CURVE BALLS

GLOBAL POLITICAL RISKS IN 2015 AND BEYOND

January 2015

Foreword

This report is a follow up to the Cicero/Chartered Insurance Institute report in June 2014 (Risk Returns) which looked at possible UK political risks. That report was well received, so we thought we would repeat the exercise, only looking at a wider range of global risks. Rather than try and replicate governmental or major corporate risk radars, this report selects some of the major risks by geography and focuses on the challenge they offer.

As part of our 2012 Royal Charter centenary thought leadership project 'Future Risk' we ran a series of parallel surveys, which provided some fascinating insights, across both our global membership (many of whom are in the risk business), and with selected consumers in various world markets. What was fascinating was the different perceptions and sentiment this produced towards major risks, not only because of geographical differences but also the divide between what experts saw as risks can often diverge radically from the 'wisdom' of crowds.

The public is often focused on the most obvious and looming risks but not necessarily the risks that will have most impact. So the 'curve ball' section is of particular interest as it identifies a few trends which may not be new headline risks per se but yet have the potential to have a major impact either suddenly or over an increasing passage of time.

We hope this report, like its UK predecessor, can point to some of the trends, cut through some of the fog of perception and provide debate and enlightened thinking on prominent risks as well as shine a light on new or growing risks and even try and spot a few 'unknown unknowns'.

We are grateful for Cicero producing a report which tries to source views across the globe and to paint a picture of a time of continuing major economic and political challenges and risks and how the these risks can be identified, managed and if possible, mitigated. As Einstein once said "A ship is always safe at the shore - but that is NOT what it is built for."

David Thomson, Director of Policy & Public Affairs, Chartered Insurance Institute

Introduction

This report has been written at a time when serious people are asking whether the developments of the last twelve months have made the world a riskier place. There are many reasons to support this view: the rise of ISIS out of the wreckage of Syria and Iraq; Russian expansionism on the borders of Europe; slowing Chinese growth at a time when power is shifting East; high levels of public and private debt and low growth in the West; and the devastating Ebola outbreak in West Africa. These developments make us feel uneasy and give a sense that the world could be closer to the edge than we imagine.

These developments will undoubtedly continue to shape the world in the year to come and we consider them in our report. Yet we must always be wary of falling into the trap of only thinking about risks that are immediate and familiar because we read about them in the news. Avoiding this trap was precisely the motivation behind the CII's 2012 Future Risk series (these are freely available on the CII's website). Those reports and essays considered both the immediate social and economic challenges of the financial crisis as well as less obvious but equally big questions such as the way that technology could make or break our world and the challenges of an ageing population.

In a similar spirit we have devoted a considerable part of this report to thinking about 'curve balls' – unexpected developments that could radically change society. They may not be immediate, but they are plausible and perhaps, in some cases, inevitable.

As we put this report together, one thing became clear: most game changers are being driven by engineers and scientists supported by exponential improvements in computing power and strides in artificial intelligence. But while engineers and scientists are busy rewiring society, it is politicians and officials with no scientific training who will be charged with governing the societies that will be turned upside by this technological change.

Take these scenarios:

- Living to 90 is no longer a rarity. What if medical breakthroughs could double that or more in our lifetimes? This would make our current longevity challenges seem trivial, presenting huge political, economic and social challenges.
- Are we paying sufficient attention to mitigating low probability but potentially cataclysmic events, such as asteroid impact or solar storms? It would be a brave politician who tried to make the case that it was worth investing the time and money to protect humanity from these risks.
- Researchers are making big strides in machine learning and artificial intelligence. Computers will inevitably take over increasing levels of white collar work, just as mechanisation has massively reduced the man power required for agricultural and manufacturing production. What will people do with themselves? Will we see mass unemployment, or a new era in human society?

It is often said that history repeats itself. But as Astronomer Royal Martin Rees has pointed out, we are now living on a technological time scale – one which Moore's law suggests is non-linear. This is quite different to the biological time scale of natural selection, or even the drumbeat of human development for most of history. In short, our politicians simply have not thought enough about the implications that these technological developments might have for public policy – and they should, because many are closer than we might think.

This should not give cause for pessimism. Hans Rosling's captivating lectures on trends in global data show that in general things are improving for humanity even though the public doesn't appreciate quite by how much. Rather it should be a rallying call for politicians and the public to engage with the reality that we are in the midst of remarkable change. The biggest risk is that ignorance leaves policymakers groping around in the dark for answers after the fact, when they should have the courage to think about what life on a technological timescale means now.

John Rowland, Executive Director, Cicero Group

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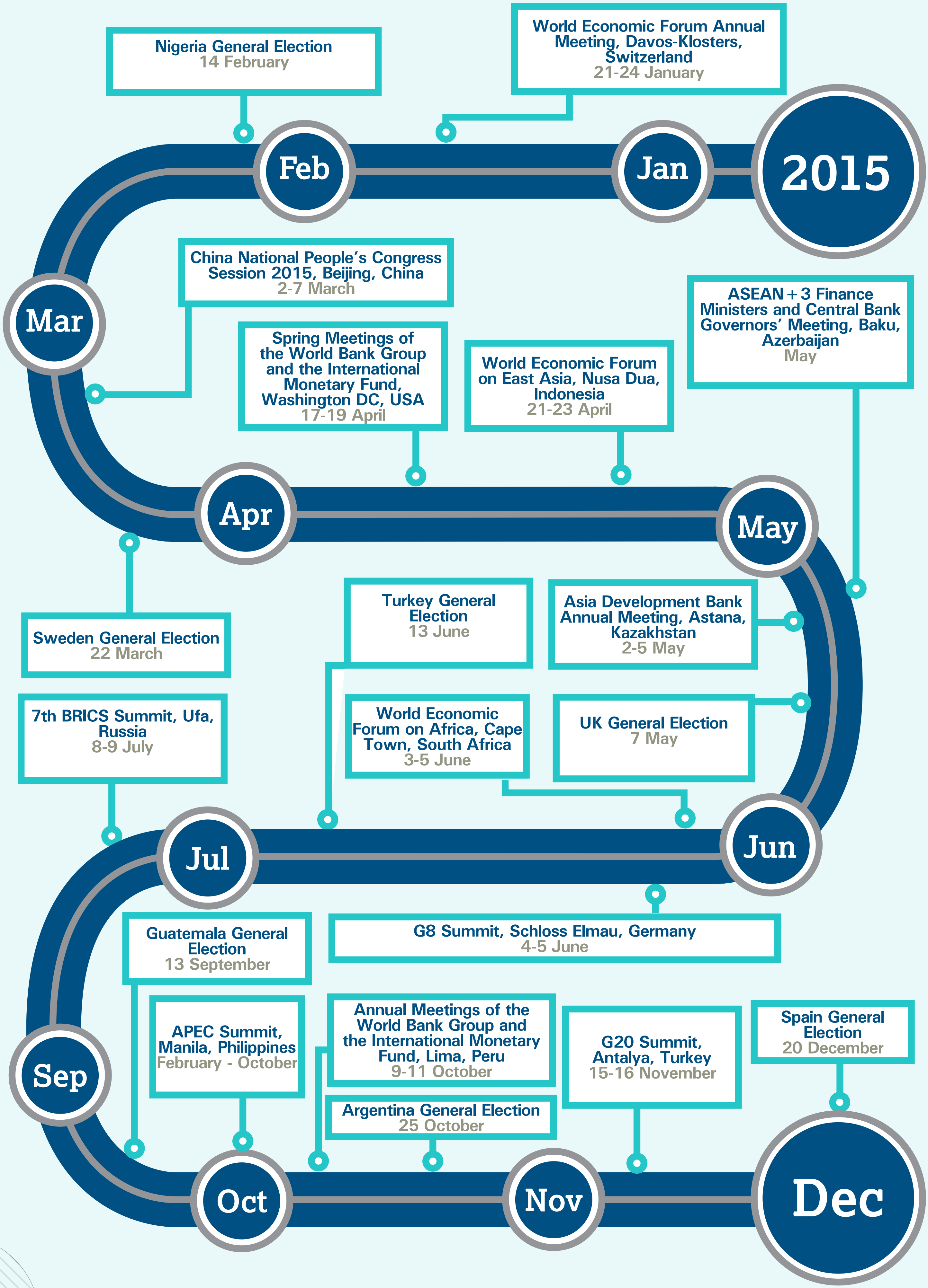
POLITICAL TIMELINE 2015



Section One: Global Risks

Russia and the West

WHERE WE ARE - CRIMEA AND PUTIN’S GREAT GAMBLE

Vladimir Putin’s dramatic annexation of Ukraine’s Crimean Peninsula in March 2014 was a wake-up call for Europe and NATO, both of which had grown used to Russian acquiescence in the face of eastward enlargement of the European Union. Pro-Russians in Crimea and the East of the country who wanted to break from pro-Europeans in the West, found ready backing from the Kremlin which equipped and financed separatist forces as well as deploying its own personnel (albeit without Russian army insignia). The message from Putin was clear: that Russia was reasserting control over what it saw as its rightful sphere of influence.

Putin correctly calculated that there was little prospect of a shooting war between East and West on the very borders of the European Union. He also calculated that European dependence on Russian gas supplies would give him some leverage. However, the crisis reached a dangerous and probably unplanned low with the downing in July of a Malaysian Airlines jet over the Donbass conflict zone. All 298 passengers and crew on board were killed. Most credible reports say that this was due to a separatist surface to air missile battery mistaking the aircraft for a military type though Russia disputes the story and blames Ukraine. It marked a moment that challenged the West to take firmer action in a situation threatening to spiral out of control.

WHAT’S NEXT - WILL THE GAMBLE PAY OFF?

If the West has not been prepared to use military power, it has been prepared to wage economic warfare with Russia through imposing sanctions on a scale unseen since the Cold War. Perhaps most significantly it has cut off Russian banks from the international financial system. While Russia has responded with sanctions of its own, by banning food imports for example, the impact is highly asymmetric. In combination with rapidly falling oil and gas prices, these sanctions have pushed the Russian economy to the edge of collapse.

But, despite economic meltdown at home, Putin – still enjoying high approval ratings - is not one to back down. He will tough it out, confident that Russia will bounce back. The question, then, is whether the US and Europe have the stomach for a protracted stand-off.

Will we see a return to the Cold War order of hostility and brinkmanship? There is some evidence of this already. Outside of Ukraine there are more instances of Russian muscle-flexing. A Russian naval flotilla was anchored close to Australian waters for the G20 Summit in Brisbane, while there has been a marked increase in the number of Russian bomber flights testing NATO air defences around the Baltic. These are statements of Russian military confidence.

The resolve of the West will be tested again; Ukraine, itself on the verge of economic collapse, says that it wants to work towards NATO membership - something which Russia bitterly opposes. Germany, a major exporter of goods to Russia, has been hurt by sanctions.

One possibility is a gradual rapprochement with Russia, perhaps brokered by Germany, in which Europe is more circumspect about its activities close to Russia’s borders, all the while hoping that Putin’s strategic ambitions are hamstrung by the vulnerability of his economy. But more likely is a continuation of Putin’s project to reassert Russia as a genuine power on the world stage even if that means he is pitted constantly against the West.

RAF Typhoon intercepts Russian SU-27 Flanker over the Baltic in June as part of NATO's ongoing Baltic air policing operation

VIEWPOINT: The Ukraine crisis represents the gravest challenge to European security since the collapse of the Iron Curtain at the end of the 1980s. The Kremlin's illegal annexation of Crimea, together with its continued support for pro-Russian separatists in eastern Ukraine, has forced the West to undertake a radical rethink about the way it does business with Russia, which is now seen by many as a country that is more likely to oppose Western interests than support them.

Con Coughlin, Defence Editior, Daily Telegraph

Cyber security

WHERE WE ARE - CYBER SECURITY ENTERS THE PUBLIC CONSCIOUSNESS

Cyber security has surely now entered the public consciousness following the late 2014 cyber-attack on Sony Pictures. In a story worthy of a Hollywood film of its own, it is alleged by the US that North Korea undertook the attack in retribution for an unreleased film which mocks North Korea's leader, Kim Jong-un. The North Koreans deny being behind it, though say they approve of its intent.

While some of the emails leaked by the attackers caused amusement, the incident shows just how vulnerable commercial, and even state organisations are to cyber-attack. Computer systems now monitor and control a range of important processes and store huge amounts private information. The dangers of terrorist organisations being able to hack into safety critical systems in nuclear power plants, air traffic control or utilities are obvious.

However, the risks from state-sponsored attacks are perhaps even more immediate, and perhaps more worrying. In November 2014, Michael Rogers, Director of the US National Security Agency (NSA), warned that China and "probably one or two" other countries have the capabilities necessary to invade and maybe even shut down US computer systems behind power utilities, aviation networks and financial companies[I].

Government officials in India and the United States have traced attacks back to China, though it is unclear whether these cyber-attacks are being conducted by individuals or the government. Chinese Foreign Ministry spokesman Hong Lei has denied any allegations, saying "The Chinese government resolutely cracks down on these activities. This reality is irrefutable." Analysts claim that the Chinese government backs cyber-attacks carried out by official, civilian, and semi-civilian groups. These often target large corporations, and lawyers with trade claims against Chinese exporters[II]. The aim, it is said, is to gain secrets giving China an economic advantage. However, China is not the only country undertaking such activities. North Korea is suspected of launching cyber-attacks on South Korean banks.

