

Global Economics View

The euro area recovery starts with Cyprus

- Depositors of Cypriot banks are to be 'bailed in' in all but name, pending the passing of emergency legislation by the Cypriot parliament.
- In our view, this course of action is qualified good news for the euro area, in that it is a decisive step to restructure excessive levels of (in this case bank) debt which is necessary for the return to sustainable growth in the euro area. Future restructurings of bank debt and sovereign debt (both official sector involvement and private sector involvement) in the euro area are to follow.
- Some near-term costs are likely, as some – perhaps previously complacent – investors reassess the risks of debt restructuring of euro area banks and sovereigns, and because the agreement in Cyprus strengthens the perception that the euro area approach to reducing excessive debt in sovereigns and banks is rather ad-hoc and sometimes relatively unpredictable. We think it would have been desirable: i) for insured depositors (below €100k) to be spared, ii) for haircuts on larger deposits to be made bigger to satisfy the entire recapitalization need of the banks, and iii) for losses to reflect recapitalization needs of each bank.
- Contagion risks are overrated, in our view. The risk of bank runs in other euro area countries has clearly risen, but the unique features of the Cypriot situation should limit the 'read through' to other cases in the euro area. Even when bank runs occur, the ECB has the means to substitute for the funding lost from departed deposits.
- To make the bank and sovereign debt restructurings more orderly, a common euro area resolution mechanism and authority, and a statutory sovereign debt restructuring mechanism should be created.

Willem Buiter

+44-20-7986-5944
willem.buiter@citi.com

Ebrahim Rahbari

+44-20-7986-6522
ebrahim.rahbari@citi.com

Jürgen Michels

+44-20-7986-3294
juergen.michels@citi.com

Giada Giani

+44-20-7986-3281
giada.giani@citi.com

Guillaume Menuet

+44-20-7986-1314
guillaume.menuet@citi.com

With thanks to
Michael Saunders

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

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

The euro area recovery starts with Cyprus

**Cypriot depositors have been 'bailed in',
in all but name**

**Emergency legislation still needs to be
passed by the Cypriot parliament for
agreement to be implemented**

**If enacted, several implications follow for
the further evolution of the euro area
sovereign debt and banking crisis:**

- **private creditors are likely to
make a major contribution to
the deleveraging of excessively
indebted banks and sovereigns
in the euro area**
- **nature of creditor involvement
will vary on a case-by-case
basis**
- **governments likely will try
harder to protect sovereign
creditors than bank creditors**

On Friday night, the Eurogroup announced that depositors of Cypriot banks will be 'bailed in', even though use of the word 'bail-in' was carefully avoided in all official statements.¹ The troika programme and loan package still has to be ratified by the Cypriot parliament. Ratification is by no means assured. The ruling coalition has only 28 out of the 56 parliamentary seats, and some MPs have already stated that they would vote against. This is one reason the government has imposed a bank holiday until next Wednesday (Monday is an official holiday). The vote originally planned for today, has apparently been postponed until tomorrow. A negative vote would likely result in a disorderly sovereign and bank default in Cyprus. Although that would be devastating for Cyprus, the small size of the Cypriot economy makes it unlikely that there would be systemic repercussions for the rest of the euro area.

In our view, a number of implications for the future development of the euro area sovereign debt and banking crisis follow from the agreed course of action, once the emergency legislation has been passed. In particular, this episode highlights that creditors are likely to make a major contribution to the deleveraging of excessively indebted banks and sovereigns (as well as non-financial businesses and households in some cases) in the euro area. In the case of bank creditors, this means that both subordinated unsecured creditors and senior unsecured creditors are at risk. In exceptional circumstances, of which Cyprus is an instance, even depositors – including small and supposedly insured depositors – can be bailed in. In the case of sovereign creditors, NPV haircuts for both private sector creditors (so-called private sector involvement or PSI) and NPV haircuts for official creditors (official sector involvement or OSI) are on the cards.

Prior statements by euro area national political leaders, European Commission officials and central bankers that, after the unique and exceptional case of Greece, there would not be any further PSI and that senior unsecured bank creditors would be safe are not credible. The same politicians and officials promised after all that the Greek sovereign would not default on its debt and that, when it became apparent that such a default would in fact happen, this would not constitute a credit event. The then President of the ECB, Jean-Claude Trichet, was emphatic about the need to avoid a credit event.² The European Union Economic and Monetary Affairs Commissioner Olli Rehn even described a Greek sovereign credit event as a "Lehman Brothers catastrophe".³ Both statements turned out to be wide off the mark.

