

August 28, 2012

Is Greek exit from eurozone really necessary?

The last two weeks have brought data confirming a slump in Europe and a slowdown in China, while in the US there are mounting expectations that house prices have finally bottomed.

The deceleration of activity in Europe appears finally to be having an impact on Germany. Chancellor Angela Merkel has reversed her earlier position and lent her support to more aggressive accommodation by the ECB.

China's slowdown is deepening in spite of the central bank's easing stance, and that is starting to impact on the economies and politics of neighboring countries that have benefitted from the Chinese boom.

In Taiwan, which I visited last week, the pro-China Ma administration was re-elected in January with a pledge to boost economic growth by developing stronger links with the fast-growing mainland. The subsequent slowdown there has depressed Taiwanese growth and left the government's public support rating in tatters.

Merkel lends support to ECB bond purchases

German Chancellor Angela Merkel's decision to switch course and fall in line with the ECB represents a great step forward. The eurozone currently suffers from two main problems: a balance sheet recession on one hand and capital flight—whereby Spain's private savings end up in the German government bond market—on the other. Monetary accommodation cannot be expected to have a major impact on the first but can mitigate the second. Accordingly, I see the ECB's newfound policy flexibility as a major positive development.

That said, ECB purchases of Spanish government bonds at this point will do little to address the balance sheet recession triggered by Spain's private sector increasing savings and paying down debt in spite of near-zero interest rates.

This should be clear from the fact that the Japanese, US and UK economies have yet to recover despite massive purchases of government debt by their respective central banks.

However, those bond purchases mean that the money that is no longer being spent by a debt-minimizing private sector is at least being used to purchase government debt, lowering government bond yields and enabling these countries to administer at low cost the fiscal stimulus needed during a balance sheet recession.

ECB bond purchases crucial in short term even if longer-term issues remain unaddressed

The problem in the eurozone, however, is that the surplus Spanish and Irish private savings generated by deleveraging efforts are not being used to purchase domestic government debt, as in Japan, the US or the UK, but instead are fleeing to government bond markets in places like Germany and Finland.

Richard Koo is chief economist at Nomura Research Institute. This is his personal view.

Richard Koo
r-koo@nri.co.jp

To receive this publication, please contact your local Nomura representative.

Japanese version published on 27 August, 2012

See Appendix A-1 for analyst certification, important disclosures and the status of non-US analysts.

When capital flows out of a country experiencing a balance sheet recession and widening fiscal deficits, bond yields rise, forcing the government to pursue fiscal consolidation. But if the government moves to repair its balance sheet at a time when the private sector is doing the same, aggregate demand will fall sharply, plunging the economy into a deflationary spiral, which in turn spurs further capital flight in a vicious cycle.

ECB purchases of periphery debt would be effective in cutting this financial negative feedback loop that begins with capital flight and ends with a dysfunctional government bond market.

Longer-term answers to this eurozone-specific problem include (1) fiscal stimulus to tackle the balance sheet recession itself and (2) a rule that addresses the issue of capital flight by restraining, if not prohibiting, the sale of government bonds to non-nationals. But given that both of those measures will probably take years to implement, the only short-term option is to have the ECB buy the government debt of peripheral countries.

ECB debt purchases similar to Fed purchases of MBS

ECB purchases of periphery debt should be viewed similarly to Fed purchases of MBS. It is only now, fully three years after those purchases began, that the US housing market is finally showing signs of turning around.

Yet if the Fed had not begun buying MBS when it did, the MBS market would likely have collapsed altogether, accelerating the drop in US house prices. The resulting negative feedback loop could have further delayed recoveries in the housing market and the US economy.

It is important that the ECB's bond-buying policy succeeds in ending this vicious cycle. Still, it will do nothing to solve the problems in the real economy created by the housing bubble collapse.

