

Eurozone Break-up Trades

1 DECEMBER 2011

Trades and hedges for a eurozone break-up

Education is when you read the fine print; experience is what you get when you don't. – Pete Seeger

Recently focus has shifted to the risks around a eurozone breakup with brokers (see [icap tests systems for eurozone collapse](#)), regulators, investment banks (see, e.g., [Banks need to plan for disorderly break-up of the euro—FSA](#)), corporates (see [Businesses plan for possible end of euro](#)) and increasingly investors, looking at how to develop contingency plans for dealing with just such a possibility. Given the absence of any credible policy response that is commensurate with the scale of the crisis (see e.g., [Europe Special Report: Endgame](#)), it appears that breakup in some form is increasingly probable.

We have covered this the legal detail of exit and breakup (see [Currency risk in a eurozone break-up--Legal Aspects](#)) and our FX team has considered the ECU in more detail (see [Do you remember the ECU?](#)) together with a study of the significant room left for further deleveraging, (see [How much left to sell?](#))

In this note we look at potential hedges or means for taking advantage of a eurozone breakup. In particular, we focus on a number of ways of expressing a breakup via bonds, futures, basis trades, and CDS, each of which is presented with its pros and cons.

We also premise these trades on the assumption: that Germany's relative economic strength vs. the rest of the eurozone continues and that the introduction of DEM would significantly appreciate vs. other European currencies whether there remains a euro or they impose an ECU-2. Meanwhile, we assume that given the fragility of Italy's funding markets and its much less mature fiscal consolidation effort, the introduction of an ITL would likely see a decrease in value to the DEM and/or the remainder of the EUR.

Long Schatz on balance sheet:

The sequence of events that leads to a breakup event is likely to be somewhat disorderly, with a rapid flight to quality assets ensuing, particularly those with short maturities.

In the event of a eurozone break-up, we would see flight to quality flows into AAA countries, with Germany likely to be the key beneficiary due to the depth of its financial markets. An immediate trade with relatively lower downside risk is to buy the Schatz.

If Germany were to split from the EZ, it would likely introduce its own currency (which we call DEM for the purposes of this note) via an act of parliament. *Lex Monetae*, the internationally recognized right of a government to introduce its own currency, as applied in the case of Germany would naturally allow the government to introduce the DEM as legal tender, meaning that all liabilities including trade settlement, taxes, debt are payable in DEM. As the Schätze are issued by Bundesrepublik Deutschland – Finanzagentur GmbH (a German legal entity based in Frankfurt/Main) and is governed by local law.

Fixed Income Research

Contributing Strategists

Nick Firoozye

+44 (0) 20 710 33611

nick.firoozye@nomura.com

Guy Mandy

+44 (0) 20 710 35886

guy.mandy@nomura.com

Artis Frankovics

+44 (0) 20 710 37236

artis.frankovics@nomura.com

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

Furthermore following issuance the notes are listed for regulated market at the German stock exchanges (Berliner Börse, Börse Hamburg-Hannover, Frankfurt Stock Exchange, Börse München, Börse Stuttgart) meaning that the location of obligor and place of payment is Germany.

While it is not altogether certain that Germany would choose to redenominate all its old obligations into the new DEM if there still is a euro, a new currency law establishing legal tender, would likely redenominate **all** local law obligations in the new DEM. While there is the possibility of carving out some portion of old debt from redenomination, we believe this scenario as unlikely. Meanwhile, bank deposits would largely redenominate into DEM, making for possibly banking asset-liability mismatches.