The political forces of austerity fatigue in the periphery and bail-out fatigue in the core, combined with the inexorable logic of debt sustainability dynamics make it all but inevitable in our view that further PSI and bail-ins of senior unsecured bank creditors (most likely excluding small depositors) are going to be a key part of the resolution of the euro area crisis.

¹ See http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/ecofin/136190.pdf. We have previously expected the bailing in of depositors in Cyprus and thought it desirable (the two are unfortunately not always correlated).

² "I have already said what our message for those who are in charge was, and that message was: no credit event, no selective default, no default. That is the message of the Governing Council.", Jean-Claude Trichet, "Introductory statement to the press conference (with Q&A) Frankfurt am Main, 7 July 2011, <http://www.ecb.int/press/pressconf/2011/html/is110707.en.html>

³ Euro Rallies on Trichet Endorsing "Debt Rollover" Plan for Greece, <http://au.ibtimes.com/articles/158655/20110607/euro-rallies-on-trichet-endorsing-debt-rollover-plan-for-greece.htm#.UUY6LFePdU0>

The nature and scope of this involvement of creditors depends on a variety of financial, political, and legal considerations and will probably vary on a case-by-case basis. Not all creditors are equal, however. What the Cypriot case indicates is that, in general, euro area governments will try harder to protect sovereign creditors than to protect bank creditors. That does not mean that creditors of excessively indebted sovereigns will escape unscathed, but it will make it less likely that sovereigns will be brought down by taking on the burden of bailing out insolvent banks. In the Cypriot case, further debt restructuring for bank creditors and sovereign creditors appears plausible, as the current bail-out looks unlikely to ensure the solvency of the Cypriot banks and sovereign.

It would be misleading to read the bail-in of depositors in Cyprus as a sign that policymakers in the euro area are more willing to involve depositors than other bank creditors, notably other unsecured (junior and senior) bank creditors. Bail-ins of deposits, and in particular of the uninsured portion of deposits – though in Cyprus even the insured deposit will be hit – may be on the table more generally, but the fact that they were chosen in the Cypriot case has more to do with the fact that other bank debt outstanding was too small to make a meaningful contribution, that much was issued under English law, and considerations about the ownership of some of the deposits. We expect that any future euro-area-wide or EU-wide legislation may well make depositors senior to other senior unsecured creditors.

Some deposit outflows – maybe even bank runs – are likely in other euro area countries, but contagion risks and effects are often exaggerated

The treatment of depositors in Cyprus is likely to lead to deposit outflows – probably even bank runs – in Cyprus as well as in other euro area countries where either there are both excessively indebted banks and fiscally weak sovereigns (the EA periphery) or simply excessively indebted banks (in most of the EU including the EA ‘core’). But the risk of such contagion is often overrated, in our view, as the ECB has the means to replace departed deposit funding with its own funds (for fundamentally unwarranted contagion, i.e. solvent banks). In fundamentally warranted cases (i.e. for insolvent banks), the right policy option is to recapitalise the banks as quickly as possible by bailing in senior unsecured creditors first. If necessary, we think domestic taxpayers and, eventually, euro-area taxpayers generally should contribute to the recapitalisation, if the banks are systemically important and there is not enough unsecured creditors’ debt to restore the banks to good financial health even with a full bail-in of all unsecured creditors. The alternative to bailing in bank creditors is in any case even less appealing – sovereign debt restructuring or ‘zombie banks’.

On balance, we regard bailing in depositors in Cyprus as qualified good news for the euro area

On balance, we regard bailing in depositors in Cyprus as qualified good news for the euro area. We would have preferred that insured depositors (those with deposits less than €100k) be spared, with a higher levy on larger deposits to make up the difference. Indeed, we would have preferred a sufficiently high levy on the larger deposits (and other senior unsecured creditors, mostly senior unsecured bond holders) to take care of all the likely capital needs of the Cypriot banking sector, estimated at around €10bn, rather than the €5.8bn targeted by the depositor bail-in. But in a euro area where any kind of bold initiative is a rare bird indeed, this senior bank creditor bail-in is important because it creates a precedent that we expect to be emulated many times in the next few years, despite the assertions of the troika that Cyprus is unique and the senior unsecured bank creditor bail-in will not be repeated.