Many Germans still pushing for Greek exit

While Chancellor Merkel said in her recent remarks that she hoped Greece would stay in the euro, many in Germany would like to see Greece leave the common currency. Even within the chancellor's own party there are many who favor an eventual exit.

They cite the fact that Greece's economy is far less competitive than Germany's and note that whereas Germany undertook painful structural reforms from 1999 to 2005, Greece has done nothing. Under such conditions, they argue, a Greek exit is inevitable.

By structural reforms are meant (1) the 1999 agreement reached by German government, industry, and labor to keep wage increases below productivity improvements and (2) the pension and labor market reforms the nation adopted in the first half of 2000.

German money supply growth stagnated in 2000s

While these initiatives were important, I have shown in previous reports that a key contributor to the competitiveness gap between Germany and Greece was the slump in the German economy and money supply growth (relative to other eurozone nations) after Germany's IT bubble burst in 2000, ushering in a balance sheet recession.

The eurozone money supply (ex Germany) grew a cumulative 108% from 2000 until Lehman Brothers collapsed in 2008 Q3. Greece's money supply expanded by 101.5% over this period, as Figure 1 shows.

But in Germany, where the private sector responded to the bubble's collapse by collectively moving to pay down debt, the money supply grew by just 56%. This naturally helped to restrain wage and price inflation.

Greek unit labor costs carried premium of more than 30%

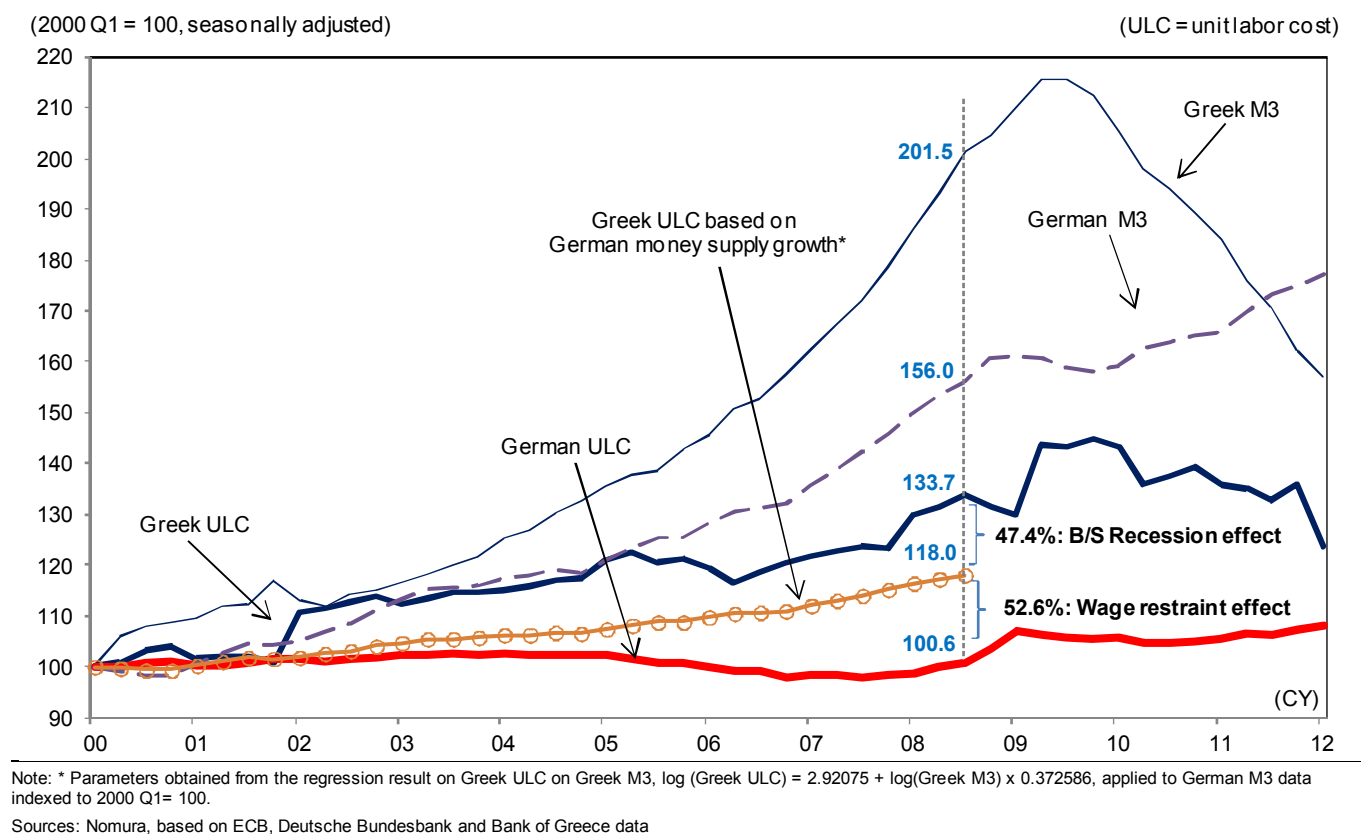
German price inflation during this period was significantly lower than in the rest of the eurozone: unit labor costs moved sideways in spite of pronounced increases elsewhere in Europe.