Yet it is hard to believe Western powers are not exploiting similar tactics. Edward Snowden, the former NSA contractor claims that Chinese organisations were targeted in 61,000 attacks by the US since 2009 and the Stuxnet attack on Iran's nuclear programme was suspected to be the work of the US and Israel.

"The army and people of the DPRK are fully ready to stand in confrontation with the US in all war spaces, including cyber warfare"

Statement from North Korea's National Defence Council in which it also denied being behind the attack

"Minimally talented spoiled brat"

Sony Pictures boss Amy Pascal assessment of Angelina Jolie in an email made public after a cyber-attack on the company

WHAT’S NEXT - THE DEVELOPMENT OF INTERNATIONAL NORMS FOR CYBER-WARFARE?

Cyber-attacks of varying levels of sophistication have clearly become part of the national security and espionage toolkit for governments, though naturally this is denied. Yet, there is a distinction between espionage (whether commercial or diplomatic) and overt warfare. Where does that boundary lie? At the time of writing, the US was considering placing North Korea on the list of state sponsors of terrorism for the Sony attack. And what is a proportionate response to a cyber-attack? For some time now, security experts have called for a Geneva Convention for cyber activities to try to put a legal framework in place to regulate this rapidly developing frontier of inter-state conflict.

What makes this particularly complex is that cyber-attacks enable governments to inflict damage on enemies without the accompanying loss of life that war brings. That is not to say a cyber-conflict would be bloodless; both military personnel and civilians could die, depending on the systems targeted. The disruption caused by an attack on financial systems could lead indirectly to physical harm as well as financial harm.
The conversation around cyber-attacks is not one that governments and policymakers can have honestly and in the open. As a result, a reasonable compromise seems unlikely. Cyber-attacks will become increasingly common, while governments and industry will have to respond by increasing security. This will be an expensive adjustment but it will be driven by necessity. We may even be seeing the first public signs of a cyber-arms race.

Oil – a dominant economic theme for 2015?

WHERE WE ARE – TOUGH TIMES ON THE OIL PATCH?

A major theme of our political risk analysis over recent years has been the seismic shift in energy production and consumption patterns. On the demand side, the rapid growth of the Chinese economy has been dominant. On the supply side, the importance of the transition of the United States to net energy producer through the adoption of hydraulic fracturing and shale extraction is hard to overstate.

The boom in unconventional oil production has been a fillip for the US at a time of slow economic growth. It has also made the US far less reliant on others to provide it energy, insulating the US economy and indeed the rest of the world from disruptions to supply caused by sanctions (e.g. Iran) and conflict (e.g. Libya).

> *“Since 2008— when fear of ‘peak oil’, after which global output would supposedly decline, was the dominant motif — U.S. oil production has risen 80%, to nine million barrels daily. The U.S. increase alone is greater than the output of every OPEC country except Saudi Arabia.”*
>
> **Daniel Yergin, energy commentator and vice chairman of IHS**

Nevertheless, the trend since the nadir of the financial crisis has been a return to $100 oil, driving the cost of petroleum products such as petrol, diesel, aviation fuel, bunker oil and plastics upward. This of course has hugely benefited producers of energy, but hurts global economic growth overall.

Every major geopolitical and economic factor finds its way into the oil price, so the precipitous fall of oil prices at the end of 2014 prompts many questions for the year ahead.

WHAT'S NEXT – BLIP OR PARADIGM SHIFT?

Prices of commodities will always fluctuate but the last time they fell like this was in the depths of the financial crisis in 2009, by any measure a moment of major economic stress. The WTI benchmark price has nearly halved since July 2014, to just over $50 per barrel at the time of going to press. That is significant, and the key question is whether this is a short term blip or represents a paradigm shift in the pricing of crude.
US oil magnate T Boone Pickens is confident that prices will return to $100 in the next eighteen months as supply adjusts to match demand. There is strife in many major energy producing countries. In other words, normal service will be resumed.

However, others looking at the same data draw entirely different conclusions. They argue OPEC's decision not to cut production at the end of November marks a major shift towards protecting market share from new supply, rather than the traditional motive of holding up prices. This will no-doubt cause some insolvencies and consolidation at the higher-cost end of the US energy sector. But the pain of low oil prices is really felt by countries heavily dependent on revenues from energy exports – such as Russia, Venezuela (and an independent Scotland) or developing countries that are seeking foreign investment to unlock reserves as exploration and extraction is cut back.

Those with an eye on the environment will be hoping that oil returns to higher prices. While more stringent environmental regulation and greener technology should help rein in consumption in any case, they worry that the commercial imperative to reduce energy costs in energy intensive sectors is severely weakened by $50 oil.
Yet for the pocketbooks – if not the lungs – of energy consumers, cheap oil is a good thing. China and Japan (heavily reliant on imports) and their mighty industrial sectors benefit from a low oil price. European consumers who pay more for energy than Americans will enjoy some respite too. They could do with it.

Photographer: Steven Straiton, March 2004

Drilling rig in the North Sea. Exploration and investment in extraction will likely be curtailed in 2015.

Section Two: Regional Risks

Where next for the European Union?

Part 1: Integration and division

WHERE WE ARE - THE EUROZONE AND THE REMORSELESS LOGIC OF INTEGRATION

The UK's Chancellor, George Osborne, spoke in the summer of 2011 of the 'remorseless logic of Eurozone integration' created by the abject failure of existing European institutions and structures to deal with raging sovereign debt crises. It was clear that the only way for the bloc to survive was to centralise control and supervision of its fiscal and financial system which would inevitably lead to closer political integration at the same time.

This process, with Germany at the helm, is changing Europe indelibly. The first major reform is the strengthening of the European Commission's influence over Eurozone fiscal policy. The Stability and Growth Pact has been toughened since the crisis and the 'Two Pack' reform, introduced in May 2013, requires Eurozone States to submit their draft Budget to the European Commission for approval before it is presented to national parliaments. This is not a simple procedural change, rather it marks a serious change in the constitutional balance of power.

A second and equally significant reform since the crisis is the establishment of the European Banking Union. Devised during the most intense phase of the crisis, the Banking Union is designed to reduce the risk that large bank failures will drag governments under with them. In November 2014 the European Central Bank took over the supervision of banks in scope and a central fund will eventually cover the cost of a bank resolution. Like the reforms to economic governance, the Banking Union represents a significant transfer of responsibility from national governments to a central body.

WHAT'S NEXT - INSTITUTIONAL CONSOLIDATION, POLITICAL FRAGMENTATION?

Once fully implemented, these reforms will represent an important consolidation of powers within the Eurozone. However, they have been introduced in a period of political and economic uncertainty, meaning that the integrationist course taken by the Eurozone is both at odds with a growing proportion of public opinion and the views of an outer group of Member States. Paradoxically, it could be the very measures that have been introduced to hold the Eurozone together that could be creating the conditions for a crisis of political legitimacy in the EU.

> *"Maul zu, Frau Merkel. Frankreich ist frei" — "Shut your trap, Ms Merkel. France is free."*
>
> **Jean-Luc Mélenchon, former French presidential candidate tells Mrs Merkel what he thinks about her economic advice for France**

First, the crisis has clearly moved the political centre of gravity in the EU towards Berlin. The growing power of Germany, with no significant counterweight amongst Member States, contrasts with the status-quo ante of the Franco-German alliance at the heart of the EU. Will France tire of playing second fiddle to Germany? And will other countries grow to resent being lectured by Germany about fiscal rectitude? This is already the case in Greece.

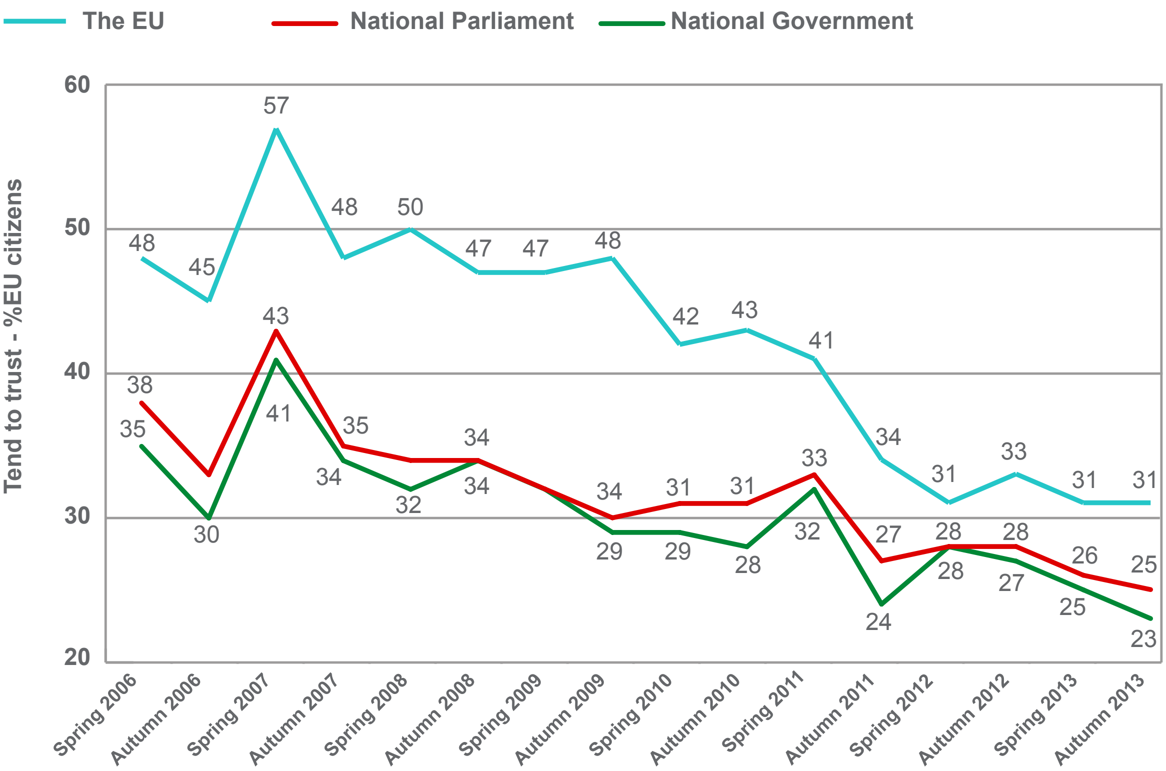
Second, the gap between the core Eurozone countries, and the rest of the EU has widened, creating fresh tensions in the EU. The clearest example here is the UK, which is looking for ways to weaken the influence of Brussels over matters such as immigration and even flirts with leaving the EU entirely. The EU would clearly survive 'Brexit', but it would be damaging if one of the largest and most globally influential members left the club.

Third, the reform process has been accompanied by a rise in populist anti-immigration and anti-EU sentiment. Record numbers of voters elected populist parties at the European elections in May 2014, while national polls have shown a growing dissatisfaction with the EU. The most recent Eurobarometer survey showed that those saying they trust the EU has declined to 31 per cent in September 2014 from a high of 57 per cent in September 2007. In Greece, after winning the European elections, the left wing Syriza is leading the polls ahead of a snap election on 25th January 2015. Their anti-austerity platform could lead to a default on Greek debts, followed by an exit from the Eurozone. Both the Front National and UK Independence Party won their respective European Parliament elections in France and the UK.

The growing strength of populist sentiment means that Eurozone integration will continue to be an uneasy process. A change to the EU treaty that could cement some of the temporary changes enacted during the crisis - such as the creation of a common resolution fund through an international treaty rather than EU legislation – will not be possible in the short term. A number of countries would have to put any new treaty to a referendum, where it would almost certainly be rejected.

While the risk of the disintegration of the Eurozone has thus far been averted, a fractured and uncertain EU has emerged from the crisis. Power and decision making has been consolidated within the Eurozone but out of necessity rather than the demands of its people. The contrast between the shift of economic control away from national governments and the growing unease among domestic populations in the periphery is stark. With a Greek exit once again a possibility, the effectiveness of reforms will be tested. If Greece goes, will there be others?

Trust in institutions within member states **Source: European Commission**



Where next for the European Union?

Part 2: The dash for legitimacy

WHERE WE ARE - EUROPEAN PARLIAMENT DOES NOT COMMAND SERIOUS PUBLIC INTEREST, DESPITE EVER GREATER POWERS

The financial crisis and subsequent rise in support for populist parties across the EU has amplified calls for a fundamental change in how the EU operates. Calls for change have been varied and are a reflection of the different challenges that have emerged since the crisis. The imposition of economic reforms on national governments highlighted a democratic deficit in EU decision making, Greece being a notable example. The need to stimulate growth has led to a renewed focus on the structure of the European institutions and the EU regulatory agenda.

The role of the European Parliament and structure of the European Commission has been a dominant theme at the start of the next five year mandate. The question is whether changes to how the EU institutions operate will be sufficient to meet the demands of Member States and national electorates.

There has long been a concern that the European Parliament has not succeeded in providing the European Union with true democratic legitimacy. The German constitutional court stated in 2009 that the European Parliament does not give the EU democratic legitimacy since its citizens are not represented evenly and it does not hold governments to account in the same manner as a national parliament.