The Cypriot bank creditor bail-in is a net positive for the euro area, first, because it paves the way for more extensive debt restructuring of excessively indebted banks as well as other private sector entities and sovereigns. Such accelerated debt restructuring is necessary for the euro area to return to sustainable growth soon – without risking a lost decade to follow the lost half decade since 2008. Second, the Cyprus depositors bail-in is also good news politically, as it will limit additional bail-out fatigue in EA creditor countries and avoids putting the burden of bailing out investors

to an even more unbearable extent on taxpayers and beneficiaries of public spending in debtor countries. Third, the bank creditor bail-in improves the creditworthiness of the Cypriot sovereign compared to the alternative where an additional €5.8bn worth of bank recapitalisation demands were to land on the public sector balance sheet. Other sovereigns in Europe will find their creditworthiness improved (at the same time that banks' creditworthiness is further impaired) if markets perceive a greater likelihood of unsecured bank creditor bail-ins rather than taxpayer rescues of unsecured bank creditors.⁴ However, there are also likely some near-term costs. Some of these will stem from investors correcting mistaken beliefs about how far crisis resolution had gone in the euro area. In addition, the approach taken in Cyprus is not ideal, both by applying the same losses to depositors of institutions with different capital needs and by involving insured deposits and also contrasts with previous protestations about protecting depositors. Investors may see a lack of predictability in some aspects of the approach of EA policymakers to resolve the crisis, which may, at the margin, hurt their appetite for investment, until more clarity emerges.

In our view, more bank debt and sovereign debt restructuring are needed in the EA. To make that process as speedy and orderly as possible, institutional progress is needed. In particular, national and EA/EU-wide special resolution regimes for banks should urgently be implemented, including an EA-wide bank resolution fund. To prepare for the likely future cases of sovereign restructuring, a statutory sovereign debt restructuring mechanism should also be developed. Giving the ESM the option to recapitalise banks directly would also be a welcome ingredient to making the process of restructuring the insolvent parts of the European banking sector more orderly.

Bank depositors in Cypriot banks have been bailed in

The bail-in of depositors will be achieved through a 6.75% levy on deposits of Cypriot banks of less than €100k and a 9.9% levy on deposits equal to or in excess of €100k

Friday's deal envisages the bail-in of depositors will likely be achieved through a 6.75% levy on deposits of Cypriot banks of less than €100k and a 9.9% levy on deposits equal to or in excess of €100k, although the Cypriot government is discussing different rates of 3% and 12.5%. Deposits will also receive equity in the banks as compensation. Depositors of Greek branches of Cypriot banks will not be included in the levy. The troika estimates that this levy will make a €5.8bn contribution to the programme, which otherwise would have come in at around €17.5bn (100% of Cyprus GDP). The levies are to be withdrawn from bank accounts before banks reopen on Wednesday (Monday is a bank holiday in Cyprus and an additional bank holiday has been declared on Tuesday).⁵

The bail-in of the Cypriot depositors appears to have come as a surprise to many. It is true that, since World War II, bail-ins of senior unsecured bank creditors have been few and far between in the EU, and that depositor bail-ins were viewed as quite inconceivable because of supposed contagion-triggered bank runs (which we consider below). It is worth pointing out, however, that the very existence of deposit insurance and deposit guarantees (up to a common EU limit of €100k but with nationally funded/back deposit guarantee schemes) ought to have provided a strong hint that any deposits over €100k are not guaranteed and are therefore at risk. In any case, we view the role of limited deposit insurance more as 'widows-and-orphans' protection than as a tool for preventing bank runs.

⁴ However, this does not mean that yields on sovereign debt will necessarily fall, as the risk of sovereign debt restructuring, including the risk of having to bail out insolvent, did not appear to be adequately priced in many countries in the euro area, in our view.

⁵ In addition to the Cypriot parliament passing legislation to implement the deposit levy, the full bail-out agreement will require approval by the European Council and a number of European parliaments, and, should the IMF contribute to the bail-out, by the IMF board.

Deposit haircut of deposits of less than €100k is a surprise

There are two somewhat surprising features to this depositor bail-in. The first is that deposits less than €100k in size will be haircut also. €100k is the limit of the deposit insurance scheme all EU member states are supposed to implement. Bailing in supposedly insured deposits suggests that the Cypriot deposit insurance fund may not be capable of protecting depositors up to the insured limit. It would, in our view, have been better to raise the levy on the larger deposits and to leave the smaller deposits untouched.