In Greece, for example, unit labor costs rose 33.7% between 2000 and 2008 Q3, while in Germany they rose just 0.6% (Figure 1).

That implies that if Greek and German labor competitiveness had started out at the same level in 2000, Greek labor would have been more than 30% more expensive (33.1ppt) by the time Lehman went under.

What drove the competitiveness gap?

The question then becomes how much of this 33.1ppt differential can be explained by Germany's painful structural reforms and how much by the nation's balance sheet recession. I estimate that each factor was equally responsible.

Fig. 1: Macro- and microeconomic factors driving competitiveness gap

Starting with the fact that unit labor costs in Greece climbed by 33.7% during this period while the money supply grew by 101.5%, I conducted a regression analysis to determine to what extent changes in Greek unit labor costs can be explained by changes in the money supply. When the findings were applied to German money supply growth, they suggested unit labor costs would have grown by 18.0% over the same period if the Greek money supply had grown at the same rate as Germany's. This is considerably lower than the actual figure of 33.7%.

Accordingly, I conclude that 15.7ppt of the gap in unit labor costs (33.7% – 18.0%), or 47.4% of the 33.1ppt gap, can be explained by differences in money supply growth between the two nations.

Structural reforms responsible for only half of competitiveness gap

As German unit labor costs rose by only 0.6% over this period, the 17.4ppt (18.0% – 0.6%) that cannot be explained by differing rates of money supply growth—52.6% of the 33.1ppt gap—can be attributed to structural reforms.

This means while a microeconomic factor—the structural reforms often touted by Germans—played an important role, accounting for more than half (52.6%) of the competitiveness gap with Greece, the remaining 47.4% is attributable to a macroeconomic factor—a balance sheet recession in Germany at a time when Greece had a robust economy.

These are very rough estimates, of course, and there are a number of issues with the analysis, but I think they provide an indication of the extent to which Germany's balance sheet recession has affected competitiveness.

Competitiveness disparity is narrowing

The above macroeconomic factor is now working on both the Greek and German sides to narrow the competitiveness gap.

Since 2010, for example, money supply growth has accelerated in Germany while falling sharply in Greece, which continues to experience capital outflows. Money supply lines for the two countries in Figure 1 intersected in 2011 and have since continued to move in opposite directions.

This trend implies that Greek inflation and unit labor costs will continue to fall, and in fact unit labor costs have already dropped more than 10% since the 2010 peak. Given the time lag between changes in the money supply and their impact on prices and unit labor costs, I anticipate further declines in the latter.

The gap between German and Greek unit labor costs has already dropped to less than half the 2009 peak, and I suspect it is only a matter of time before it disappears altogether.