The traditional response in European policymaking has been to give the EP more power. The Lisbon Treaty of 2009 ensured that the European Parliament has equal power to the Council of Ministers in most areas of legislation. A further innovation in the Lisbon Treaty was the role it gave the EP in selecting the next President of the European Commission. While the wording in the Treaty was ambiguous, the Parliament was able to assert the right to select the candidate. The Parliament argued that the process allowed European voters to connect with a particular candidate during the elections, thus bringing them closer to the European process.

The Parliament's claim has not been supported by election turnout, which was fractionally lower than in 2009 (though turnout fell less sharply than in the past) or by name recognition of the winning candidate with a poll conducted at the time showing that only 8 per cent of voters could name Jean-Claude Juncker as the EPP's candidate for President of the Commission. However, it has shifted the balance of power between the European institutions. For the first time, the Commission President was directly appointed by the Parliament rather than by the Council. This could result in the Commission tilting towards the Parliament rather than the Council when setting the policy agenda.

WHAT'S NEXT - EUROPEAN COMMISSION TRIES TO UP ITS GAME?

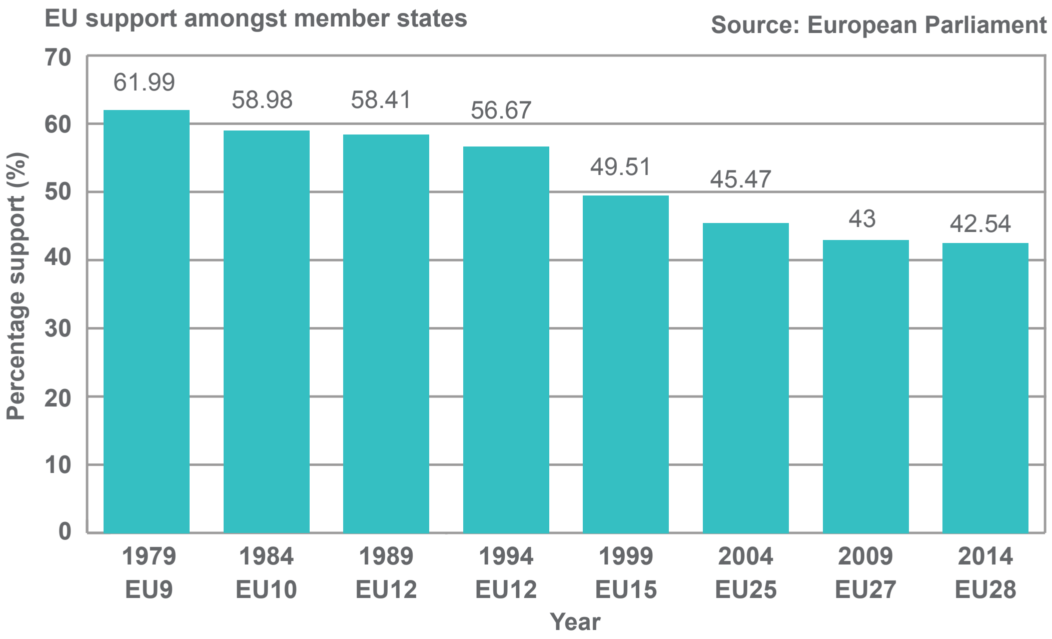
For its part, the Commission has undergone a structural change that is designed to make it a more efficient body. Incoming President Jean-Claude Juncker has set up a tiered system that gives coordinating policy roles to seven Vice Presidents. The Vice Presidents will oversee teams of Commissioners who will each be responsible for the work programmes of individual directorates. The new structure is designed to focus on broader policy goals and break down silos that can exist between different teams; for example a Commission ambition to encourage institutional investors to play a greater role in providing long term finance was made difficult by a separate Commission rule that deterred insurers from holding long term assets. The new Vice Presidents will be tasked with reviewing new legislative proposals to decide if they fit with broader objectives and in theory, would identify potential sources of conflict.

Vice Presidents will also have to give their approval to each new legislative proposal before it can be put on the Commission work programme. In particular, the Vice Presidents will assess each new proposal for whether it meets the subsidiarity and proportionality test as EU over-reach is a common complaint of national governments.

President Juncker has also appointed a First Vice President, former Dutch Foreign Minister Frans Timmermans, who will have the power of final approval for all new legislative proposals. He will also take on a number of responsibilities that seek to make the EU more responsive to the demands of Member States. This includes producing a report on the better regulation agenda as well as proposals on how to increase the role of national Parliaments in EU decision making.

On paper, the new structure of the Commission is a significant development. It has the potential to become more supple and responsive – only acting where it is needed. However, as is often the case, it will take time to see how the reforms operate in practice. The previous Commission under President Barroso took better regulation seriously and claimed to have reduced the administrative burden for businesses by 26 per cent, bringing savings of €32 billion a year, but few are applauding. Similarly, rather than connect European voters to elections, the direct election of the President of the Commission by the Parliament is interpreted by some to have been a clever power grab by the Parliament.

The European institutions are changing but the important question is whether these changes are noticed outside of the Brussels bubble. It will take some time before we know the answer.



VIEWPOINT: People across the continent are warming up to the idea of decentralising powers and preventing overreach. There certainly are populists, both on the right and on the left, who are keen to throw out the baby with the bath water, but the consensus in almost every single EU member state is shifting clearly to the idea that the good aspects of the EU (the right to travel, do business and trade cross-border) can be perfectly maintained while cutting overreaching EU bureaucracy, overregulation and spending programmes. On the other hand, policy in the Eurozone is drifting the other way, driven by the logic of the decision to establish a common currency. This is leading to a dangerous disconnect between policy and what people want.

Germans and Dutch are hostile towards transfers of capital; the periphery dislikes the interventions from outside. Politicians must face up to this challenge and try to design ways to bridge the gap. If they conclude it isn't possible to do this, they must prepare for all scenarios, even a Eurozone break-up, which the Netherlands has already admitted to doing. It's the only way to prevent the possibility that a Eurozone break-up would endanger the achievements of the European Union

Pieter Cleppe, Head, Brussels office, Open Europe

North America

North American Debt

WHERE WE ARE - POST-CRISIS DEBT IS STILL HIGH AND GROWING AGAIN

At their heart, all financial crises come down to the ability of debtors to meet their obligations to creditors. The subprime mortgage crisis illustrated this very starkly. One would hope we have learnt from history's follies. However, economic data shows North America is still struggling to shake off its taste for debt.

The United States

Household debt is once again on the rise in the US after peaking in Q3 2008, according to the New York Fed[III]. Mortgages now represent a smaller proportion of household debt, and are at their lowest levels since 2000. However, as the pressures from housing related costs subside, they are being replaced by other types of debts. Student debt and auto-loans in particular are increasing risks for households in America.

Car sales are booming and private equity investors are pushing to cash in on greater loan issuance but there are fears that the quality of auto-loan credit is deteriorating as an increasing portion are of the subprime category with debtors more likely to default[IV]. Fortunately, delinquency rates on auto-loans have not increased, and have declined since 2012. While the risks from these lower quality loans have not yet manifested, the future is less promising.

On the other hand, student loan delinquency is far higher than any other type of debt. By mid-2014 the share of student loans 90 days delinquent or more reached 10.9 per cent. Given that the volume of student loans in the United States ($1.12 trillion) outweighs the rest of the world combined, this is a significant concern.

There are other risks associated with student loan delinquency. Young debtors are likely to delay major purchases due to large loan payments and impacts will be felt throughout the economy, particularly in the housing and auto markets.

It's not just households who may have taken on too much debt again. The collapse of the oil price has stoked fears that many of the smaller US oil producers who had raised billions of dollars through bond issuance may default.

Canada

In Canada rising mortgage loans and a housing bubble are key risks. Household debt in Canada more than doubled between 1990 and 2013 to reach a record of 164 per cent. The Bank of Canada notes that residential mortgage credit and secured lines of credit were key drivers of this shift, spurred on by low interest rates and loosening credit restrictions[V].

There is increasing concern that the Canadian housing market is forming a bubble. *The Economist* published data in August 2014 indicating that housing prices are 25 per cent or more overvalued; a situation unnervingly similar to the US prior to the financial crisis[VI]. As total residential investment in Canada amounts to 7 per cent of GDP, the housing market is sufficiently large to wreak havoc on the overall economy if a spillover were to occur from a downturn.

To its credit, the government has already responded with macroprudential measures to cool the housing market and credit growth. The OECD believes that the probability of a major correction occurring in the housing market is still low - largely due to the high quality of mortgages and prudential tightening[vII]. Nonetheless, major urban areas are still seeing house prices continuing to climb.

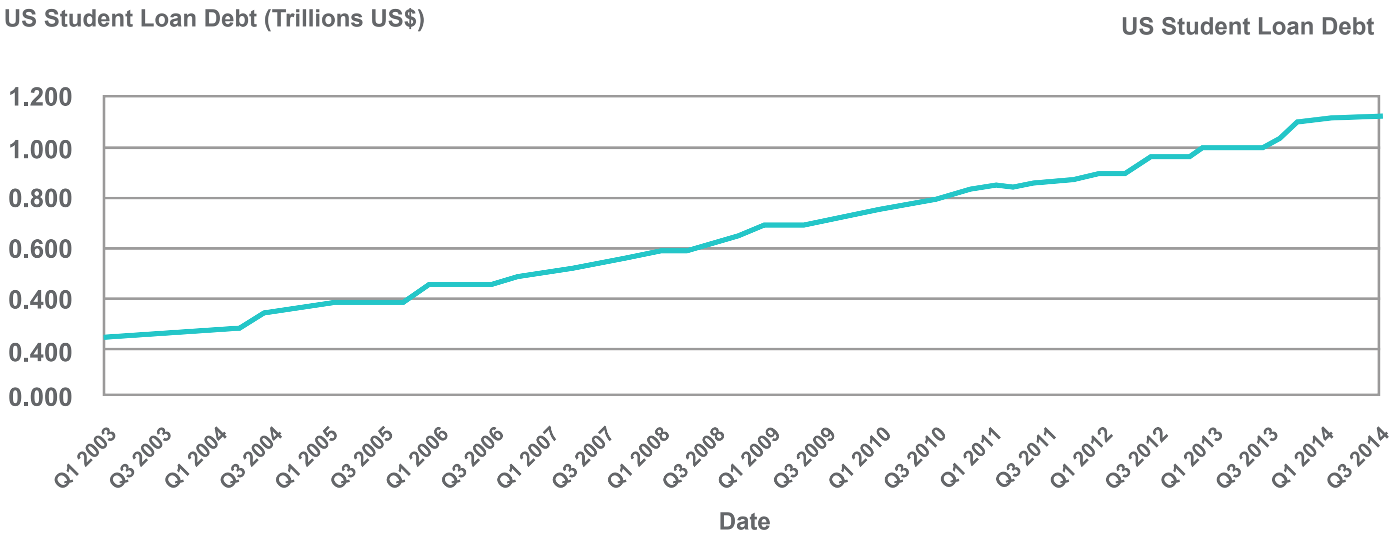
WHAT'S NEXT - DE JA VU ALL OVER AGAIN?

It appears now that the worst of the financial crisis has passed, Americans and Canadians are displaying alarming signs of amnesia. If all else stays constant, the near future may be painless. However, if interest rates rise sharply, or geopolitical tensions abroad lead to a slowdown at home it is difficult to tell whether US households or even the corporate sector will prove much more resilient than they were last time around.

VIEWPOINT: There is close to $1 trillion in outstanding student loan debt in the US, and recently delinquency rates on this debt have increased. The increase is likely driven partly by the rising popularity of for-profit colleges, where students often rely heavily on loans and have low graduation rates, and partly because new college graduates are finding it more difficult to find full-time employment. To the extent that these and other factors continue to increasing the delinquency rates, they could provide yet another shock to the U.S. government and its taxpayers.

As households take on increasingly higher mortgage payments, they tend to be less able to deal with short term shocks to their expenditure or income. This can lead to greater delinquency and default rates among homeowners.

Christopher Cotton, Jarislowsky-Deutsch Chair of Economic and Financial Policy, Department of Economics, Queen's University



After Quantitative Easing

WHERE WE ARE - FED HAS ENDED QE, BUT WE ARE A LONG WAY FROM NORMALITY

With the US Federal Reserve ending its great experiment of Quantitative Easing (QE), the question now is whether the US economy can support itself in the coming years. Certainly, recent economic indicators point to a modest US recovery but challenges still lie ahead and the legacy of the Fed's unconventional monetary policies remain uncertain.

The Fed has retained its stance that forward guidance over rate increases is dependent on economic indicators and is not pegged to a calendar date. Still, most investors and market participants expect the Fed to raise interest rates by mid-2015 - but could it come later? Although a majority of the participants of the Federal Open Markets Committee (FOMC) forecast a normalisation in monetary policy by 2015, there is significant variation as to how much rates should be raised; from as low as no change to as high as 2.7 per cent[VIII].

The timing remains very important. Federal Reserve Bank of Philadelphia President Charles Plosser cautions that "waiting too long to begin raising rates … is risky because doing so could put monetary policy behind the curve."[IX] An abrupt change in rates could create increased financial volatility and weaken the financial system. If the Fed started raising rates earlier than expected, it would put at risk financial stabilisation in emerging markets, which have benefited from capital inflows as investors looked for higher returns. However, some say a rate change could benefit emerging markets if the Fed goes about it properly.[X]

WHAT'S NEXT - THE FED'S AMAZING SHRINKING BALANCE SHEET?