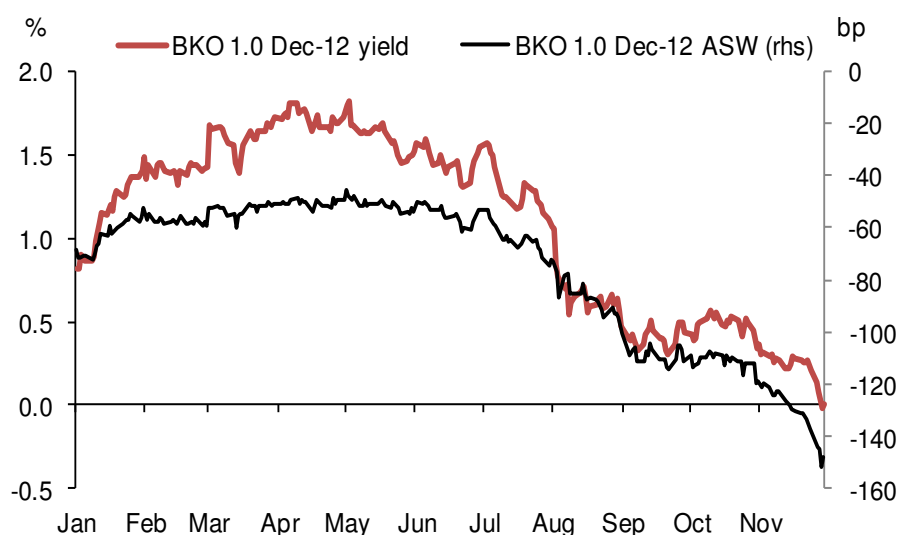
Moreover, any currency law which distinguishes between old and new obligations in a seemingly arbitrary way does run the risk of not being recognized by courts internationally. This could invalidate any redenomination by English and NY courts and the application of principles of Lex Monetae. We think this slice-and-dice method is therefore rather unlikely.

In the case of a complete eurozone-breakup, there will likely be a need to establish a means of settling old EUR contracts and this may come via an EU directive, as we have discussed in the Legal Aspects paper. While it may be plausible to redenominate only English Law contracts into an ECU-2, it may be similarly plausible to redenominate all old obligations into ECU-2. In both cases, the trade may not benefit from the breakup.

The actual gain on holding Schatz on balance sheet depends on a firm's means of financing itself. If euro-based financing does not automatically redenominate (i.e., in most cases, say, except for say German firms which borrow under German law), then the DEM asset is expected to make significant gains against the EUR liability, and this should remain the case if the EUR liability is redenominated into ECU-2.

Alternatively, although far less liquid, buying out of the money call options on Schatz (typically documented under ISDA) would be a method for going long the same risk but moderate some of the downside.

Fig. 3: Schatz outperforms into the crisis



Source: Nomura

Long Schatz on Repo

While outright Schatz trades may depend on an investor's ability to fund the trade and hold it on balance sheet, a similar but somewhat more straightforward trade is to buy Schatz on repo. Essentially the investor buys Schatz, and subject to any haircut (margin) amount, receives the price from the repo counterparty.

According to GMRA or MRA, a repo is merely a secured loan on a fixed amount of bonds (e.g., a repo on EUR 200mn notional of Schatz), and cross currency repos (where assets and repo notional are in differing currencies) are always possible. There is no means for re-denominating the principal of the loan even when the collateral changes denomination; consequently, if the Schatz is redenominated into DEM the investor still owes EUR on the cash leg. If after redenomination, there is a gain on the Schatz mark-to-market, the repo counterparty will be forced to pay more euro to cover margin (which will then have to be reinvested). Upon closing the trade, the investor receives a DEM asset and closes the EUR liability.

This trade may involve extra legal hurdles on insolvency, due to the fact that the repo counterparty holds title to the underlying Schatz. But, in the event of an insolvency, this is termed a default event and both legs of the repo (and all other repos with the same counterparty) are valued (according to the valuation methodology in the English law GMRA or New York law MRA) and a net figure will be determined. This then leads to a single figure which must be paid on unwind by investor to failed repo counterparty or vice-versa. So, while title transfer may prove more legally delicate, standard master agreements do have provisions involving default and netting, which make this trade much more straightforward giving all the economic benefit of a leveraged long in Schatz. On the other hand, GC Repos in place with LCH/Repoclear will face far less counterparty risk due to the exchange's rules on margining. What is less clear though is the benefit that one could obtain repoing through the exchange. In particular, as is true of other exchanges, although transactions are documented by English law (see [link](#)), if the exchange determines it appropriate to change the rules on outstanding transactions (e.g., to re-denominate repo notionals at the same time the Schatz re-denominates), it can ask members to sign up to this retroactive rule change. Members will willingly do so to ensure that they remain members of the exchange going forward.