Benefits of Greek exit diminish by the day

There is clearly less justification for a Greek exit from the euro now that the unit labor cost gap is closing, in part because of macroeconomic developments (ie money supply growth) in both countries.

The biggest reason for an exit, after all, was to allow Greece to restore competitiveness with a devalued currency. But the country is already a long way toward achieving that end with the decline in unit labor costs, and the remaining gap will eventually be closed by money supply trends in the two nations.

Had it not been for Germany's structural reforms, the competitiveness gap between the two countries would already have been eliminated.

This argument, of course, is based on the premise that unit labor costs in the two countries were roughly similar in 2000, but given that there was no discussion of a "competitiveness gap" in 2000 I think the assumption is largely valid.

Turmoil in Argentina took many years to subside

That the unit labor cost gap will disappear in the near future is significant because it would also take a long time for Greece to overcome the turmoil resulting from a decision to leave the eurozone.

Argentina's 2001 default and discontinuation of the dollar peg is often cited as having many parallels with the Greek situation. It took Argentina more than five years to overcome the resulting disruption to its economy even though the country had its own currency in the peso.

When I visited Argentina last summer at the invitation of the nation's central bank, I had the opportunity to speak with locals about those events. People who had worked in the financial sector when deposits were frozen said they did not even want to think about those events and never wanted to go through a similar experience again.

Those employed at private-sector banks in particular said that, amid the turmoil and breakdown of social order, they went to work every day with the expectation they might be killed by angry rioters or depositors.

As a rule, transitions from a weak currency to a strong one tend to go smoothly and be well-received, while moving in the other direction is extremely difficult and often requires heavy-handed measures like the freezing of deposits.

Long adjustment period means there are no benefits to Greek exit

If the gap in unit labor costs between Germany and Greece were to disappear in two to three years, there is no reason why Greece should choose to exit the euro when the resulting turmoil would take five to ten years to subside.

It may not even take two or three years to extinguish the disparity in unit labor costs, if Greek labor unions agree to wage cuts on the condition that current employment levels are maintained.

And such an agreement is not at all unlikely with the unemployment rate at 23%.

A senior German official I spoke with on my June visit to Berlin said Greek prices and wages were starting to become more competitive. If that recognition leads to greater private investment in Greece, it could signal a new dawn for the economy there.

Unit labor costs also falling elsewhere in eurozone

Unit labor costs have also declined markedly in Ireland, Spain, and Portugal, as Figure 2 shows.

This is a natural outcome given that these economies are in severe balance sheet recessions and Spain's unemployment rate in particular is approaching 25%.

