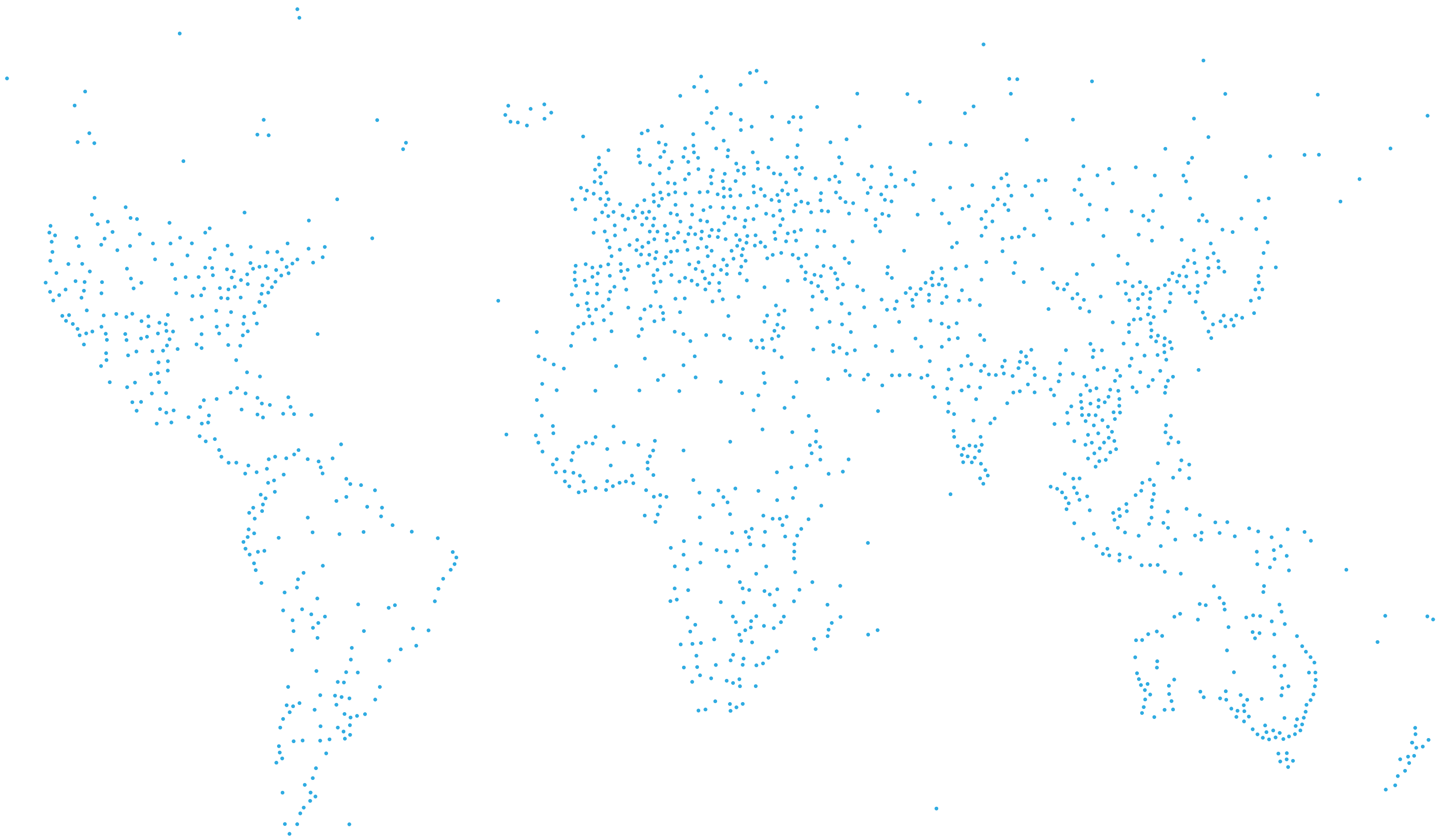
An Oxford Analytica Briefing Book

Oxford Analytica

Selected Oxford Analytica Daily Brief® Coverage
Prepared For

Committee for Economic Development
2016 Fall Policy Conference

Washington D.C. – November 15-16, 2016



Oxford Analytica

CONTENTS

Special Background Briefing Book for The Committee for Economic Development

Foreword

David K. Young
Executive Director
Oxford Analytica

Members and Honored Guests,

We are pleased to provide you with this Briefing Book of selected articles from the Oxford Analytica Daily Brief. They focus on some of the major issues which are the subjects of this year's Fall Policy Conference.