Repos are usually documented under GMRA or MRA master agreements but may be documented under German law DRV (Rahmenvertrag für Finanztermingeschäfte) and we note as well that redenomination of the loan principal is much more likely for repos documented under German law.

Long Schatz on ASW

Asset swaps, although initially tied to a given bond and effectively transforming the fixed coupon of a Schatz into a floating (Euribor-Spread or EONIA+Spread) instrument, are documented under standard ISDA agreements (or other swap master agreements) and are merely off-market fixed-floating swap. Consequently, the swap itself may require variation margin due to mark-to-market, but there is no recourse to the (initially referenced) Schatz. Consequently, it is straightforward to own a Schatz (on balance sheet or on repo) and enter into a separate ASW contract. The ASW contract, like other swaps, is likely to remain in EUR if documented under New York or English law (with some possible variation feasible if it is documented under Spanish, French or German law).

One benefit of paying swaps is the likelihood of EURIBOR spikes due to bank funding concerns in any move towards exit or breakup.

Long Schatz (DU) Futures, Long Calls on Schatz Futures, Short BTP Futures

Schatz futures (DU) trade on the Eurex exchange and are documented under German Law. The various voluminous master agreements allow initial margins to be posted in CHF, EUR, GBP and USD, with variation in the same currency, for a variety of different underlyings, some for physical delivery, some for cash-settle. Being documented under German law and trading on an exchange in Frankfurt, it is relatively clear that Eurex futures contracts will be redenominated into DEM. Meanwhile, upon redenomination, margin amounts, which are held in cash are also likely to be redenominated into DEM.

For DU, this means that any redenomination is likely to have little to no effect whatsoever. For underlying asset re-denominates, the margin will also re-denominate. Meanwhile, upon delivery, the long is required to pay the (factor-adjusted) futures-price in DEM for a DEM-denominated Schatz. In all likelihood, the DU contract is a complete wash in terms of re-denomination risk. And similarly, going long calls on DU will not benefit at all from re-denomination, as the futures price itself is unlikely to be greatly affected by re-denomination. In fact, as we argue below, the future may even trade down on a re-denomination, especially if buying pressure pre-DEM came from non-German domiciled institutions.

A somewhat more interesting trade could be going short the BTP futures. In the event of a re-denomination, the BTP will be denominated in ITL, while settlement in Eurex may remain in EUR or in DEM. Consequently, upon re-denomination, the contract effectively turns into a ITL-DEM forward trade.

One negative of this trade is it may be feasible for Eurex to change the terms of business (which will have to be accepted by all exchange members if they wish to continue to trade with the exchange), which will either retroactively alter the terms of existing trades, or alter all future trades, or terminate and cash settle all existing trades. Consequently, if a re-denomination event is particularly disruptive to Eurex, it may be possible that any viable benefit (particularly from the short BTP futures trade) will be made far less certain, and the most likely end product would be to have BTP futures being denominated (and re-margined) in ITL, again making the trade a wash.

Long Schatz Basis Trades (Long Schatz, Short Schatz Futures)

As we have said above, the sequence of events that leads to a breakup is likely to raise the bid for shorter dated quality assets. Both Schatz and Schatz futures are likely to be well bid through this period, but we think that the domicile of the investor base along with currency re-denomination could lead to a sharp preference in cash over the future as the future expiry nears. This is due partly to the fact that a re-denomination event will possibly benefit the bond holder without passing on any undue benefit to the long futures position.