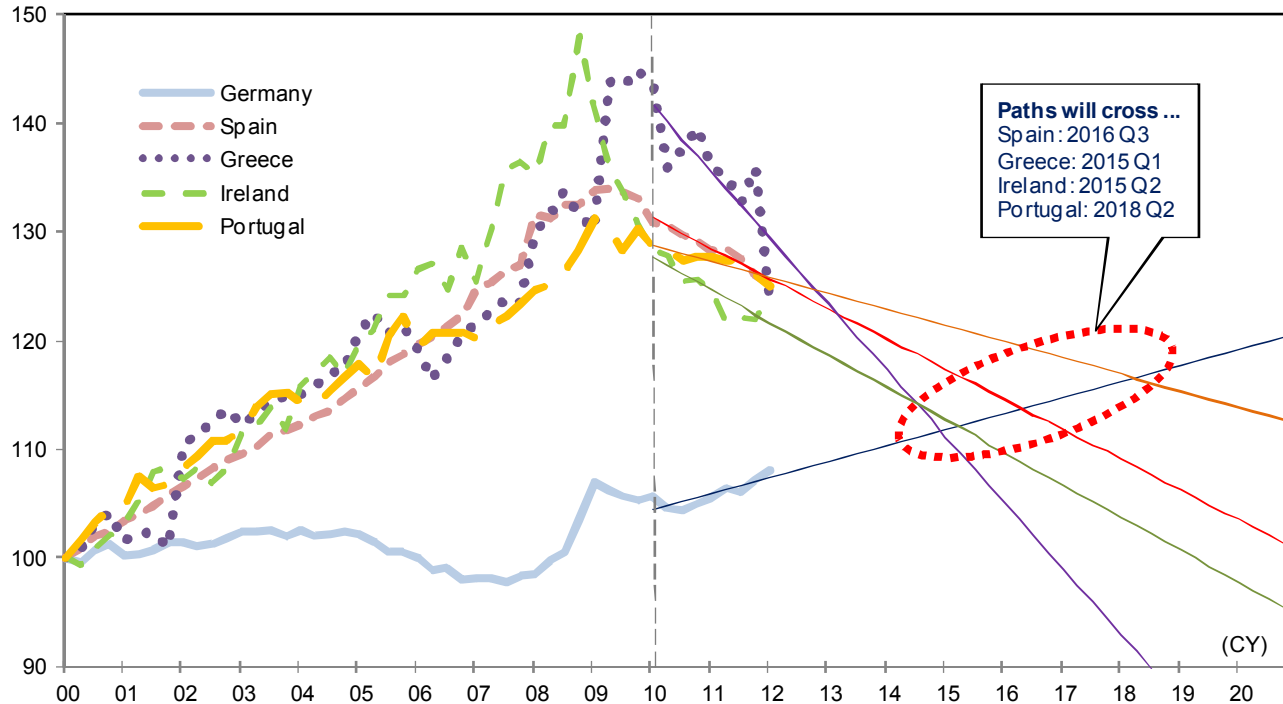
If we look at the trend of unit labor costs in these countries and Germany, starting from 2010 Q1, Germany's trend line intersects Greece's in 2015 Q1, Ireland's in 2015 Q2, Spain's in 2016 Q3, and Portugal's in 2018 Q2.

Germany's competitiveness gap with other countries also expected to vanish in several years

While such estimates depend heavily on the period chosen, more recent trends indicate that—with the exception of Ireland—the competitiveness gap with Germany may disappear even sooner than the estimates above suggest.

Fig. 2: Eurozone unit labor costs seen converging

(2000 Q1 = 100, seasonally adjusted)



Notes: The figures of Greece, Ireland and Portugal are seasonally adjusted by Nomura Research Institute. Path of ULC growth was estimated based on trend from 1Q 2010 to 1Q 2012.

Source: Nomura Research Institute, based on ECB's data

The correction is likely to end long before 2015 in Greece, where money supply growth has fallen so sharply.

In Ireland, unit labor costs have already slid nearly 20% from their late 2008 peak, and given the nation's reputation for low wages in 2000 I suspect it has already regained much of its former competitiveness.

Growing German acceptance of rising wages has also helped narrow gap

In Germany, meanwhile, there are growing calls for the nation to rectify the excesses of the three-party agreement of 1999. Even the Bundesbank, renowned as an inflation fighter, said several months ago that German wages should be allowed to rise as long as they were accompanied by corresponding gains in productivity.

With Germany's unemployment rate at a 20-year low and industrial output almost back to the pre-Lehman peak, it is only natural that German wages should rise, which means the competitiveness gap is likely to disappear even sooner.

Of course there is no guarantee that an internal deflation-driven revival of competitiveness in peripheral nations will lead to economic recovery. This is particularly true in countries like Ireland and Spain, which are in the midst of severe balance sheet recessions and will experience further drops in domestic demand if nothing else is done.

Could diminishing competitiveness gap spur acceptance of fiscal stimulus?

Until now the argument commonly heard in Germany was that peripheral countries were in such deep recessions because their economies were uncompetitive. In effect, they were looking at phenomena caused by a balance sheet recession and trying to attribute them to a lack of competitiveness, when in fact that is only partly responsible.

