malaysia by NSM. In Singapore, this document has been distributed by NSL. NSL accepts legal responsibility for the content of this document, where it concerns securities, futures and foreign exchange, issued by their foreign affiliates in respect of recipients who are not accredited, expert or institutional investors as defined by the Securities and Futures Act (Chapter 289). Recipients of this document in Singapore should contact NSL in respect of matters arising from, or in connection with, this document. Unless prohibited by the provisions of Regulation S of the 1933 Act, this material is distributed in the US, by NSI, a US-registered broker-dealer, which accepts responsibility for its contents in accordance with the provisions of Rule 15a-6, under the US Securities Exchange Act of 1934.

This document has not been approved for distribution in the Kingdom of Saudi Arabia ('Saudi Arabia') or to clients other than 'professional clients' in the United Arab Emirates ('UAE') by Nomura Saudi Arabia, Nlplc or any other member of Nomura Group, as the case may be. Neither this document nor any copy thereof may be taken or transmitted or distributed, directly or indirectly, by any person other than those authorised to do so into Saudi Arabia or in the UAE or to any person located in Saudi Arabia or to clients other than 'professional clients' in the UAE. By accepting to receive this document, you represent that you are not located in Saudi Arabia or that you are a 'professional client' in the UAE and agree to comply with these restrictions. Any failure to comply with these restrictions may constitute a violation of the laws of Saudi Arabia or the UAE.

**NO PART OF THIS MATERIAL MAY BE (I) COPIED, PHOTOCOPIED, OR DUPLICATED IN ANY FORM, BY ANY MEANS; OR (II) REDISTRIBUTED WITHOUT THE PRIOR WRITTEN CONSENT OF A MEMBER OF NOMURA GROUP.** Further information on any of the securities mentioned herein may be obtained upon request. If this document has been distributed by electronic transmission, such as e-mail, then such transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. The sender therefore does not accept liability for any errors or omissions in the contents of this document, which may arise as a result of electronic transmission. If verification is required, please request a hard-copy version.

Nomura Group manages conflicts with respect to the production of research through its compliance policies and procedures (including, but not limited to, Conflicts of Interest, Chinese Wall and Confidentiality policies) as well as through the maintenance of Chinese walls and employee training.

Additional information is available upon request. Disclosure information is available at the Nomura Disclosure web page: <http://go.nomuranow.com/research/globalresearchportal/pages/disclosures/disclosures.aspx>