To position for this one buys the CTD on the Schatz contract, which given the Finanzagentur's issuance schedule is the on the run Schatz, and sell the Schatz future (DU) against this. The position is effectively a basis trade.

This demand for quality collateral and resultant difficulty in locating the CTD as well as tightness in funding markets could also cause a repo squeeze, which should positively affect both the cash and Futures positions.

The main consideration for the long futures positions comes at contract expiry, where any holders who do not roll out, will likely be required to buy DEM in order to complete the purchase of the CTD. If the investor is domiciled in a country which does not use DEM as legal tender, the exchange rate differential is likely to make receiving/purchasing the underlying relatively

more costly. This additional cost and/or the fear that there is potential for this to occur could in fact drive down the Futures price.

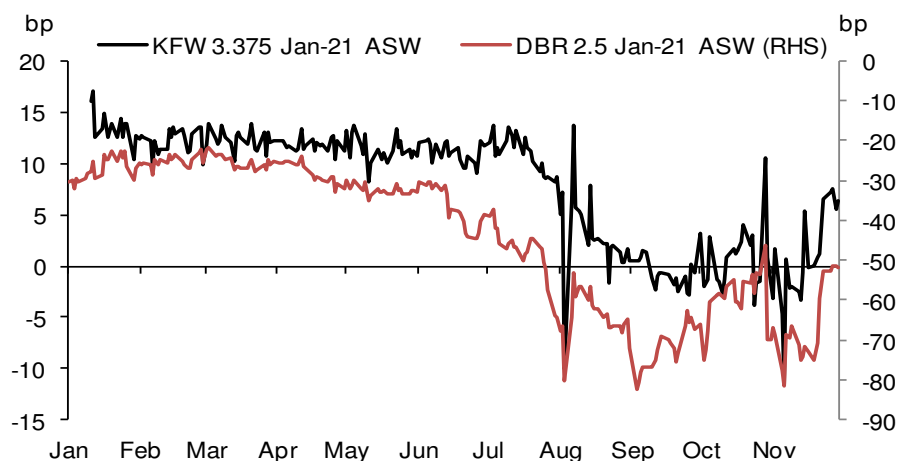
Holding this structure the investor could choose to deliver the bond into the Future and exit, with the DEM cash differential or choose to close the short Futures position prior to expiry and be left holding the DEM Schatz. Bonds at the front end of the German curve are currently rolling to negative yields, which should be of benefit to cash investors while this general risk-averse outlook persists. Owning the bond outright avoids any counterparty issues, with the Futures position margin posting as the exchange also offers additional to adverse events.

There is however a possibility that the sequence of events does not unfold as per the above scenario i.e. the Futures price spike instead on expectations of the receipt of the DEM asset. To hedge against this one could buy protection in the form of a cheap OTM Schatz call as a hedge against the price of the Schatz future widening against the bond. Either way the short maturity cash position should benefit.

Long KfW

While clearly KfW has recently begun repricing (although not completely in synch with repricing of the remainder of the SSA asset class), unlike other SSAs, KfW retains a guarantee unlike those of other SSAs. Given the explicit and direct guarantee of the Federal Republic of Germany for KfW Bankengruppe (see [link](#)) under German law from 1948, later amended in 1969, KfW retains the full faith and credit of the German republic. According to the Anstaltslast, Germany must keep KfW in a position to pursue its obligations through allocation of funds as need be. The German banking regulator, BaFin has given it a risk weighting equivalent to that of Bunds (see [link](#)), and consequently, a long in KfW, will similarly benefit from re-denomination in DEM. We note however that KfW has a multiplicity of funding instruments and some are issued under English and New York law and would likely remain in EUR (or in ECU) and may not benefit from re-denomination. One downside to holding KfW is the illiquidity and its recent underperformance. While KfW has not underperformed nearly as much as other eurozone SSAs, its recent widening subsequent to the failed Bund auction does underscore some of the market-perception of the risk in holding this asset, and consequently, going long KfW is only recommended for those who do not have tight stops. An alternative would be to go long a German law and short a similar maturity English law KfW bond, with the hope of owning a DEM-denominated asset and being short a EUR-denominated asset.