Recent job numbers have indicated that labour market conditions are improving faster than the Fed anticipated, but that doesn't mean the economy is out of the woods yet. Although diminishing, there is still some slack in the labour market, and inflation is still under the Fed's 2 per cent target. Economic growth can also be inhibited by the slowdown in Europe and other global markets by as much as 0.2 per cent.[XI]

Because of the novelty and scale of the Fed's unconventional monetary policy, it remains uncertain what its legacy will be. Three rounds of quantitative easing have increased the Fed's balance sheet from $800bn in the Autumn of 2008 to over $4.4trn as of July 2014. With the asset purchases over, the question now is: when and how will the Fed shrink its balance sheet? And will it raise interest rates before this happens? Chairwoman Janet Yellen said the Fed will "have a very large balance sheet for some time" and "is confident it has the tools it needs to raise short-term interest rates."[XII]

Other risks with increased interest rates include increased volatility in US financial markets as yields will eventually rise and equity values decrease. The market could enter a correction phase. But with rates having been low for so long, what will the long term effects be? Could it be possible that Fed policies have affected investors' expectations of forward rates, preventing long term yields from rising to their supposed corrected levels?

In the medium and long term, the status of fiscal policy remains a key risk. Although the fiscal deficit has decreased dramatically over the past few years, public spending may still be unsustainable over the long-term with the biggest drivers being healthcare and social security. Creating a balanced fiscal plan to gradually lower public debt should be a top policy priority.

Latin America

The economic health of Latin America

WHERE WE ARE - ECONOMIC CLOUDS ON THE HORIZON

The Argentinean debt crisis in the summer of 2014 may have prompted some to question the economic state of Latin America more widely. The Latin American and Caribbean region has a track record of sovereign defaults with ten debt defaults over the past twenty years, so it is perhaps not a baseless assumption to make. However, Latin American external debt has decreased dramatically over the past decade, for some countries by over 50 per cent. Overall, gross government debt as a percent of GDP has decreased from 60 per cent in 2003 to 50 per cent in 2013 and external debt has decreased from 42 per cent to 25 per cent, respectively[XIII]. This is a good news story for the economies of Latin America.

However, while the debt picture is fairly sanguine, watchers of Latin America are keenly aware that the region is sensitive to declining commodity prices and the prospect of US interest rate hikes. Both of these factors are now in play and the economic environment in Latin America has become sluggish as a result. The IMF projects 2014 growth at a tepid 1.3 per cent, the second lowest growth rate in 12 years[XIV].

WHAT'S NEXT - THOSE WHO FIXED THE ROOF WHILE THE SUN SHONE…

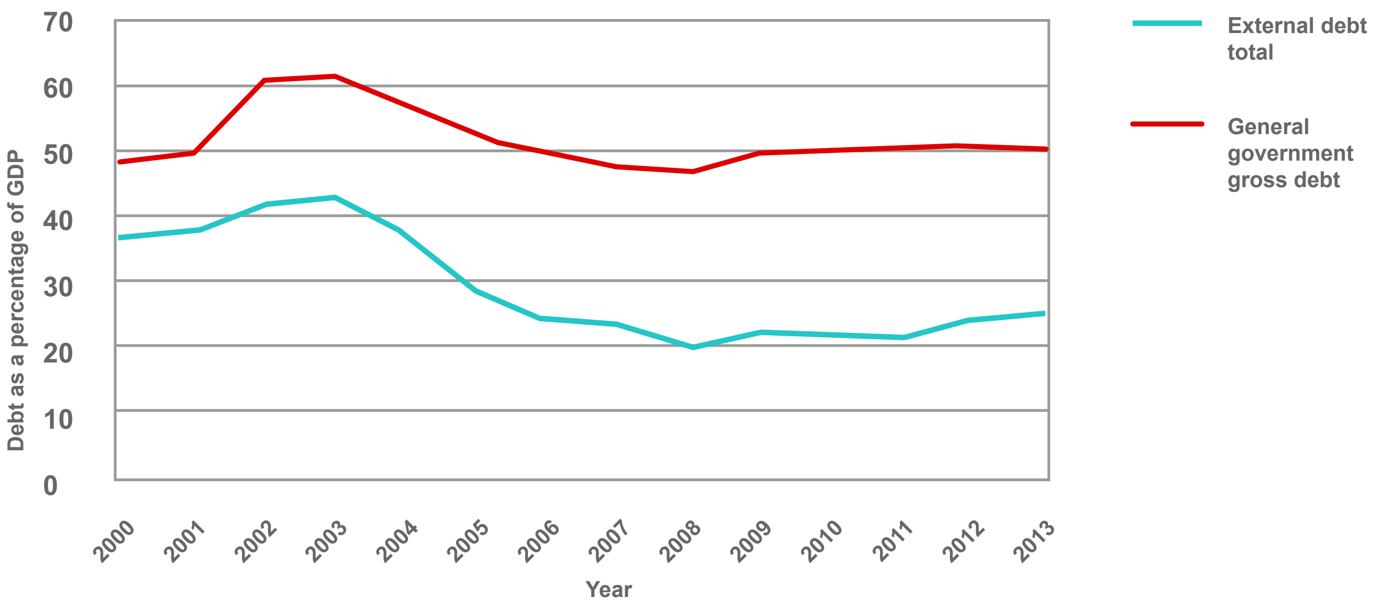
The economic outlook for Latin America is still largely determined by global commodity prices. From soya to copper, the region's major export market is China. The Chinese slowdown, allied to a major increase in global supply of commodities such as iron ore and crude oil will continue to hurt for some time.

The Fed's termination of QE may also pose risks for the region. Although Latin American countries have greatly reduced their public debt denominated in US dollars, the corporate sector has borrowed significant amounts in US dollars as foreign capital entered in search of high-yield opportunities. If the Fed raises rates earlier or more sharply than expected, this could cause capital outflows from Latin America and currency devaluations. Fortunately, some of this risk is mitigated as firms have mostly issued long-term bonds and short-term issuances have been relatively modest[XV].

A rebound in commodity prices, or a relatively benign reaction to US interest rate rises by investors will help. However, in the longer term the main answer is for Latin American countries to reform their economies to increase productivity, flexibility and diversification. Those countries, such as Chile, who started carrying out reforms during better times will weather the storm better. Others, such as Brazil, Argentina and Venezuela may find they get wet.

Total Latin American Debt as a Percentage of GDP

Source: Bloomberg



VIEWPOINT: Although the region as a whole, with the notable exception of a few countries, has achieved low inflation, fiscal discipline and financial stability, assisted by the commodity super-cycle over the last decade or so, the key challenges now, in the face of global economic headwinds, are to invest more in structural reform of education and human capital in particular, as well as infrastructure and innovation, in order to lift productivity and diversify economies. In addition trade integration requires greater impetus considering that intra-regional trade is only 19 per cent as compared with 40 per cent in Asia-Pacific and 60 per cent in Europe. Reformist economies will be increasingly differentiated from others in these new tougher conditions.

Robert Capurro, CEO, Canning House

Brazil – where next for Latin America's largest economy?

WHERE WE ARE - DILMA WINS AGAIN. JUST.

In October 2014, Dilma Rouseff, Leader of the Workers Party (PT), secured her second term in Brazil's top job. She beat her centre-right opponent, Aecio Neves of the Brazilian Social Democratic Party (PDSB), by only three points - the narrowest margin in the country's electoral history. By the time Rouseff completes her second term, the PT will have led Brazil for 16 years.

The party's tenure has to date been divisive. The blight of low economic growth and rising inflation were the Achilles heel of Rouseff's campaign, costing her the middle class vote in the central and southern states. Last year, this rarely mobilised group even took to the streets in a highly publicised protest against living conditions and public services.

While the PT's social development track record allowed them to inch past the finish line, this will no longer be enough to survive another national election. More Brazilians are now looking for a business-friendly leadership. Markets are calling for the same. Upon Rouseff's reelection, the Brazillian real plummeted and the Bovespa index closed 2.7 per cent lower that day[XVI].

WHAT'S NEXT - DILMA NEEDS TO UP HER ECONOMIC GAME

In a speech following her victory, Rouseff said that she plans to be a better president in her second term than in her first, though there are doubts as to whether she will have the support to make the tough reforms necessary to reform the Brazilian economy.

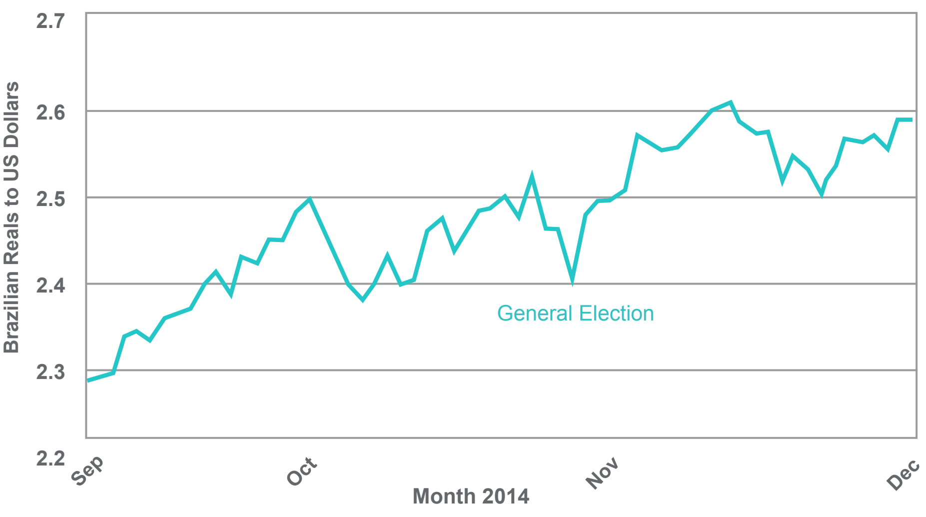
However, Dilma is nothing if not a fighter. The first female president of Brazil, in her youth Rouseff was part of the urban guerilla resistance against the military government where she underwent capture and even torture. Nonetheless, her change in mindset since the election suggests Rouseff may be willing to do what it takes to get the economy back on track, even if it means compromise.

Several important steps were taken in the final months of Rouseff's first term. The central bank increased interest rates in an effort to curb inflation and the state-run oil firm, Petrobras, raised artificially low gasoline and diesel prices. The finance minister, Guido Mantega - widely criticised for his role in Brazil's downturn - has recommended curbing lending by the state development bank, whose off-budget stimulus undermines fiscal and monetary policy[XVII].

Mantega has been replaced by Joaquim Levy, a former treasury secretary and IMF staffer - perhaps the most salient message that Rouseff can send to investors. Levy is expected to bring some maturity to Rouseff's administration and anticipation of his appointment resulted in the real climbing 1.1 percent against the US dollar[XVIII].

However, picking up where Mantega has left off will be no easy task and Levy's appointment has been divisive within the PT. The test of Levy's true colours will come in situations where he is pitted against Rouseff and the leadership's hard-line leftists[XIX]. Where Mantega once towed the line, Levy may push back. His struggle for autonomy could determine Brazil's path to recovery over the next four years.

Brazilian Currency Fluctuation Around General Election **Source: Bloomberg**



VIEWPOINT: The main challenge for Brazil is whether the new finance minister, Joaquím Levy, will be given sufficient autonomy by President Dilma Rousseff to implement the necessary cuts to public spending and fiscal responsibility needed to balance the economy and restore growth. The eventual equilibrium between "Scissorhands" Levy and serial meddler Rousseff; between pragmatism and dogma; and between macroeconomic rigour and full employment, wage increases and popular welfare programmes will determine the success of efforts to control inflation and return the economy to growth. The situation is further complicated by Brazil's largest ever scandal, involving Petrobras and a number of the country's leading construction firms, which could severely impede vital infrastructure projects if the firms are blacklisted from state contracts and is made all the more difficult by the collapse in the oil price to levels that may threaten Petrobras' ability to exploit is huge but expensive 'pre-salt' offshore reserves.

Robert Capurro, CEO, Canning House

Middle East

Islamic State of Iraq & the Levant (ISIS)

WHERE WE ARE - THE EMERGENCE OF A UNIQUE TERRORIST GROUP

The rapid rise of the Islamic State in Iraq and the Levant (ISIS) surprised many. However, the group's origin is older than immediately apparent. The modern ISIS brand was borne of the Syrian civil war, officially adopting its current name under the leadership of Abu Bakr al-Baghdadi in early 2013. However prior to this, the group was known as Al Qaeda in Iraq, or AQI, and led by the well-recognised Al Qaeda leader Abu Musab al-Zarqawi.

Despite this origin, Western leaders and the intelligence community were caught off guard when ISIS - seemingly just one of many Islamist factions of the Syrian rebel force, including al-Nusra Front and Islamic Front - suddenly turned its attention away from Syrian President Assad's regime and invaded Iraq's Western regions in June 2014 with great ease.

ISIS' ability to steamroller through the Western tribal regions of Iraq would not have been possible without the widespread support of Sunni tribal leaders and militias. Distracted by the Syrian civil war, the West had not appreciated the degree of power consolidation and marginalisation of non-Shia groups by Iraqi Prime Minister Nouri al-Maliki, a Shiite, in recent years. ISIS, a Sunni-majority group relying on old ties forged in the Iraqi insurgency of the early 2000s, capitalised on discontent within Sunni tribes, playing the role of liberators. Sunni militias were quick to either pledge allegiance to the group or simply attack Iraqi government troops and gift the spoils to ISIS, adding to the foreign perception of a blitzkrieg.