The second surprise is the relatively modest size of the haircut on the larger deposits (even given the bail-in of the small depositors). The €5.8bn contribution to the Cypriot banking sector and sovereign adjustment programme that the deposit bail-in is supposed to make is unlikely to cover the capital deficiency (likely to be at least €10bn) in the banks' balance sheets (more than 7 times the size of Cyprus's annual GDP and hit hard by exposure to Greek sovereign debt and Cypriot real estate). If the balance of the banks' capital needs is to be met by the Cypriot sovereign, the solvency of the sovereign would appear to be at material risk. A larger up-front contribution from depositors would probably have made more sense, as it is likely that the market will consider the new Cypriot programme to be underfunded and will anticipate a further depositor haircut in the not too distant future. The one universal lesson for minimizing the systemic damage caused by bail-ins is: if a bail-in is highly likely to be required and if the markets anticipate its future occurrence, better to do it right away. Once a future bail-in is viewed as likely by the markets, the entity to be bailed in will not be able to fund itself in the markets any longer and any sources of funding that are withdrawable on demand on a first-come-first served basis are bound to head for the exit immediately.

Deposit levy does not look like it will be deemed a credit event

It looks as though, by imposing a haircut on depositors through a tax or levy, rather than through a write-down of the face value of the deposits, the Cypriot bail-in will neither be a credit event triggering CDS on Cypriot bank debt, nor a default for the rating agencies. Whatever the lawyers may decide, economics sees through the formal labeling of events and looks at their financial and economic consequences. An X percent specific capital levy on depositors passes the 'Duck Test' for a default: the creditors take an unambiguous hit equivalent in NPV to a reduction in the face value of their deposits by X percent.

It was clear to for some time that, barring a significant injection of concessional funding from parties other than the troika, say from east of Belarus, Cyprus would have to bail-in either the creditors of its banks or its sovereign creditors or both.⁶ Because, without taking on the bad assets of the Cypriot banking sector, the Cypriot sovereign is most likely solvent, so it clearly would have made sense, from both a fairness and an efficiency perspective, to bail-in the senior unsecured creditors of the banks. However, in Cyprus, senior unsecured bond holders and other non-depositor unsecured creditors are scarce. Hence, the bail-in of the depositors.

The contagion myth

The argument most frequently made against bailing in senior unsecured creditors (SUCs) in general and depositors in particular is that it: (a) would make it difficult or even impossible for the Cypriot banks to fund themselves unsecured in the future and (b) that it would, through contagion, make it difficult or even impossible for banks in other euro area (EA) member states to fund themselves. Specifically, there would likely be deposit runs out of banks in countries with weak banks and weak sovereigns – out of the periphery of the EA, that is.

⁶ See [Euro Economics Weekly - Cyprus – Some Form of Debt Restructuring Looks Increasingly Likely](#)

We consider these contagion fears to be exaggerated as regards their likelihood, their scope and scale and their wider financial and economic significance. Most contagion warnings appear to be no more than special pleading by exposed creditors. With apologies to Dr Samuel Johnson, we view contagion warnings as the last refuge of a scoundrel.

Will there be deposit flight from the periphery and indeed from Cyprus itself, after the Cypriot depositor haircut? Probably, yes. Will it be systemically damaging? Most likely not.

Future deposit flight from Cyprus is likely, because the size of the haircuts is, in our view, unlikely to restore the Cypriot banks to solvency. Further haircuts are therefore likely. The anticipation of future haircuts causes deposits to run. If the Cypriot sovereign, following the current haircuts, were to take over the bad assets of the Cypriot banks, the banks would be in the clear, but the sovereign would be at risk of a future sovereign debt restructuring.

As regards bank runs in other EA member states, these are certainly plausible, too. After all, a taboo has been broken in Cyprus. Not only have bank SUCs been bailed in, depositors have been bailed in. This was not part of the EU 'guide to banking' except in Denmark (an EU member but not an EA member) which bailed in the SUCs and the uninsured depositors of two small banks during 2012. Even Denmark did not bail-in the insured depositors.

Whether there will be contagion beyond Cyprus, depends (a) on how many banks are viewed as vulnerable, undercapitalised or insolvent but still alive thanks to lender forbearance, regulatory forbearance and the Eurosystem's willingness to fund likely insolvent banks (directly or through national ELAs) that offer as collateral securities issued or guaranteed by most likely insolvent governments, and (b) how many likely insolvent banks in the jurisdictions of most likely solvent sovereigns are likely not to be bailed out by their sovereigns, either for financial or political reasons.