Fig. 2: KfW offers premium to Bund



Source: Bloomberg

Buying Sovereign CDS Protection

Sovereign CDS triggers in the event of re-denomination, but not if the re-denomination of the sovereign obligation is into:

- 1) the legal tender of any Group of 7 country (or any country that becomes a member of the Group of 7 if such Group of 7 expands its membership)
- 2) the legal tender of any country which, as of the date of such change, is a member of the Organization for Economic Cooperation and Development and has local currency long-term debt rating of either AAA or higher assigned to it by Standard & Poor's, Aaa or higher assigned to it by Moody's Investors Service, or AAA or higher assigned to it by Fitch Ratings.

Group of 7 isn't defined in the ISDA documentation (and cannot expand its membership according to most definitions of "G7" and linguistic interpretations of the number "7", see e.g., [link](#)), but ultimately it would be up to the ISDA Determination Committee to decide if there was a Restructuring Credit Event and they would have to decide whether a country was a G7 country. It isn't reviewed per se, it would be looked at the relevant time the question of whether a Restructuring Credit Event had occurred was put before the ISDA DC. Similarly, OECD membership would be looked at as at the date of the restructuring by the ISDA DC as well, but presumably countries cannot be expelled.

Based on the above definitions, it is clear that Germany, France and Italy can re-denominate without triggering based on being part of G7, while Netherlands, Finland, Luxembourg, and Austria are AAA OECD countries and similarly would not trigger, although the possibility of a downgrade would leave Austria more at risk and may make payout far less certain. Meanwhile, were the eurozone to bifurcate into north-south blocs, countries re-denominating into the South bloc would not trigger CDS so long as the Southern Euro remains the legal tender of Italy. Similarly, in some extreme event of Ireland seeking to join a currency union with the UK (G7, see Niall Ferguson, [2021: the New Europe](#)), this too would not trigger CDS.

Irrespective of the vagaries of individual re-denominations the process of any exit or breakup could come with plenty of other reasons for CDS to trigger based on restructuring events, moratoria, or failures to pay and there would be relatively few countries which we would recommend paying protection. On the other hand, purely from a re-denomination vantage, it would make sense to buy protection in Spain, Portugal, Ireland, Belgium, and of course Greece.

Sell (and if possible go short) EFSF

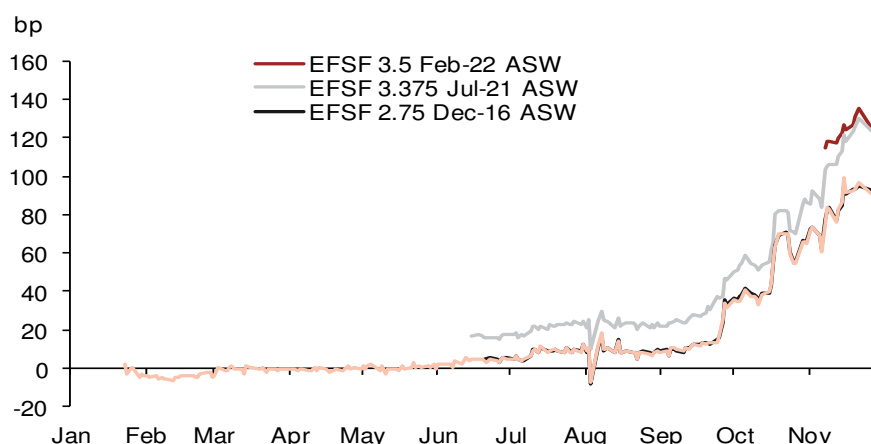
The EFSF has come under considerable pressure due to concerns over AAA guarantor countries retaining their ratings, the frequently changing mandate of the EFSF, the complexities of its structure, as well as the repricing of the entire SSA asset class. While we have previously mentioned the EFSF has a great many positives including the irrevocable nature of the English law guarantees issued by the eurozone sovereign countries, which are technically (de facto) senior to local market bonds¹ there are many reasons why this is not considered credible by the market (see e.g. [The CDO at the heart of the eurozone](#), [EFSF Revisited](#), [European Financial Stability Facility](#) where we touch on a number of concerns), and the guarantees are treated as less valuable than local market bond obligations. Certainly changing the EFSF into a CDO backed by Bunds, OATs, Nether, BTPs, SPGBs would at least give the confidence that investors would have access to pari passu obligations of the different states. But changes to the EFSF are not easily undertaken at this time.