Hence the German argument that there can be no economic recovery in the periphery without structural reforms. But as noted above, much of the improved competitiveness that structural reforms are supposed to produce has already been achieved by internal deflation.

That these nations' economies have still not recovered is due to the fact that—with the exception of Greece—they are in balance sheet recessions, and the only way to address those recessions is to administer the fiscal stimulus that Germany so strongly rejects.

Germany may be unable to accept the theory of balance sheet recessions until unit labor costs in the periphery drop to German levels. In other words, the pain in the eurozone is likely to continue until the competitiveness gap disappears and Germans realize the theory of balance sheet recessions is the only way to explain the continued economic slump.

US economy likely to contract in 2013 unless fiscal cliff is averted

Last week the Congressional Budget Office (CBO) published estimates of the impact of the so-called fiscal cliff that Fed Chairman Ben Bernanke warned about. US GDP will shrink by 0.5% in 2013 and the unemployment rate will rise to 9.1% unless the fiscal cliff is avoided, according to the CBO.

The CBO estimates that US taxpayers face a potential tax increase of \$500bn. With government expenditures likely to remain largely unchanged, the CBO expects the US budget deficit to decline by a corresponding amount.

These estimates are based on the assumptions that the Fed implements QE3 and overseas economies continue a modest recovery.

Fiscal contraction most dangerous during balance sheet recessions

Increasing taxes by 3% of GDP at a time when the US private sector is already saving 7% of GDP each year in spite of zero interest rates could deliver a tremendous blow to the economy.

And if the government reduces its borrowings by \$500bn at a time when the private sector has not only stopped borrowing but is actually paying down debt, the money multiplier will turn heavily negative at the margin, and the money supply could shrink substantially.

Under normal economic conditions fiscal consolidation can boost economic growth by lowering interest rates and therefore making it easier for the private sector to borrow and spend. But it is likely to have little impact with short-term rates already at zero and the 10-year Treasury note trading at a record low yield of 1.8%.

This is because if companies were waiting for lower interest rates to undertake capital expenditures, they would already have done so while the rates were coming down to these low levels.

The CBO's other assumption—that overseas economies will continue to recover—is also questionable at best. The economies of China, India, and Brazil are all slowing, and the downturn in the eurozone is growing increasingly severe.

CBO estimates overly optimistic

In light of the above, I think the CBO estimates of a 0.5% contraction in output and a 9.1% unemployment rate are overly optimistic. Under current conditions it is extremely unrealistic to assume that a tax hike equal to 3% of GDP will only depress GDP by 0.5%.

In Japan, the Hashimoto administration undertook a fiscal consolidation program equal to 3% of GDP in 1997. The result was an economic meltdown, with data at the time indicating five straight quarters of contraction. GDP shrank by 3.0% in real terms and 4.0% in nominal terms. The resulting double dip sparked major bad loan problems in the banking sector, and the fiscal deficit, originally projected to decline by ¥15trn, *increased* by ¥16trn instead.

Japanese real estate prices at the time had finally dropped back to the pre-bubble levels of 1985, attracting many so-called asset strippers from New York along with a large number of overseas Chinese investors and lending support to the apparent bottom in prices. Moreover, the private sector was a net saver to the tune of 6% of GDP in spite of nearly zero interest rates, mirroring the situation in the US today.

But the CBO's report makes no mention of the possibility that fiscal consolidation during a balance sheet recession could cause the economy to collapse and produce a *larger* fiscal deficit, as happened in Japan.

Japan suffered greatly despite reversing course only six months later

One difference between Japan in 1997 and the US today is that Prime Minister Ryutaro Hashimoto had the ability to reverse course if he realized a mistake had been made. And he did just that only six months after implementing the austerity policy.

Even then, it took nearly two years for the Japanese economy to recover from the shock and almost ten years for the fiscal deficit to fall back to 1996 levels.