Bailing in bank SUCs will become part of normal practice for the recapitalisation of systemically important banks that are undercapitalised but don't have access to market capital

Considering these criteria, there could be contagion through deposit runs and general unwillingness of any unsecured creditors (UCs) to extend credit to banks, throughout the periphery and in the core. Haircuts on bank UCs below the senior level are already part of the policy arsenal (e.g. Ireland in 2010, Spain in 2012 and 2013, and the Netherlands in 2013). Bailing in bank SUCs will become part of normal practice for the recapitalisation of systemically important banks that are undercapitalised but don't have access to market capital, and we believe will do so soon, well before the 2018 date the European Commission appears to have in mind for this and probably even before the 2015 date that the new Eurogroup Chairman, Jeroen Dijsselbloem, has proposed.

Cyprus is unique in a number of respects, limiting the likelihood and likely scope of contagion

Few other EA countries, however, are in the Cypriot position that almost all the SUCs are depositors. None have bank balance sheets in excess of 700% of annual GDP. One also hopes that none have the reputational shadow of money laundering, tax avoidance and tax evasion hanging over them, as has been reported in the widely leaked report by the German secret service BND on the subject.⁷ There are banks in Spain and in Greece that have few SUCs other than depositors, but in most EA member states, the risk of bank creditor haircuts/bail-ins would seem to be limited to unsecured subordinated creditors and senior unsecured creditors other than depositors. Certainly insured depositors are highly likely to be kept whole everywhere outside Cyprus.

⁷ See e.g. the report in the German magazine 'Der Spiegel', <http://www.spiegel.de/international/europe/german-spy-agency-says-cyprus-bailout-would-help-russian-oligarchs-a-865291.html>

The deposit runs may also be contained because of the exceptional composition and provenance of Cypriot creditors – which gave rise to the reputational problems already referred to. Such runs, as will occur, are unlikely to be systemically significant as the ECB can provide substitute funding for the departing deposits for as long as required.

Dealing with contagion if and when it occurs

The right policy response to any threat of contagion is clear. If contagion is fundamentally warranted, that is, if the banks affected by a deposit run would be at high risk of insolvency even if they were able to fund themselves on terms that did not reflect a material risk of insolvency, the optimal policy response is to restructure the banks in question as soon as possible. This would require wiping out the existing equity and recapitalizing the banks through the bailing in of unsecured creditors, starting with the most junior ones and progressing up the seniority scale up to the point that the banks are adequately capitalised.

If contagion is not fundamentally warranted, but instead merely represents the self-fulfilling 'bad equilibrium' outcome, in which high default risk premia trigger default even though there also exists a good equilibrium outcome where low default risk premia support the absence of any material default risk, then again the right policy response is obvious: let the ECB/Eurosystem act as lender of last resort to the banks in question, supporting them until those expecting their demise, or their risk officers, run out of patience and ammunition. The ECB has the resources to play this role, as no-one can defeat a determined ECB when euro-denominated funding capacity is the issue.

The role of bank deposit insurance in preventing a run will inevitably be limited. Even if we get a mutualised European bank deposit guarantee facility (which we think is still unlikely even in the medium-term), its coverage will be limited to deposits of €100k. Anything larger and withdrawable on demand would still run if it views itself at risk. Making up through central bank funding for the funding lost through a bank run is a more sensible course of action in our view than extending the deposit guarantee to all deposits so as to prevent bank runs completely.

Why the bailing in of Cypriot depositors is qualified good news for the Eurozone

From a Eurozone-wide macroeconomic perspective, the Cypriot bank depositors' bail-in is good news, as it brings closer large-scale deleveraging through debt restructuring in the EA.

From a Eurozone-wide macroeconomic perspective, the Cypriot bank depositors' bail-in is good news, as it brings closer large-scale deleveraging through debt restructuring in the EA. Sustainable growth will not return to the EA until banks, sovereigns and, in quite a few member states, households have deleveraged materially. Deleveraging through growth is not an option in the Eurozone, as even though fiscal austerity is likely to become less frantically pro-cyclical than in the past, the minimal unavoidable fiscal and private austerity required for the restoration and maintenance of financial sustainability by sovereigns, banks and the non-financial private sector is bound to keep real GDP from catching up swiftly with potential GDP.⁸ Absent much greater immigration and widespread structural reforms, the growth rate of potential output in the euro area is also likely to be mediocre at best, probably not more than 1%pa.