ISIS is distinct from any comparable terrorist or militant group in the post-9/11 era for two reasons: their PR machine and territorial control.

PR/Media machine

ISIS' use of PR, social and traditional media is one of the group's most defining aspects. Above and beyond any propaganda machine utilised by rebel groups from Ukraine to Colombia, the ISIS machine is effective, adaptive and innovative.

This is not to say the group has not also engaged in mainstay terrorist propaganda productions of hostage execution videos. Additionally, other groups similar to ISIS have social media presences – Hezbollah is known to operate a number of Twitter, Facebook, and YouTube accounts.

However unlike terrorist groups before it, ISIS has used social media as an active recruitment tool as much as a propaganda tool. It is also unique in encouraging a variety of channels to disseminate its message, unlike the solitary voice of Osama Bin Laden espousing Al Qaeda propaganda.

These ISIS channels are both centrally and independently controlled. Sitting within ISIS central command is the Alhayat Media Center, an ISIS-created media brand replete with a logo not dissimilar to Middle East-based news network Al Jazeera. To the casual observer, the volume of official Alhayat content pales in comparison to that of the supposed grassroots of the 'Islamic State'. Although ISIS members and supporters are regularly encouraged to interact through social media, a number of techniques are used by the group to maintain the appearance of a larger following.

Twitter accounts are used by ISIS fighters and the command structure alike. When one is shut for propagating excessive violence, a new one springs in its place. Various hashtags ensure the message remains constant even if the broadcaster does not. The continuous use of these hashtags additionally means the ISIS message skews the results of a popular and well-followed Arabic trend aggregator @ArabicHashtags, which reports the most trending hashtags in the Arab world, and artificially amplifies support for ISIS.

YouTube videos backing the group run the gamut from short, amateur, low quality videos shot on mobile phones, to the full scale production of feature-length propaganda like the film Flames of War, produced by central command. These videos are shared across other platforms, including Twitter and Facebook, extending the group's reach.

Mirroring the latest social media trend setters however, ISIS is reaching beyond these traditional platforms, including a foray into app-development. Dawn of Glad Tidings is the product of this development, delivering news and article links about ISIS advances to subscribers online and through the Android app store Google Play. Dawn is a news source, which also operates as a social media amplifier, posting centrally-approved messaging through subscribers' personal social media channels. Dawn's coding is sophisticated and spaces the publication of these posts to avoid Twitter's spam-detection.

But ISIS' media use is unique in being far from a one-way street. The group's propaganda and messaging is constantly designed to entice new recruits. Mimicking Western, and primarily US, military recruitment videos, ISIS recruitment videos are high production value, glossy and glorify life under the 'Islamic State' – Flames providing the best example.

More effectively, the content has a target audience. Understanding most recruits will be in their 20s, comparisons are made to popular references. Fighting with ISIS is considered 'living' the popular first-person shooting video game Call of Duty.

Even more astounding, the majority of ISIS content, most notably Alhayat's glossy magazine Dabiq, is disseminated in multiple languages, including English, French and German. This is produced specifically to target disaffected Muslim (and non-Muslim) youths in Europe.

Territory
ISIS has shown an unrivalled desire and ability to capture and maintain territory unlike any comparative Islamist group. This distinction is one of the root differences between ISIS and Al Qaeda that led to the former's independence from the latter: ISIS maintains the belief that the Caliphate can and should be established immediately.

What ISIS has created within this controlled territory is unique; a relatively full-functioning state, complete with regional Governors, a religious police force, state oil production, and judicial and tax systems. This quasi-state has been created on the backs of the pre-existing tribal network, functioning effectively enough to discourage open rebellion within its territory.

Their control over Iraqi territory however has had a significant effect on the global oil market, in which Iraq was widely forecasted to provide 60 per cent of OPEC's growth from 2013 to 2019. As ISIS disrupts production, either by controlling it completely and circumventing OPEC, or continuing to destabilise the oil-producing region, Iraq will continue to under-perform.

WHAT'S NEXT - A NEW TEMPLATE FOR TERROR GROUPS?

ISIS' growth has caused a fissure in and further complicated an already complex myriad of alliances and enemies in the Middle East. Its sustained control of swathes of Syrian and Iraqi territory has caused Turkey to deepen relations and cooperation with long-time Kurdish combatants PKK and YPG, the United States to cooperate with Iranian airstrikes and interventions into Iraq, and the US to ease relations with long-time regional Arab partners seen to be supporting ISIS either financially or militarily, including Saudi Arabia, Qatar and Bahrain.

This long-term influence on the nature of Middle Eastern interactions, coupled with a social media legacy that will undoubtedly provide the template for both Islamist and non-Islamist rebel and terrorist groups the world over, highlights ISIS' impact as a top-level global political risk which will be felt long for many years to come.

> *"They are so confident, so sure of themselves. At the beginning of this year, few people knew of IS. But now they have conquered an area the size of the UK. This is a one per cent movement with the power of a nuclear bomb or a tsunami."*
>
> **Juergen Todenhoefer, German politician, speaking to the BBC after visiting the region**

VIEWPOINT: The emergence of Islamic State (ISIS) in northern Syria and northern Iraq marks a radical escalation in the threat Islamist extremism poses to Western security. By attempting to establish its own independent Islamist fiefdom in areas captured from the Syrian and Iraqi regimes, ISIS will be able to provide a safe haven that Islamist militants can use as a planning and training base to conduct terrorists attacks against the West and Western interests.

Con Coughlin, Defence Editor, Daily Telegraph

Africa

Ebola and the blight of disease on economic growth

WHERE WE ARE - THE CRUSHING IMPACT OF EBOLA

The World Health Organization (WHO) has declared the outbreak of the Ebola virus in Africa a global health emergency. The virus has already claimed more than 8,000[XX] lives in West Africa this year, mostly in Guinea, Liberia and Sierra Leone. Of 54 countries in Africa, only six have been affected by Ebola namely Guinea, Liberia, Mali, Nigeria, Senegal and Sierra Leone[XXI]. However, it is having a devastating human and economic impact on not only these affected countries but many others on the continent.

The World Bank has divided the impact of the virus in two categories: The first category is called "High Ebola" to refer to countries (Guinea, Liberia, and Sierra Leone) in which the outbreak was contained more slowly and reached over 200,000 cases and could worsen through mid 2015. The second category refers to "Low Ebola" (Nigeria, Senegal) in which the virus affects fewer people - around 20,000 - and will be contained by early 2015[XXII].

WHAT'S NEXT - EBOLA'S IMPACT TO BE FELT FOR YEARS?

Beyond the dreadful toll on human lives, the Ebola outbreak is having catastrophic economic consequences on African economies in terms of foregone output, higher fiscal deficits, rising prices, lower household incomes, labour availability, greater poverty, the costs of healthcare, forgone productivity of the people affected by the virus and the behavioural effects of fear of contagion[XXIII].

In the Low Ebola case, the World Bank has estimated a GDP loss for West African countries of over $2.2 billion in 2014 and $1.6 billion in 2015[XXVIV]. While in reference to the High Ebola case, the World Bank predicts a GDP loss of $7.4 billion in 2014 and $25.2 billion in 2015[XXV]. If the virus spreads to other countries, the impact could reach as much as $32.6 billion by the end of 2015 – almost 2.5 times the combined 2013 GDP of Guinea, Sierra Leone and Liberia. [XXVI,]

Contraction of the main economic sectors in conjunction with a significant decrease in exports will negatively affect GDP growth. The World Bank has revised the 2014 GDP growth projections of the affected countries: Liberian growth has been decreased from 5.9 per cent to 2.5 per cent, for Sierra Leone from 11.3 per cent to 8.3 per cent and for Guinea from 4.5 per cent to 2.4 per cent[XXVII]. In addition, the travel restriction and closure of borders are greatly limiting the ability of African countries to import and export goods.

Furthermore, in Africa, Ebola's economic effects are proving hard to control even in the 49 unaffected countries. International investors are refusing to visit, corporate events are cancelled, corporations are on high alert and the fear of contagion is affecting tourism. The ripple effects are causing a new problem for Africa's economic development, which is greatly dependent on foreign investments and vulnerable to shocks.

"The economy has been deflated by 30 per cent because of Ebola. We are definitely expecting a devastating effect not only on labour availability and capacity but we are also talking about farms being abandoned by people running away from the epicentres and going to areas that don't have the disease. [XXVIII]*"*

Joseph Sam Sesay, Sierra Leonean Agriculture Minister

"With a large expansion of the outbreak, and Ebola spreading to other countries in the region, children would lose their providers, households would suffer losses to their income, businesses would lose workers to death, illness, and fear, and industries like mining and agriculture would slow down significantly." [XXIX]

David Evans, Senior Economist, World Bank

Successive Growth Projections (%)

Time Period	Liberia	Sierra Leone	Guinea
2014			
June (pre-Ebola)	5.9	11.3	4.5
October	2.5	8.0	2.4
December	2.2	4.0	0.5
2015			
June (pre-Ebola)	6.8	8.9	4.3
October	1.0	7.7	2.0
December	3.0	-2.0	-0.2

Source: World Bank Analysis

The role of the financial system in the economic development of Africa

WHERE WE ARE - WEAK FINANCIAL SYSTEMS AND THE INABILITY TO RAISE CAPITAL FOR OTHERWISE VIABLE PROJECTS

Ebola notwithstanding, African economies have experienced a growth average of over 5 per cent in the past few years, leading experts to argue that the continent has reached a turning point in its history [XXX]. Financial systems are at the heart of the debate on how to promote growth and reduce poverty across the continent. Africa is economically and culturally diverse and the financial systems in these countries are just as varied.

The financial system consists of the banking system, non-banking financial institutions and capital markets. The fundamentals of a well-functioning financial system are macroeconomic stability, varied financial products, and an effective mechanism of enforcing law and regulations, and a working system of registration of assets. In addition, strong institutions as well as transparency and reliable availability of information are also essential to this process. African governments are laying the necessary foundation in terms of strengthening the continent's institutions, as well as its legal and information infrastructures. However, African financial systems are still small in both absolute and relative terms compared to other continents. For Africa to achieve the growth rate of 7 per cent required to effectively reduce poverty, it needs an average rate of investment of 25 per cent. However, in the past 20 years, the rate of investment in Africa has averaged 18 per cent. [XXXI]

African leaders are working on increasing the availability of credit, how to get more finance for viable projects, collaboration in national equity, better regulating banks and microfinance institutions as well as what should be the priorities for African policymakers [XXXII]. Nonetheless, African governments still have a difficult road ahead given that access to finance is still not readily available to businesses and there is a very limited outreach, with less than one in five households having access to formal banking services, whether it is savings, payments or credit services.

A common characteristics in most African countries is the high concentration ratio, with a large share of assets held by the largest banks, which in turn leads to high liquidity and risk aversion. The World Bank estimates that the average market share of the three largest banks in Africa is about 73 per cent and this approach leads to high interest rates, costly loans and banks preferring government assets, therefore offering a smaller credit line to the private sector. Together with the banking sector, capital markets are a fundamental part of a well-functioning financial system.

WHAT'S NEXT – MEETING THE CHALLENGE OF BUILDING AFRICA'S FINANCIAL SYSTEM

An efficient and inclusive financial system is crucial to economic development and poverty alleviation in Africa. Access to finance remains a big challenge for most countries in the continent. Therefore, in order to overcome this problem, African countries have to increase their investment rates and their growth potential through channelling resources into productive sectors. Furthermore, greater efforts are required to further diversify financial products, banking sector services and the regionalisation of financial markets through legal and cross listing harmonisation at a regional level.

"The banking systems in Africa are characterised by a relatively large interest margin that reflects the lack of financial infrastructure (e.g. credit rating agencies), low competition in domestic banking, and riskiness of lending combined with weak property rights." [XXXIII]

Benedicte Vibe Christensen, former Deputy Director in the International Monetary Fund

"The relatively stable macroeconomic and financial environment, together with the current reform momentum and expected strong economic growth in many countries in the region, bode well for further development of the banking system. Moreover, the on-going structural changes in the banking sector, such as the emergence of mobile and agency banking as well as Pan-African banking groups, have a great potential to transform the existing business models, improve competition and efficiency, as well as access to finance and financial inclusion." [XXXIV]

Pim van Ballekom, EIB's Vice President responsible for sub-Saharan Africa

Asia-Pacific

The Chinese economy – is it sustainable?

WHERE WE ARE - A PROCESS, NOT A BUBBLE

Much is written about the Chinese economy and whether the Chinese economic miracle is a bubble that will burst. However, China's development is not a bubble – it is a process that has continued to gain pace since the economic reforms introduced by Deng Xiaoping in the 1970s and 1980s. The question in 2015 is not whether or when the bubble will burst, but when China will take leadership of the regional economic order established by the United States. The emergence of new institutions and regional processes – controlled by China – is a key theme for 2015 and this theme is covered in more detail below.

Domestically, there are economic challenges that need to be met – top of the list is continuing the process of market liberalisation and internationalisation in a controlled way. Central to this is the management of the process of RMB internationalisation. 2014 saw the introduction of new offshore RMB centres and the extension and introduction of new RQFII quotas. The introduction of the Shanghai Free Trade Zone was also a major milestone in the journey towards full capital account liberalisation. A key challenge for the government will be to manage this process in a controlled way.