With Democrats and Republicans evenly matched, it would not be nearly so easy for the US to undertake a similarly bold policy change away from the fiscal cliff, and in any case it would probably take a great deal of time, while the economic wound continued to fester.

CBO issues half-hearted warning about fiscal cliff

In any event, implementing austerity measures valued at 3% of GDP at a time when the US is in a severe balance sheet recession and the economy is being propped up by tax cuts and other fiscal stimulus is a major mistake. Assuming those measures will depress GDP by only 0.5% is extremely unrealistic, in my view.

The CBO's role is to provide politically unbiased economic analysis and opinions. The report in question tries to be all things to all people, saying that the fiscal cliff will result in serious pain but that, once endured, it will provide a foundation for a fiscal policy that is healthy and sustainable in the long term.

It should not be surprising if some interpret this as saying that a 0.5% hit to GDP next year should be accepted as the cost of regaining fiscal health for the future generations.

What the CBO is not taking into account is the possibility that GDP will contract not by 0.5% but by 3% or even more once the US jumps off the fiscal cliff, with the budget deficit increasing instead of decreasing as was the case in Japan in 1997.

In short, I think the CBO's warning on the fiscal cliff is as half-hearted as its forecasts are optimistic.

Appendix A-1

Any Authors named on this report are Research Analysts unless otherwise indicated

Important Disclosures

Online availability of research and conflict-of-interest disclosures

Nomura research is available on www.nomuranow.com/research, 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 for help.

Any authors named in this report are research analysts unless otherwise indicated. *Industry Specialists* identified in some Nomura International plc research reports are employees within the Firm who are responsible for the sales and trading effort in the sector for which they have coverage. Industry Specialists do not contribute in any manner to the content of research reports in which their names appear. *Marketing Analysts* identified in some Nomura research reports are research analysts employed by Nomura International plc who are primarily responsible for marketing Nomura's Equity Research product in the sector for which they have coverage. Marketing Analysts may also contribute to research reports in which their names appear and publish research on their sector.

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); Nlplc, Dubai Branch ('Nlplc, Dubai'); Nlplc, Madrid Branch ('Nlplc, Madrid') and Nlplc, Italian Branch ('Nlplc, Italy'). 'CNS Thailand' next to an analyst's name on the front page of a research report indicates that the analyst is employed by Capital Nomura Securities Public Company Limited ('CNS') to provide research assistance services to NSL under a Research Assistance Agreement. CNS is not a Nomura entity.

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. Clients outside of the US may access the Nomura Research Trading Ideas platform (Retina) at <http://go.nomuranow.com/equities/tradingideas/retina/>

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 Nlplc, which is regulated by the Hong Kong Securities and Futures Commission, for distribution in Hong Kong by Nlplc. 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 the UAE or Saudi Arabia.

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. 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.

Disclaimers required in Japan

Investors in the financial products offered by Nomura Securities may incur fees and commissions specific to those products (for example, transactions involving Japanese equities are subject to a sales commission of up to 1.365% (tax included) of the transaction amount or a commission of ¥2,730 (tax included) for transactions of ¥200,000 or less, while transactions involving investment trusts are subject to various fees, such as commissions at the time of purchase and asset management fees (trust fees), specific to each investment trust). In addition, all products carry the risk of losses owing to price fluctuations or other factors. Fees and risks vary by product. Please thoroughly read the written materials provided, such as documents delivered before making a contract, listed securities documents, or prospectuses.

Nomura Securities Co., Ltd.

Financial instruments firm registered with the Kanto Local Finance Bureau (registration No. 142)

Member associations: Japan Securities Dealers Association; Japan Investment Advisers Association; The Financial Futures Association of Japan; and Type II Financial Instruments Firms Association.

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 and disclosure information is available at the Nomura Disclosure web page:

<http://go.nomuranow.com/research/globalresearchportal/pages/disclosures/disclosures.aspx>

Copyright © 2012 Nomura Securities Co., Ltd.. All rights reserved.