⁸ See [Euro Economics Weekly - Fiscal Compact: A Structural Straight-Jacket](#)

Deleveraging through inflation, either through unanticipated inflation or through anticipated inflation with financial repression, will also fail to make an impact on excessive debt and credit in the euro area. The ECB will not, in our view, deliver inflation systematically higher than about 2% per annum on the HICP measure. This is not just because of the Treaty and the ECB's numerical interpretation of the price stability mandate, but also – and indeed principally – because for the ECB the defining moment of central banking history is different from what it is for the Fed and other Anglo-Saxon central banks. For the Fed, the defining moment of central banking history is the Great Depression of the 1930s and the way in which central banks contributed to this catastrophe through perversely restrictive monetary policies. For the ECB, in the continental European tradition, the defining moment of central banking history is the catastrophe of the Weimar hyperinflation. This represents a fundamental difference in outlook, philosophy and likely policy practice. The ECB will not produce, although it could technically do so, sufficient inflation to achieve a material deleveraging of sovereigns, banks and households. We understand the reluctance of the ECB to contemplate using the inflation tax (anticipated and/or unanticipated, with or without financial repression) to restore sustainable debt and credit positions. It is easy to understate and underestimate the economic, social and political costs of inflation after a couple of decades of low inflation.

That leaves austerity (public and private), debt mutualisation and debt restructuring as the remaining mechanisms for removing excessive leverage as the key domestic demand obstacle to growth in the EA. We believe that there will be some of all three of these during the next three to five years, with austerity and debt restructuring playing the major roles. Debt mutualisation 'through the front' door, that is, through an enhancement of the euro area fiscal facilities (e.g. the ESM) or through the issuance of E-bonds or euro bonds that make the 17 sovereigns of the euro area jointly and severally responsible for debt service is likely to be 'de minimis'. E-bonds in particular, whether to replace existing national sovereign debt or to fund (part of) future national sovereign deficits will not be part of the resolution of this crisis. At best, it will be a component of the toolkit for addressing future euro area sovereign debt crises, at least a decade into the future – most likely more.

Some mutualisation of public debt and (indirectly) of bank debt through the ECB/Eurosystem will undoubtedly take place, in our view. The ECB/Eurosystem has taken on its balance sheet around €205bn of periphery sovereign debt through the SMP (the now defunct Securities Markets Programme). It will likely take on additional sovereign debt through the OMT when countries like Ireland and Portugal (as part of their attempts to regain full access to the capital markets) or Italy and Spain (if they are at risk again of being frozen out of the capital markets) request access to its facilities. In addition, as already noted, the ECB has a significant indirect exposure to euro area sovereign debt through its loans to banks of questionable solvency that are secured against debt issued or guaranteed by periphery sovereigns. We expect that the ECB will take material losses on this exposure, although not enough to either exhaust its non-inflationary loss absorption capacity (NILAC, estimated by us to be around €3 trillion) or to prevent the need for sovereign bank debt restructuring in the periphery and bank debt restructuring throughout the euro area – core as well as periphery.⁹ We believe any attempt to push the ECB to take losses close to (let alone above) its NILAC will risk triggering a comprehensive break-up of the euro area through an exit of the hard core, which would create a greater DM zone.

⁹ Global Economics View - Looking into the Deep Pockets of the ECB*

Without recourse to debt restructuring for sovereigns in much of the periphery, of banks throughout the EA and of households in at least a few EA member states, the restoration in the EA of debt burdens to levels compatible with renewed domestic demand growth could take a decade – a lost decade.¹⁰

The first Greek sovereign default broke the taboo on sovereign debt restructuring in the euro area. Others will likely follow. We expect to see several more examples during the years to come of both OSI (NPV haircuts for official creditors of periphery sovereigns) and PSI (NPV haircuts for private creditors of periphery sovereigns). In Cyprus, the euro area is now breaking the taboo on bailing in senior unsecured creditors of banks. We expect to see many more examples of this, both in the periphery and in the core of the euro area.

Recognising that a view of the world and a strategy based on it have become untenable is the beginning of wisdom. The euro area political leadership is at last ready to put senior unsecured bank debt on the table, as a candidate for debt restructuring. This is an important step, long overdue, in the direction of a comprehensive deleveraging through debt restructuring of banks, sovereigns and, in some countries, households.