In fact the primary concern over EFSF is the nature of the guarantees. If there was a euro, each guarantee (for a specific euro obligation) would not easily be redenominated. But, in the event of complete breakup, each guarantee could arguably be considered to be in the local currency. Presumably, DEM and NLG guarantees would be far more valuable than say ITL and ESP and

¹ The English Law guarantee is irrevocable, there is a waiver of sovereign immunity, judgment can be pursued in an English court. In effect, it has many more provisions than any local law government bond.

the complication of having guarantors approached on a pro rata basis is hard to imagine, let alone the inter-guarantor obligations documented in the Framework Agreement. Given the relative intractability of the basket of differing currency guarantees, this raises the probability of non-payment rather dramatically. While it would be a relatively easy for Germany or France to make whole their currently small obligations on outstanding EFSF bonds, should only one AAA sovereign attempt to renege on its guarantees, it could default the bonds. Meanwhile, the serious funding stresses that Italy and Spain (both guarantors), and the AAAs themselves could experience during a breakup, together with questions as to the nature of the collateral in the AAA cash-buffer make EFSF a relatively straightforward short recommendation. In fact, many clients have sought to short EFSF throughout the crisis and in many cases will go long EFSM (EU or EEC bonds) as a switch, given the fact that they are backed by the EU budget (which we note historically was ECU denominated) and joint and several obligations by EU members according to the Treaty.

Fig. 1: EFSF underperforms as crisis intensifies



Source: Bloomberg

While EFSF has underperformed during the past few months with widening of between 60-70bp in ASW, the momentum can of course be furthered given market concerns over exit or breakup. In terms of SSA space, an asset allocation from EFSF into KfW would be of particular benefit to investors concerned about euro breakup.

Conclusions

While being far from exhaustive, we present a number of trades that could benefit from a breakup in the eurozone and some that are not likely to do so. In particular, we like the long Schatz, the long Schatz on repo and the long KfW (especially for those who have longer horizons and wider stops). But other trades like the long Schatz future and the long calls on Schatz futures are unlikely to see any windfall. Similarly the short BTP futures is inadvisable due to the ease with which the exchange can impose new terms and conditions. But due to the relative preference of cash vs. futures, we like the Schatz basis trade (going long Schatz and short Schatz futures) for a more modest exposure to breakup. CDS can benefit from redenomination and we would recommend buying protection in a number of eurozone sovereigns, trades which could do particularly well in a split up, although CDS contracts can pay off due to a great many other technicalities. Finally, although in short supply, EFSF is a favored short in the ongoing eurozone crisis and although there has already been recent underperformance, any risk of a split-up is likely to further the momentum.

Disclosure Appendix A-1

ANALYST CERTIFICATIONS

We, Nick Firoozye, Guy Mandy and Artis Frankovics, 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, 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.

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 ('Nipic'), 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; Nipic, Dubai Branch ('Nipic, Dubai'); Nipic, Madrid Branch ('Nipic, Madrid') and Nipic, Italian Branch ('Nipic, 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 NHHK, which is regulated by the Hong Kong Securities and Futures Commission, for distribution in Hong Kong by NHHK. 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>