WHAT'S NEXT - REFORMING IN A SLOWER GROWTH ENVIRONMENT

Xi Jinping has already introduced major economic reforms – the National Development and Economic Reform Commission is prioritising cutting red tape for investment, liberalising the banking sector (including interest rate setting liberalisation) and fiscal streamlining. A major theme for 2015 will be whether these reforms can be implemented in a more challenging economic environment – trade and GDP growth data remain patchy at best.

VIEWPOINT: China is mounting a determined challenge to the economic and political order established by the United States in East Asia after the Second World War. China has undertaken two major initiatives that if successful would place it at the heart of the region's multilateral economic architecture. China seeks to compete with the Asian Development Bank by setting up an alternate China-dominated Asia Infrastructure Investment Bank. China also seeks to displace the US-supported Trans-Pacific Partnership with a Free Trade Agreement in Asia and the Pacific. China is pressing the Association of Southeast Asian Nations (ASEAN) to upgrade and expand their Free Trade Agreement (FTA). ASEAN as an organization is committed to maintaining its centrality in Southeast Asia but its members are torn between their own Regional Comprehensive Economic Partnership and the countervailing proposals pushed by China and the United States.

Professor Carl Thayer, Emeritus Professor, The University of New South Wales, Australian Defence Force Academy

VIEWPOINT: One of the most difficult challenges facing the Chinese government is re-incentivising its local officials, who have been subject to a relentless anti-corruption and austerity campaign since early 2013. While the campaign has been highly effective in curtailing graft and moderating some of the worst forms of corruption in China, it has also demoralized the Chinese officialdom and destroyed the incentives for local officials to take risks and promote business. If the ongoing anti-corruption campaign focuses exclusively on deterrence and punishment and overlooks positive inducements for local officials to do their job well without corruption, resentment will build among these officials and such ill-will will likely lead to bureaucratic foot-dragging that can seriously undermine China's economic dynamism.

Professor Pei Minxin, Professor of Government, Claremont Mckenna College and a Non-Resident Senior Fellow at the German Marshall Fund of the United States

Modi’s India - can he deliver?

WHERE WE ARE - A NEW LEADER FOR THE WORLD’S LARGEST DEMOCRACY

The two giants of Asia – China and India – have handed power over to a new generation of leaders. China’s new leadership took over in 2013 and India followed in 2014. Whilst both new leaders are seen as economic reform minded, the manner in which they came to power could not be more different. India is the world’s largest democracy and the new government of Narendra Modi was elected on a platform of both economic and administrative reform. These potentially far-reaching reforms have started, and 2015 will be a defining year in India’s trajectory.

A key challenge for India is dealing with its fiscal deficit and getting GDP growth back on track at around 8 per cent. When Modi came to power he was quick to unveil a list of ten priorities for the economy, first of which was to build confidence in India’s bureaucracy. A key priority for the new government is to reform and streamline India’s vast administrative system, which in the past has been seen as a block to important reforms and national projects, rather than an enabler of them. One example is the area of infrastructure finance – there is no shortage of important infrastructure projects in the pipeline. The blockage is not necessarily access to finance – it is often India’s administrative system that is holding these important projects back. Linked to reforming the administrative system is a renewed emphasis on tackling corruption and promoting transparency.

WHAT’S NEXT - CAN INDIA’S POTENTIAL BE UNLOCKED?

In addition to administrative reforms, a major component of Modi’s plans for India are far reaching economic reforms, including the liberalisation of the foreign investment regime. If Modi is successful in implementing these economic reforms, the opportunities for foreign businesses to tap into the Indian market could be immense. Central to the plan is to liberalise foreign ownership rules to allow at least 49 per cent foreign investment in all sectors of the Indian economy. Banking and financial services are not exempt and in addition to opening up the sector to greater competition, reform priorities can be broken down into three broader themes:

1. Dealing with the public sector banks – often seen as vast, bloated and inefficient – these banks need a wholesale restructuring to deal with bad debts, modernise banking processes, and extend financial inclusion to India’s vast rural areas. This will be good for the government for many reasons, not least because improvements to the public sector banks will increase the value of the government’s equity holdings in this sector should they decide to divest in the future;
2. Streamlining banking regulation, adopting international best practice and reducing the cost of regulatory compliance; and
3. Reforming the fiscal regime, not least the Securities Transaction Tax and its interplay with the taxation of capital gains.

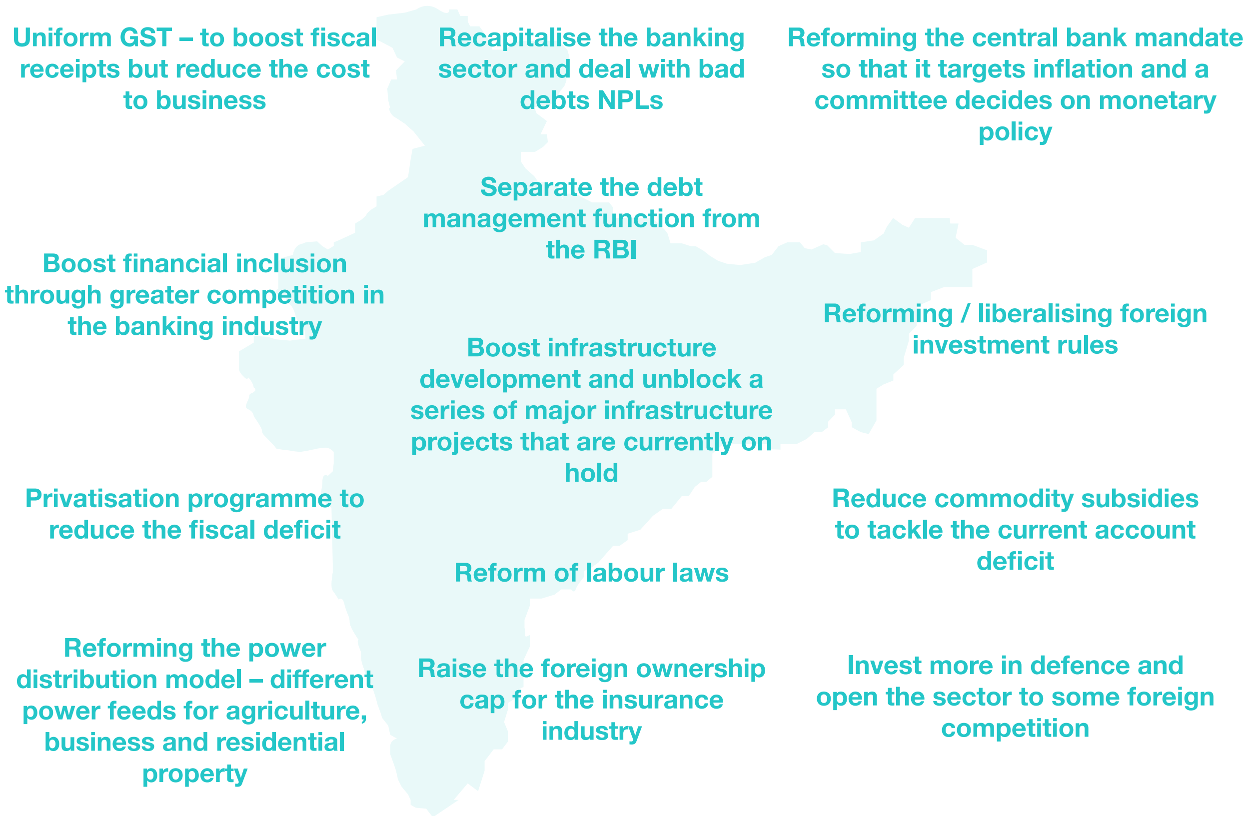
The broader fiscal reform theme is an important one. India’s fiscal system is inefficient and fragmented. A report by the World Bank [XXXV] notes that the bureaucracy of tax collection in India is holding the country back. A symptom of this is that it is estimated 60 per cent of India’s long distance trucks are not in service. Not because of a lack of demand, but because of the cost of fiscal compliance. An answer is to centralise and harmonise the indirect tax system through the replacement of local/state taxes with GST. As *The Economist* [XXXVI] notes, the introduction of GST will turn India into a truly common market – it would be a major step to help reform India’s administrative system.

There are many more reforms on the agenda. A lot of expectations have been placed on Modi’s leadership and 2015 will be an important year to test whether he really can deliver. A key marker of success will be whether GDP growth returns to its target rate of 8 per cent or more. As the OECD notes in its recent Indian Economic Survey, ‘Structural reforms will raise India’s economic growth[XXXVII]. In their absence, growth will remain below the 8 percent level achieved during the previous decade’.

VIEWPOINT: Since Prime Minister Modi and the BJP Party won the Indian general elections in May, there have been high expectations that the Modi government would launch far-reaching economic reforms that would drive Indian economic recovery. However the first BJP budget, delivered soon after the new government took office, was a disappointment to financial markets and industry, lacking any major new reforms. Since the first budget, the BJP government has taken more significant steps, with a number of important reforms either implemented or in progress. A key reform has been the decision in October to scrap diesel fuel subsidies as global oil prices plunged. Legislation for another crucial reform, a new Goods and Services Tax, has been introduced into the Indian parliament. A visa-on-arrival program has been widened to major tourism markets in the US and EU, which should boost the tourism industry. Modi has also pushed for more efficient civil service approvals for infrastructure projects, to break through the logjam of red tape that has created bottlenecks for new project developments. Overall the pace of reforms should be sufficient to support gradual recovery, with GDP growth rising back above 7% by 2017. At present, that makes India the most healthy-looking BRIC economy over the medium term outlook.

Rajiv Biswas, Asia-Pacific Chief Economist, IHS

Indian reforms at a glance



VIEWPOINT: The Modi government elected in May 2014 has mandate for carrying out significant reforms in the Indian economy. And there is every indication that it intends to use that political capital fully. The economic mood in India and abroad has already turned in India's favour since the coming to office of the new government with India expected to expand at a faster rate this year, the only one of the four BRIC nations. Though there has been some disappointment that this government has not started with a big-bang, it is part of a calculated political strategy of not taking on needless political battles in the first few months. After winning a string of state elections, the Modi government is even stronger today. And it now plans to move on all fronts to resolve issues which have been hampering the investment environment. This will include pushing through a constitutional amendment to introduce a Goods and Services Tax (GST), amending the law governing insurance to raise the FDI limit to 49 per cent, converting ordinance on the coal sector into a Bill as well as modifying laws such as the one on land acquisition.

Prof Harsh V. Pant, India Institute, King's College London

New multilateralism, ASEAN Centrality and the rise of an alternative global financial architecture led by China

A defining feature of the "Great Shift East" has been the emergence of an alternative international institutional architecture. For many years the emphasis has been on reforming existing global organisations such as the IMF and World Bank to make them more reflective and representative of a more balanced world order. The United States has held back reforms and in the meantime a new set of international economic institutions has started to emerge. Gone are the days where the United States (and to a lesser extent, Europe) could dictate global economic policy through the platforms of free trade negotiations and the agents of the IMF and World Bank. China in particular has been at the forefront of the development of a new economic architecture and as these new institutions develop and gain traction, interacting with them will be a major priority for many international businesses.

VIEWPOINT: 2015 will be a milestone year for the process of regional integration, and ASEAN will be at the heart of that process. With Malaysia in the driving seat the ASEAN identity will continue to evolve and strengthen, and with it the economic potential of a united bloc will increasingly be realized. This is not ASEAN states simply emulating the European Union's development; this is something different, but no less ambitious. As the ASEAN Economic Community finally comes into being, with the Regional Comprehensive Economic Partnership negotiations scheduled for conclusion this year, and with new alternative multilateral institutions such as the Asian Infrastructure Investment Bank coming on line, we are seeing the beginning of a sea-change in the global financial and trading order.

Teymoor Nabili, CEO, TheSignal Asia

VIEWPOINT: 2015 is an important year for ASEAN under the chairmanship of Malaysia. The ASEAN Economic Community – a key marker in the regional integration process – will be formally launched.
Whilst this is an important milestone it should be seen as the beginning of a process of further integration, and not the culmination of it. Much more work needs to be done for ASEAN to emerge as a truly integrated economic block. What is clear though is that ASEAN is a hugely important economic area and is a key driver of growth in the world economy. As ASEAN moves forward with its integration agenda companies operating in South East Asia will have to put more resource in to developing an overarching regional strategy for South East Asia. Europe and South East Asia have a strong and growing relationship and can learn a lot from each other's different approach to economic integration. Europe is ASEAN's largest source of FDI and the region's second largest trading partner - this reality makes comprehensive region-to-region dialogue at the corporate, political and diplomatic level even more essential. As the diverse member states of ASEAN continue to integrate the economic and commercial importance of South East Asia will become even more apparent to European companies operating here."

Chris Humphrey, Executive Director, EU-ASEAN Business Council

ASEAN Infrastructure Fund: US$ 485.2 million (principally backed by ASEAN and the Asian Development Bank)

BRICS Development Bank: US$50 billion, rising to US$100 billion (proposed, backed by BRICS)

World Bank: US $223.2 billion (principally backed by the US)

Asian Development Bank: US$ 162.8 billion (principally backed by the US and Japan)

Asian Infrastructure Investment Bank: US$50 billion (proposed, principally backed by China)

To put it all into context:

London's Crossrail 1: US $25bn – to fund a connectivity project from the East to West London

China's Silk Road infrastructure fund: US $40bn – to fund infrastructure and connectivity projects across the old silk road from China in the East to the Mediterranean in the West

Section Three:
Curve balls

This section of the report is about developments that have the potential to radically reshape human society. Some of them are possible, if unlikely. Others we believe are inevitable. All of them would be game-changers, but few of them are openly discussed by policy makers because they seem far-fetched or even the domain of cranks. However, scientists and engineers are working on innovations now that could turn society upside down. Our politicians are not ready for these curve balls.