A move towards a euro area bank resolution facility and a euro area sovereign debt restructuring mechanism would be important for resolving the EA sovereign debt and banking crisis

It is important to build on this by accelerating the move towards a euro area bank resolution facility and a euro area sovereign debt restructuring mechanism. We believe the modus operandi of the euro area bank resolution mechanism should involve three steps. When a bank is insolvent, all its unsecured creditors, other than insured depositors are bailed in first. Second, if this still leaves a capital deficiency and if the bank is deemed systemically important, the national taxpayers are bailed in for 'legacy bad assets', that is, bad assets taken on while national regulatory and supervisory regimes were in effect. Third, if the resources of the national taxpayers are insufficient to fill the banks' solvency gap and these banks are systemically important, the other euro area taxpayers are bailed in through a mutualised direct bank recapitalisation scheme.

The euro area sovereign debt restructuring mechanism (SDRM) should go beyond the contractual, market-based initiatives like the CACs (collective action clauses) introduced for some, but by no means all, newly issued euro area sovereign debt since January 1, 2013. There should, in addition, be a statutory dimension to the SDRM that can enforce a swift resolution of conflicting debtor and creditor claims and that cannot be challenged in national euro area courts but only at the European Court of Justice.

Accelerated deleveraging through bail-ins of senior unsecured bank creditors of insolvent banks, sovereign creditors of insolvent sovereigns and household creditors of insolvent households is a necessary step toward removing the demand-side obstacles to sustained growth of output and employment in the euro area.

¹⁰ See Citi GPS: DEBT OF NATIONS - Mr Micawber's* Vindication: Causes & Consequences of Excessive Debt, Willem Buiter and Ebrahim Rahbari, November 2012, Citi Research

Notes

Notes

Notes

Appendix A-1

Analyst Certification

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

IMPORTANT DISCLOSURES

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

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

NON-US RESEARCH ANALYST DISCLOSURES

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

Citigroup Global Markets Ltd

Willem Buiter; Ebrahim Rahbari; Jürgen Michels; Giada Giani; Guillaume Menuet

OTHER DISCLOSURES

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

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

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

Important Disclosures for Morgan Stanley Smith Barney LLC Customers: Morgan Stanley & Co. LLC (Morgan Stanley) research reports may be available about the companies that are the subject of this Citi Research research report. Ask your Financial Advisor or use smithbarney.com to view any available Morgan Stanley research reports in addition to Citi Research research reports.

Important disclosure regarding the relationship between the companies that are the subject of this Citi Research research report and Morgan Stanley Smith Barney LLC and its affiliates are available at the Morgan Stanley Smith Barney disclosure website at www.morganstanleysmithbarney.com/researchdisclosures.

For Morgan Stanley and Citigroup Global Markets, Inc. specific disclosures, you may refer to www.morganstanley.com/researchdisclosures and https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures.

This Citi Research research report has been reviewed and approved on behalf of Morgan Stanley Smith Barney LLC. This review and approval was conducted by the same person who reviewed this research report on behalf of Citi Research. This could create a conflict of interest.

The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by.

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

information contained in the Product shall be considered as advertising the securities mentioned in this report within the territory of the Russian Federation or outside the Russian Federation. The Product does not constitute an appraisal within the meaning of the Federal Law of the Russian Federation of 29 July 1998 No. 135-FZ (as amended) On Appraisal Activities in the Russian Federation. 8-10 Gasheka Street, 125047 Moscow. The Product is made available in **Singapore** through Citigroup Global Markets Singapore Pte. Ltd. ("CGMSPL"), a capital markets services license holder, and regulated by Monetary Authority of Singapore. Please contact CGMSPL at 8 Marina View, 21st Floor Asia Square Tower 1, Singapore 018960, in respect of any matters arising from, or in connection with, the analysis of this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). The Product is made available by The Citigroup Private Bank in Singapore through Citibank, N.A., Singapore Branch, a licensed bank in Singapore that is regulated by Monetary Authority of Singapore. Please contact your Private Banker in Citibank N.A., Singapore Branch if you have any queries on or any matters arising from or in connection with this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). This report is distributed in Singapore by Citibank Singapore Ltd ("CSL") to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of this report. Please contact your Citigold/Citigold Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this report. This report is intended for recipients who are accredited investors as defined under the Securities and Futures Act (Cap. 289). Citigroup Global Markets (Pty) Ltd. is incorporated in the **Republic of South Africa** (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty) Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa. The Product is made available in **Spain** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 29 Jose Ortega Y Gasset, 4th Floor, Madrid, 28006, Spain. The Product is made available in the **Republic of China** through Citigroup Global Markets Taiwan Securities Company Ltd. ("CGMTS"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan and/or through Citibank Securities (Taiwan) Company Limited ("CSTL"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan, subject to the respective license scope of each entity and the applicable laws and regulations in the Republic of China. CGMTS and CSTL are both regulated by the Securities and Futures Bureau of the Financial Supervisory Commission of Taiwan, the Republic of China. No portion of the Product may be reproduced or quoted in the Republic of China by the press or any third parties [without the written authorization of CGMTS and CSTL]. If the Product covers securities which are not allowed to be offered or traded in the Republic of China, neither the Product nor any information contained in the Product shall be considered as advertising the securities or making recommendation of the securities in the Republic of China. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security or financial products. Any decision to purchase securities or financial products mentioned in the Product must take into account existing public information on such security or the financial products or any registered prospectus. The Product is made available in **Thailand** through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 18/F, 22/F and 29/F, 82 North Sathorn Road, Silom, Bangrak, Bangkok 10500, Thailand. The Product is made available in **Turkey** through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Buyukdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey. In the **U.A.E.**, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFS") to Professional Clients and Market Counterparties only and should not be relied upon or distributed to Retail Clients. A distribution of the different Citi Research ratings distribution, in percentage terms for Investments in each sector covered is made available on request. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties. The Product is made available in **United Kingdom** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. This material may relate to investments or services of a person outside of the UK or to other matters which are not regulated by the FSA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB. The Product is made available in **United States** by Citigroup Global Markets Inc, which is a member of FINRA and registered with the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013. Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Limited, which is regulated by Financial Services Authority.

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

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

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

The Product may have been distributed simultaneously, in multiple formats, to the Firm's worldwide institutional and retail customers. The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted.

Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant offer document for the product and consider it before making a decision as to whether to purchase the product. With the exception of our product that is made available only to Qualified Institutional Buyers (QIBs) and other product that is made available through other distribution channels only to certain categories of clients to satisfy legal or regulatory requirements, Citi Research concurrently disseminates its research via proprietary and non-proprietary electronic distribution platforms. Periodically, individual Citi Research analysts may also opt to circulate research posted on such platforms to one or more clients by email. Such email distribution is discretionary and is done only after the research has been disseminated via the aforementioned distribution channels. Citi Research simultaneously distributes product that is limited to QIBs only through email distribution.

The level and types of services provided by Citi Research analysts to clients may vary depending on various factors such as the client's individual

preferences as to the frequency and manner of receiving communications from analysts, the client's risk profile and investment focus and perspective (e.g. market-wide, sector specific, long term, short-term etc.), the size and scope of the overall client relationship with Citi and legal and regulatory constraints. Citi Research product may source data from dataCentral. dataCentral is a Citi Research proprietary database, which includes Citi estimates, data from company reports and feeds from Reuters and Datastream.

© 2013 Citigroup Global Markets Inc. Citi Research is a division of Citigroup Global Markets Inc. Citi and Citi with Arc Design are trademarks and service marks of Citigroup Inc. and its affiliates and are used and registered throughout the world. All rights reserved. Any unauthorized use, duplication, redistribution or disclosure of this report (the "Product"), including, but not limited to, redistribution of the Product by electronic mail, posting of the Product on a website or page, and/or providing to a third party a link to the Product, is prohibited by law and will result in prosecution. The information contained in the Product is intended solely for the recipient and may not be further distributed by the recipient to any third party. Where included in this report, MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, 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, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates. The Firm accepts no liability whatsoever for the actions of third parties. The Product may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Product refers to website material of the Firm, the Firm has not reviewed the linked site. Equally, except to the extent to which the Product refers to website material of the Firm, the Firm takes no responsibility for, and makes no representations or warranties whatsoever as to, the data and information contained therein. Such address or hyperlink (including addresses or hyperlinks to website material of the Firm) is provided solely for your convenience and information and the content of the linked site does not in anyway form part of this document. Accessing such website or following such link through the Product or the website of the Firm shall be at your own risk and the Firm shall have no liability arising out of, or in connection with, any such referenced website.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST