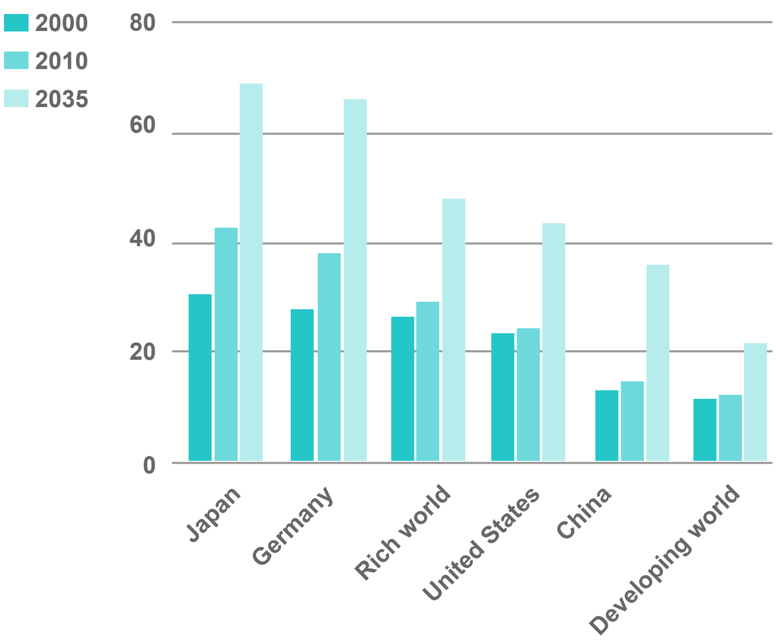
What would happen if we could all live to 300 years old?

It is hard not be impressed by the latest innovations in medicine. The potential for nanoscience and augmentation technologies to cure previously incurable conditions appears unbounded. However, while we should welcome advances that could improve quality of life, we should be mindful of the social and political consequences of rapid increases in longevity for which we are not prepared.

The key risk is our ability to fund an ageing population. The International Longevity Centre finds that by 2060 many Eastern European countries will have less than 2 working age adults per dependent. This is already the case in Japan, where there are 1.61 working age adults per dependent.[XXXIII] This will have clear impacts on state pension provision but the effects don't stop there. Ageing populations lead to slower economic growth, reduced productivity, decreased saving, higher interest rates and lower asset prices. They also result in fewer jobs for young people, an increasingly burdened working age population, reduced availability of housing and public services, and strained government budgets.

Many nations are already facing the challenges presented by an ageing population. But if life expectancies increase in a highly non-linear fashion as a result of a medical breakthrough such as the ability to slow cell ageing, it would turn society upside down. We are not equipped politically, economically or socially to handle the effects. If for example, it were possible to live to 300 years old, does that mean that one should? Should doctors be obligated to extend life if they have the wherewithal to do so? How long should a working life be? And what if the ability to live a very long life was determined only by your ability to pay for expensive treatments? These may be theoretical questions at the moment, but for how much longer?

Old-age dependency, population aged 65 and over per 100 people aged 25-64



Source: UN Population Division

Asteroid/comet impact

Scientists are increasingly concerned by the possibility of an asteroid or comet crashing into the Earth and causing mass devastation. It doesn't need to be Texas-sized, as in the film Armageddon, to be a threat. Last year an asteroid only 20 metres in diameter impacted in Chelyabinsk, Russia. Though it didn't hit the ground - it exploded in an air blast 30km above Earth, producing a hot cloud of dust and gas as far down as 26km – the explosion released more than 20 times as much energy as the nuclear bomb detonated at Hiroshima in 1945 [XXXIX]. Around 7,200 buildings were damaged by shockwaves arising from the explosion, and 1,491 people needed medical treatment. Similar airblasts happen approximately every decade. It is believed many of these blasts take place over the ocean, where people are not affected. An impact by a meteor in Tunguska, Russia in 1908 felled around 80 million trees over an area of 2,150 square kilometres. The shock wave following the impact would have measured 5.0 on the Richter scale. The meteor's diameter is estimated to have been 60 metres [XLI].

In the wrong place, like Manhattan, an impact could be cataclysmic. Thousands could die and many thousands more injured and made homeless. Wall Street would shut down and business would halt. Struggling economies would be hit by contagion due to volatile markets. A Tunguska-sized meteor could destroy the city altogether. An impact in a geopolitical hotspot, like Kashmir, could cause confusion and lead some to think they had been attacked by a nuclear weapon, forcing retaliatory measures. India and Pakistan would be unable to detect the difference between an asteroid and a nuclear weapon, due to the accompanying bright light and shockwave, and could launch a nuclear war. Fortunately some countries, like the US, are able to detect the difference and can act in such situations to reduce confusion. [XLII] However some countries, like North Korea, do not trust the US and such an action could prove ineffective.

Impacts are hard to predict before they enter the Earth's atmosphere. This is particularly true of comets. Currently, we do not monitor asteroids below a certain diameter and cannot detect them. Once they enter Earth's atmosphere, it is too late. The global community needs to collaborate on better detection systems and invest money into researching a suitable last line of defence.

After a certain point, political concerns become irrelevant. Larger asteroids throw significant amounts of particles into the atmosphere leading to drastic climate change. A significantly large asteroid threatens the survival of the human race altogether. On 4 December, a group of astronomers and scientists, led by Lord Rees, the Astronomer Royal, said we needed to detect a hundred times as many objects each year as we currently do, over the next decade [XLIII]. They say we have only detected 1 per cent of the 1 million asteroids that could cause massive damage to Earth. They are right; there needs to be more work done on the international stage to avoid such outcomes. The European Space Agency's success with its Rosetta Mission this year will help us to better understand these unpredictable bodies but we need to know more. A last line of defence is a necessity not a luxury.

50-100m diameter meteorite would destroy a city

The number of known **near-Earth asteroids (NEAs)** larger than 1 km diameter: **800**

Estimated number of NEAs larger than 1 km: **1000**

0 – likely warning time before impact

1MT

NEO of around 2km diameter = about **1 million megatons energy**. (One of these collides with the Earth once or twice per million years.)

VIEWPOINT: The threat of a catastrophic impact is real, demonstrable and inevitable, but this natural disaster differs from others in three critical respects:

- Comparatively rare, on human time scales.
- Potentially totally devastating. Unlike other natural disasters there is no upper limit on the potential damage.
- For the first time there is a species on the planet with the knowledge and technology available to predict and prevent catastrophe.

The cost of a sensible planetary defence project is tiny compared to the actuarial cost of even a small impact event, so where has our sense of responsibility gone?

Jonathan Tate, Director, The Spaceguard Centre

Antimicrobial resistance

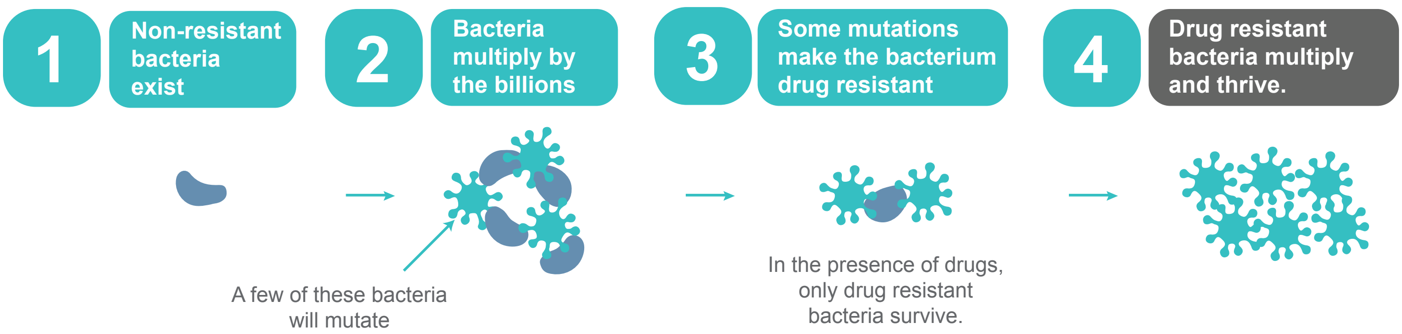
Last year, UK Prime Minister David Cameron warned that due to antibiotic resistance the world could be "cast back into the dark ages of medicine". The broader risk of antimicrobial resistance (AMR), which also incorporates resistance to drugs which combat viruses, fungi and parasites, is a significant global threat. Already, we have seen the danger caused by multi-drug-resistant microbes such as MRSA [XLIV], which is 64 per cent more likely to kill than the non-resistant form of the infection. Resistant strains of tuberculosis, malaria and HIV threaten low and middle-income countries. AMR strains are often treated through large doses of intravenous antimicrobials; in many cases the effectiveness of these treatments is decreasing.

The issue is prevalent with bacterial infections due to the abuse of antibiotics. Many people do not complete their courses of antibiotics, enabling more resistant bacteria to live and reproduce. Additionally, antibiotics are often prescribed too freely, sometimes to treat flu-like symptoms caused by viruses which are unaffected by them. In many countries, people can purchase antibiotics over-the-counter, allowing for self-prescription. The problem is exacerbated further by the use of human antibiotics for treating animals.

One solution is the use of narrow-band antibiotics, prescribed to combat specific infections, rather than broad-spectrum antibiotics which combat all bacterial infections to varying levels of effectiveness. This will require better diagnoses by doctors and costly research and development but the risk is too high not to take action and the potential costs of doing nothing are high - treatment for AMR is expensive due to the more intensive therapies needed. The World Health Organisation (WHO) estimates that AMR could lead to a decrease in GDP of more than 1 per cent, with indirect costs to society more than three times that of direct healthcare costs [XLV]. A recent discovery offers hope. Staphefekt, a new drug based on a naturally occurring enzyme, has been found effective at curing MRSA in five out of six patients [XLVI]. Unlike antibiotics, which also kill good bacteria, it only targets the harmful species. It will be at least five years before it goes to market.

If AMR is not properly addressed, many medical procedures, and surgery in particular, will become difficult to undertake. Without drugs to combat infection, recovering patients could die. It is not too late. Better monitoring of resistant strains, infection control and prevention, and increased R&D of new vaccines, diagnostics and drugs will strengthen our ability to cope. This should be accompanied by improved regulation to ensure medicines are prescribed and taken only for appropriate infections. If such action is taken - and it appears policymakers are beginning to see the need for this – the threat could be headed off. Though make no mistake, this is a difficult and dangerous challenge. Currently, there is a lack of investment in this area [XLVII]. This needs to change and further action is required.

Genetic Mutation Causes Drug Resistance



VIEWPOINT: Antimicrobial resistance is a multifaceted challenge; we need new tools to detect and diagnose resistant infections and new approaches to treat those infections. Whilst investment in diagnosis and treatment is urgent and essential, we also need to remember that AMR is a public health issue and enhanced engagement of patients and healthcare professionals will be required to meet this challenge. Such concerted action requires the full attention of both policymakers and leaders.

Professor Timothy McHugh, Professor of Medical Microbiology, Division of Infection and Immunity, University College London

Financialisation of water

Fresh water is becoming scarce. We are using more and more, with the growth of the global middle class driving demand. While fresh water is essential for drinking, in 2012 a global study found that 92 per cent of fresh water consumed every year is used in agriculture. Meat products consume 22 per cent, and dairy 7 per cent of fresh water annually. A gram of meat from meat and dairy requires 1.5 times as much water as that needed to produce legume protein [XLVIII]. To conserve water, a global trend in rising meat and dairy consumption will need to reverse, particularly as the population continues to grow to a predicted 9 billion by 2050 [XLIX]. One study found that in the US, halving the consumption of animal products would reduce water usage by 37 per cent. Water consumption could also be reduced by using more efficient irrigation techniques. Drip and micro-sprinklers can decrease the volume of water used in agriculture by 30 to 70 per cent, while improving crop yields by 20 to 90 per cent. Currently, drip irrigated land accounts for less than 2 per cent of irrigated land globally. Outside of agriculture, waterless toilets and fracking, and almost waterless washing machines, are under development, as is technology to draw water out of air. Fully utilising such technology will be essential[L].

The need to reduce consumption is clear. The world will struggle to provide the fresh water necessary to support agriculture. Desalinating salt water is expensive, and will be reserved for richer countries. To use it in agriculture would be costly. As fresh water becomes scarcer it will become more valuable; a dwindling commodity like oil. An Icelandic company is looking to build a global water export industry[LI]. However, its necessity will increasingly make exporting nations, formed of the geographically largest countries, more reluctant to part with it. Its power in diplomatic relations will grow to match that enjoyed by energy resources currently. This will be a challenge for Europe, a large consumer and net importer, and could threaten its ability to exert influence.

These factors could lead to the financialisation of water, with units of water commodities bought and sold on financial markets like precious metals and energy. Water will increasingly be charged to households on a metered basis.

Water poverty, akin to fuel poverty now, will spread in Western countries, with growing bills challenging household budgets. It will place pressure on state budgets. Bankrupted Detroit has shut off water to a number of poorer residents as it struggles to pay its bills. As water becomes more expensive, many governments will find these bills harder to pay. Its increasing value will hamper growth in developing economies who will struggle to afford the water required to irrigate their farms, as well as the food produced in such a costly process. As fresh water becomes rarer, conflict will follow.

Water is the basis for our survival. More efficient irrigation will have to be used in agriculture and consumption will need to fall. Otherwise, the dangers are clear.

Nuclear fusion and the prospect of near limitless clean power

Global energy consumption continues to rise. Fossil fuels, while relatively cheap, emit carbon and other harmful gasses and particles into the atmosphere. Renewable energies, while increasing their efficiency and contribution to global supply, are unlikely to be able to cost-effectively provide the total energy necessary to cope with a rising population and economic activity. While nuclear fission is sure to play an important role in meeting energy demand, many believe there is only one credible solution to the world's energy crisis: nuclear fusion.

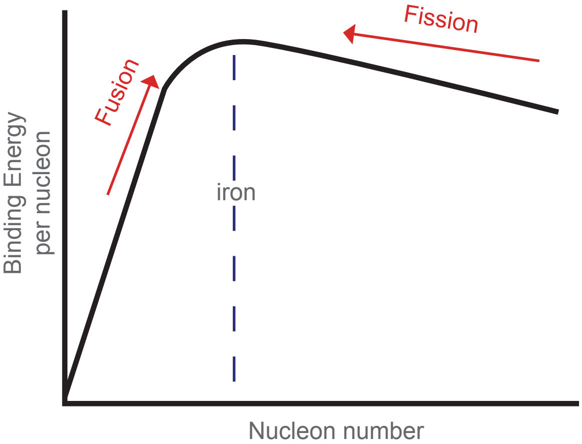
Nuclear fission reactors split atoms, releasing binding energy. This requires rare, heavy and unstable elements like uranium for fuel. There is also the risk of a chain reaction, which left uncontrolled, could mimic the effects of a nuclear bomb. In nuclear fusion atoms are added together with some of their mass converted to energy. This process relies on lighter atoms, such as hydrogen isotopes, for fuel. Hydrogen is the most abundant element in the universe. Better yet, fusion generates more energy and is clean. The process is not radioactive and neither are its by-products.

Unfortunately the technical challenges involved are formidable. The temperature within a fusion reactor needs to be in excess of 100 million degrees Celsius. Additionally, the confinement time, a measure of how long the reactor can contain this heat before it escapes, must be long enough to create a self-sustaining reaction. The process is costly and energy intensive and we have been unable to generate the necessary energy to exceed that used to fuel the process. However, in October 2013[LII], the National Ignition Facility (NIF) in California announced it had managed to generate energy from fusion (1.7 times as much the energy as put in [LIII]). It's promising but a fully functional fusion power plant is still some time away.

The solution may be found at the International Thermonuclear Experimental Reactor (ITER) in France, where researchers are using a different technique. ITER will begin conducting experiments in 2020 and work off existing data generated by the Joint European Torus (JET), in the UK, which is the world's largest fusion reactor [LIV]. Some scientists believe fusion will be achievable by the early 2040s; past estimates have often been far too optimistic. However, it is without question that fusion will have a huge impact if and once it begins to be implemented.

Fusion would negate the use of fossil fuels such as coal and gas. With advances in electric car technology, oil may become redundant as a fuel. Countries dependent on fossil fuel exports, like the Arabian States and Russia, may struggle to adapt to a new geopolitical landscape. On the other hand the implications for human development and the environment are breath-taking. Abundant clean energy for heating, cooling and even desalination could improve the quality of life for billions living in harsh climates. It will be difficult and expensive to master. But the pay-off is potentially colossal.

Binding Energy per nucleon



VIEWPOINT: Whilst the theoretical promise of nuclear fusion is very great, its commercial operationalisation seems a relatively distant prospect. Since fusion requires incredibly high temperatures and pressures, primary problems include the enormous initial energy input to start the reaction, and the confinement of the reaction in order to maintain power output. A further key concern is the very great resource needed to maintain fusion research - with ITER, the international fusion reactor under construction in France, currently costed at €13 billion.

Dr Paul Dorfman, Honorary Senior Research Associate, The Energy Institute, University College London

Solar storms – a refuge required

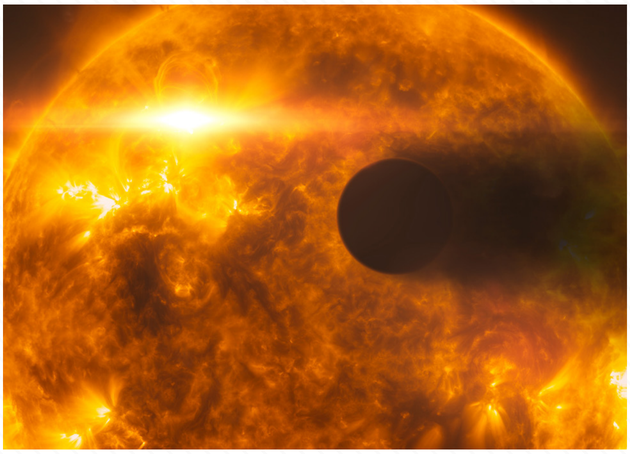
Solar storms present some of the same threats as cyber attacks but on a global scale, and in an untargeted way. Solar storms are a form of coronal mass ejection, taking place when the sun ejects solar winds and magnetic fields above the solar corona, affecting the Earth's magnetic field and electricity networks.

A solar storm could severely damage power grids to the point that people would be without electricity for months or years. Crucially, transformers, which take up to up to 15 months to order, manufacture and install, would be damaged. They are in limited supply.

Solar storms come with little warning and power grid operators would have only hours to protect power grids. A 2008 academic paper predicted that a severe storm could cost $2 trillion to recover from, 20 times as much as Hurricane Katrina, and take between four to ten years to return to normality[LVI]. Without electricity perishable foods and medications would be lost, as would heating and air conditioning, sewage disposal, communications and fuel resupply. Those with poor health could suffer and there would be an accompanying loss of life. The economic cost of a shut down for factories and financial markets would be huge.

Grid managers appear more sanguine[LVII]. They have methods to reenergise grids after a mass blackout. However, these 'black starts' do not take into account the permanent damage a solar storm could cause. Global leaders are often reluctant to spend much money preparing for low-frequency, high impact events. But such a storm is not without precedent. Between 1996 and 2010, the SOHO satellite recorded almost 15,000 coronal mass ejections. One of these, in July 2012, would have caused the worst geomagnetic storm in over 400 years if the ejection had been directed at Earth. Fortunately due to the Earth's orbit, the storm was not directed at us. If it had taken place a week earlier it would have been.

Solar scientists believe a significant solar storm, one that could down electricity grids, has a 12 per cent probability of hitting the Earth in the next ten years. Seems like it's time to get working on those backup transformers.



Artist's impression of a solar storm

"Without power, people would struggle to fuel their cars at petrol stations, get money from cash dispensers or pay online. Water and sewage systems would be affected too, meaning that health epidemics in urbanized areas would quickly take a grip, with diseases we thought we had left behind centuries ago soon returning."

Ashley Dale, Member, SolarMAX taskforce

Automation – your job will soon be done by a robot

Many of the tasks we carry out in our everyday work will be conducted by machines. This has been happening in agriculture and manufacturing since the industrial revolution. As a result, increasing numbers of people are employed in service industry jobs where there are lower levels of automation. However, with rapid advances in technology even relatively sophisticated tasks currently carried out by humans will be within easy reach of computers.

Some believe this will be a good thing by freeing up people to work on ever higher value and more rewarding work such as research and creative tasks, or possibly to have more leisure time. However, some – such as CGP Grey – have forcefully argued that it could ultimately result in mass unemployment as relatively few people have the skills or intellectual capacity to undertake those high-level tasks. In short, we can't all be composers or research scientists. And without those humans engaged in productive work, how will society function?

The effects will be felt unevenly to start with. A study published on 5 December finds that, in Britain, retail, clerical and secretarial jobs are at the highest risk. Those paid £30,000 a year are five times more likely to be replaced by robots than those earning more than £100,000 a year [LVIII].

However, innovation does not move on a predictable, linear path. Machines are increasingly capable of so-called deep learning. They can write code to solve problems without human intervention. As one example, machines can now learn from context and identify different parts of an image, describing them with text and matching them to similar, though not digitally identical images. Machines can also understand vocal inputs and translate them to different languages in near-real time, albeit imperfectly at present. This demonstrates increasingly powerful cognitive skills. Some believe this technological revolution will be akin to the industrial revolution with very few jobs safe.

The rapid development of the cognitive abilities of machines is inevitable, so we must consider what a world with very high levels of white collar automation might look like. Whether one takes an optimistic or a pessimistic view about where this will end up, it will represent a radical change in the labour market and a major challenge to the established economic order.

> *"We think that never has it been more urgent for policy to ensure that education and welfare provision is sufficient to ensure that people aren't left behind by technological change. These amazing new technologies will generate enormous wealth, but it is up to us to make sure that this is to the benefit of all."* [LIX]
>
> **Dr Michael A. Osborne, Associate Professor in Machine Learning, University of Oxford**

Conclusion

This report has looked at several types of risks for 2015 and beyond. There are geopolitical factors which are already known to us, such as the simmering tensions between Russia and the West, the rise of ISIS and the new frontier of cyber conflict. We know that they will shape the world in the year ahead and perhaps we can even think about the contours of possible eventualities.

Across global regions big changes are occurring. The power of the East is rising with its growing wealth while the US seeks to unwind loose monetary policy and struggles with household debt. With Grexit looming, the EU is at a crossroads; increased integration is necessary to cope with fiscal and economic challenges, but change is moving in the opposite direction to public opinion. Brazil, like India and China has started on the path of pro-business reform and Latin American countries are beginning to get sovereign debt under control, though notable exceptions like Venezuela present a significant risk. In Africa, a lack of financial infrastructure is holding back development, but there is room for optimism. Ebola, however, will have a long-term impact on the worst affected West African countries.

Then there are risks from high impact, low probability events which are out of our control, but against which we have little protection such as solar storms or asteroid strike. We don't know when, or if, they will affect us but if they do the impacts could be cataclysmic. It will take political courage to devote sufficient resources to mitigating these risks but it seems unlikely that this will be taken seriously in the near future.

There are those risks which are beginning to emerge as a result of breakthroughs in technology. Quietly in university labs, R&D departments and start-ups, engineers and scientists are developing technologies which could be as disruptive to existing ways of working as the industrial revolution. Some are a considerable way off, even though they hold considerable promise; notoriously, operational fusion power is perpetually 30 years away.

However, there are some developments that could turn the world upside down more quickly than we imagine; new technologies are woven into the fabric of life so quickly that we rarely pause to consider quite how fast we are moving. For example, daily internet usage by in the UK more than doubled in just seven years to 73 per cent in 2013. The computing revolution is only just getting going - the plummeting cost of computing power allied to developments in machine and deep learning mean the computers are ever closer to being able to undertake difficult tasks previously only the domain of the human brain. That puts swathes more white collar jobs within reach of automation as well as potentially automating scientific research itself. It is worth pausing to think about what this means for our social and economic order.

We should not be luddites, frightened of technological process. However our political leaders need to face the reality that we could be reaching another inflection point in technological progress. While the world has more than enough immediate troubles to occupy the attention of politicians and officials, it is potentially the curve balls like these that will overshadow all of them.

Acknowledgements

We were delighted to be asked by David Thomson at CII to follow up our UK report, launched in summer of 2014, with a broader report examining some of the political risks facing the world in 2015 and beyond. Our thanks to him through this process.

This report has been a collaborative effort, with contributions from across Cicero's global offices. I would like to offer particular thanks to Cameron Rae, who did so much to put this report together and putting his scientific training to good use.

Contributors
Editor – John Rowland
Deputy Editor - Cameron Rae
Europe – James Hughes and Alexander Kneepkens
Americas – Peter Benton-Sullivan and David Moulton
Middle East – Sebastian Damberg-Ott
Asia Pacific – Andrew Naylor and Rhoda Severino
Africa – Ange Munyakazi
Curve Balls – Cameron Rae
Design – Kris Makuch

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FOOTNOTES

I http://www.reuters.com/article/2014/11/21/us-usa-security-nsa-idUSKCN0J420Q20141121
II http://www.bloomberg.com/news/2012-07-26/china-hackers-hit-eu-point-man-and-d-c-with-byzantine-candor.html
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For more information please contact:

John Rowland
Executive Director
Tel: +44 (0)20 7297 5975
Email: john.rowland@cicero-group.com

www.cicero-group.com

@CiceroGlobal

London
1-2 Lower James Street
London
United Kingdom
W1F 9EG

Brussels
2nd Floor
14 Rue de la Science,
Brussels, Belgium
1040 Brussels

New York
Cicero Inc
Suite 500
745 Fifth Avenue
New York NY

Singapore
Level 24, 1 Raffles Place
Singapore 048616
Singapore

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Contact:

Laurence Baxter
Head of Policy & Research
20 Aldermanbury
London EC2V 7HY

Email: laurence.baxter@cii.co.uk

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