Since its foundation in 1942, the CED has played a significant role in supporting policy makers at home and abroad by delivering "well-researched analysis and reasoned solutions to our nation's most critical issues". The aim of this Oxford Analytica Briefing Book is to enrich your understanding of some of the issues and challenges the CED seeks to address.

Oxford Analytica is an international consulting firm founded in 1975 to enable governments, corporations and international organizations navigate the complex macro environments that impact strategies, operations, investments and policies. It does so by drawing on a network of some 1,500 experts at leading centres of learning around the world to deliver actionable, authoritative and impartial insights into global events and trends. The firm's worldwide reputation for delivering unparalleled macro diligence is based on its founding principles, robust methodologies and an impressive track record.

Be sure to take advantage of your complimentary access to the Oxford Analytica Daily Brief, using the information provided at the back of this Briefing Book.

Yours sincerely,

David K. Young,
Executive Director
Oxford Analytica

Oxford Analytica

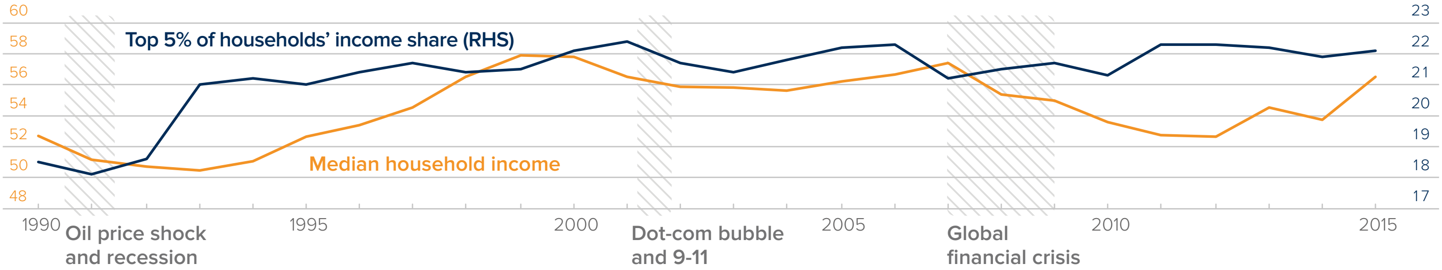
October 4, 2016

Politics will temper US income inequality debate

Persistent social inequalities underline top-level US household income growth

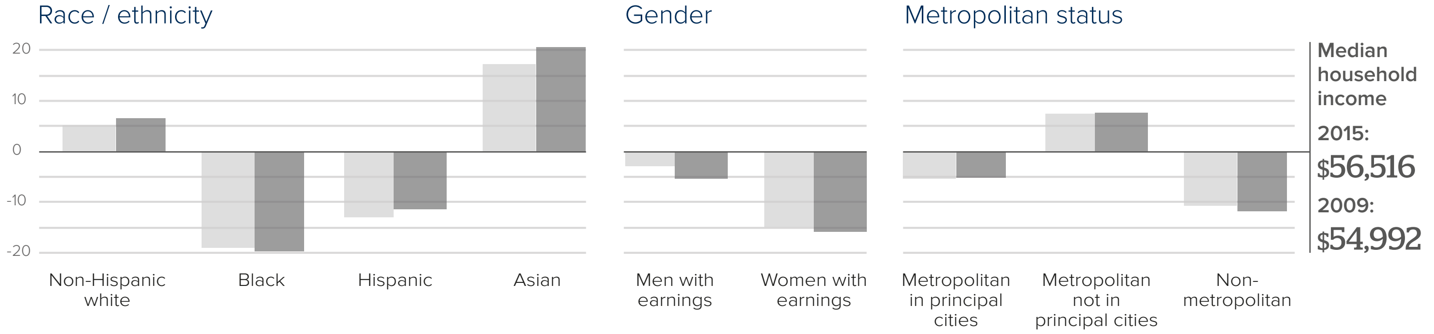
Household incomes are recovering, though the concentration of wealth continues unabated ...

Median household income (thousand dollars, CPI-adjusted 2015 dollars) **and share of income of top five households**



... with persistent racial, gender and urban-rural disparities ...

Difference from median household income (thousand dollars, CPI-adjusted 2015 dollars) 2009 2015



.. and contending political narratives.

Sources: US Census Bureau, Pew Research Center, US Bureau of Labor Statistics, Oxford Analytica

The US Census Bureau reported in September that 2015 saw a 5.2% year-on-year rise in median household incomes, the first annual increase since 2007 and the largest since records began in 1967.

When combined with an unemployment rate of 4.9%, a 1.2% decline in the poverty rate and record access to health insurance, Democratic presidential candidate Hillary Clinton will have ample statistical grounds to seek electoral dividends for President Barack Obama's economic record in her race against Republican Donald Trump.

The economy routinely ranks as the most important issue to the US electorate in public opinion surveys, but voters' perceptions of top-line improvements in the macroeconomic data pass through a strong socio-cultural filter that maps onto partisan affiliation.

- The fall in energy prices that contributed to the sharp rise in inflation-adjusted income will probably be a temporary effect.
- A Clinton loss on November 8 would likely see the Democratic Party take a stronger line in favour of redistribution.
- Post-election Republican efforts to undermine the Affordable Care Act ('Obamacare') would probably boost income inequality.
- Trump has echoed populist frustrations with the financial sector, but selective enforcement would be his likely approach in office.

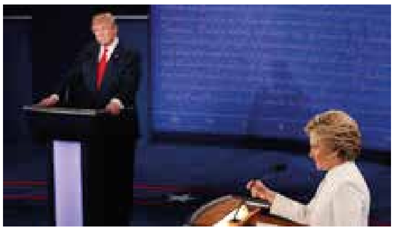
See also: Prospects for US politics to end-2016 -- June 14, 2016

Allies will seek reassurance from next US president

Friday, October 21 2016

An Oxford Analytica In-depth Analysis

At the third US presidential debate on October 19, Democratic presidential candidate Hillary Clinton described her Republican opponent, Donald Trump, as "unfit" to serve as commander-in-chief. Trump's statements on foreign policy have vexed the leaders of countries allied with the United States, particularly NATO members and in East Asia. Both Clinton and Trump have sought to distinguish their approach to foreign policy from that of President Barack Obama. However, the next president will face structural constraints on a dramatic overhaul of the US national security architecture.



Donald Trump listens to Hillary Clinton during their third and final 2016 presidential campaign debate at UNLV in Las Vegas, US (Reuters/Mark Ralston)

What next

The most likely outcome on November 8 is a Clinton victory, a more predictable prospect for foreign capitals. However, an unexpected Trump win would generate significant uncertainty abroad and perhaps lead some US allies to take a more independent line from Washington to safeguard their interests. Either candidate would find their ability to chart a new longer-term course in US foreign policy constrained by short-term upheavals, the imperatives of inherited crises, domestic politics, institutional limits and the agendas of US allies.

Impact

- The unknown quality of Trump's foreign policy advisers could lead to erratic policymaking.
- Washington's ability to promote nuclear restraint in international institutions is likely to diminish.
- US allies' uncertainty will probably encourage greater national expenditure on defence procurements.
- A Trump victory would likely undermine international climate governance arrangements.
- Sub-Saharan Africa and Latin America policy is likely to be set by lower-level policy officials than the immediate White House circle.

Analysis

Obama has sought to widen the public debate on US foreign policy. He has battled against what he describes as the "Washington playbook" that favours military intervention and free-riding allies, which, in turn, encourages a harmful status quo and is advanced by national security bureaucrats, White House foreign policy advisers and influential think tanks (see UNITED STATES: Politics will check retrenchment abroad - March 21, 2016).

However, once Obama departs office, the next president will design the direction for US foreign policy by making strategic decisions, appointing new officials, establishing relationships with foreign leaders and empowering lower-level staffers with significant policy portfolios.

Therefore, much attention has been given during the presidential campaign to the experience, personalities and worldviews of the candidates to become the next US commander-in-chief.

Clinton

Clinton's political experience as first lady, a senator on the Armed Services Committee, and as Obama's first secretary of state means that she has a great deal of accumulated knowledge of foreign policy issues. She is familiar with how to conduct policymaking, how to negotiate the political bureaucracy, and how to undertake diplomatic engagements with foreign officials (see UNITED STATES: Clinton will have foreign policy edge - September 21, 2016).

Clinton is also well-connected in policymaking circles. She can readily draw on a broad range of advisers not only for her campaign but also to fill the large tranche of bureaucratic appointments that she would have to make as president.

She can call upon dozens of close colleagues and confidants from the last two Democratic administrations, from Congress, and from think tanks, such as the Center for a New American Security, to populate her White House staff and senior executive branch positions.

Notwithstanding political appointees in the federal bureaucracy, Obama's National Security Council staff alone has about 400 positions, a source of contention with Congress.

Clinton is likely to likely reach out to some Republican foreign policy officials -- an elite constituency highly sceptical of Trump -- to staff her administration.

Trump

Trump will have far more limited choice for his foreign policy team if he is successful in his presidential bid.

Trump has gathered a small cadre of relatively inexperienced foreign policy advisers in his campaign. He has claimed that large numbers of high-ranking military officers support his campaign but more than 120 members of the Republican foreign policy elite publicly opposed Trump's candidacy in a March open letter, many of whom have given either implicit or direct support to Clinton.

Mid-level appointments and staffers have significant policy roles -- and Clinton can draw from a wider pool than Trump

A victory for Trump would bring some senior figures back to his side, especially those who would feel honour-bound not only to serve if asked by a Republican president but also to temper Trump's foreign policy approach.

While Trump has sought to use elite-level opposition to burnish his 'anti-establishment' credentials ahead of Election Day, if successful, Trump would struggle to put together as experienced a foreign policy team as Clinton would have at her disposal (see UNITED STATES: Trump campaign collapse is unlikely - October 10, 2016).

Institutional constraints

If Trump enters the White House on January 20, 2017, he will be determined to reverse as many of Obama's presidential decisions as he can on the domestic front, but also on foreign policy issues.

His transition team -- a nascent administration -- has hinted at a 'First Day Project', whereby Trump would sign a series of executive orders to unpick Obama's policies on trade, international cooperation, immigration and security agreements.

The experience of the Obama years, however, suggests such measures are only likely to be successful where the other elements of government -- Congress in particular -- fall into line.

On his first full day as president, Obama signed two high-profile executive orders:

- Executive Order 13491, ending controversial interrogation practices by US officials, including torture.
- Executive Order 13492, ordering the closure of the detention centre at Guantanamo Bay.

The first order had broad political and bureaucratic support and was implemented swiftly. The latter proved highly problematic (see UNITED STATES: Guantanamo plans may divide Democrats - August 20, 2013).

The White House was unwilling to put sufficient political capital behind the base's closure while resistance from Congress and the military was strong enough to stall the transfer of some detainees off the site. Guantanamo remains open as Obama's two terms in office draw to a close.

Clinton is seen as having far greater tolerance for the political bargaining and deal-making necessary to push through difficult changes in the US political system than either Obama had on taking office or Trump would have should he win the election.

However, she would enter office in 2017 with a negative favourability rating with the general public and probably not a fully Democratic Congress, presenting greater obstacles to her agenda than those faced by Obama in 2009 (see PROSPECTS H2 2016: US politics - June 14, 2016).

All presidents encounter problems implementing their agendas due to the deliberately fragmented nature of federal politics, with policymaking authority dispersed across agencies and branches of government.

Given his lack of experience in office, it is unclear if Trump would have the coalition-building ability and patience to achieve his political objectives in the complex, rule-bound and highly institutionalised US system of government.

The brash style and policy imperatives of a Trump presidency would clash with US policymaking institutions

Obama's legacy

Two terms in office enable a US president to leave a lasting imprint on foreign policymaking both in terms of emphasis and methods.

The next president will have to contend with several public positions advanced by Obama, notably that:

- US power is limited and thus its ability to achieve the nation's objectives overseas;
- longer-term regional goals should not be subordinated to the shorter-term imperatives of maintaining traditional security relationships;
- alliances with illiberal or autocratic states have negative foreign policy consequences; and
- the United States should shift its resources and attention from the Middle East to security challenges in the Asia-Pacific (the 'Asian pivot').

Obama nonetheless appears to have accepted that national security -- interpreted through a 'War on Terror' lens -- was at the root of US foreign policy and despite withdrawing some combat forces from the conflicts he inherited in Iraq and Afghanistan, found his administration unable to disengage entirely.

In addition, Obama's desire to wind down the US footprint in the Middle East has been frustrated by the civil war in Syria and the rise of Islamic State (IS) (see US/RUSSIA: Obama will likely wait out Syria gambit - October 14, 2015).

Inherited security challenges

Trump and Clinton have both signalled that they will deepen the US commitment to defeat IS in Iraq and Syria.

In the latter, Trump has suggested closer cooperation with Russia. However, despite his favourable statements towards Vladimir Putin as a leader, it is not clear how he would temper Moscow's ambitions or handle the complex politics surrounding the status of the Syrian regime under President Bashar al-Assad (see SYRIA: Civil war will lead to soft partition - May 17, 2016).

Clinton's liberal interventionist tendencies mean she would probably be less sceptical about the use of military force than her predecessor.

She would seek to increase the intensity of the air campaign against IS, give greater support to anti-Assad forces in Syria and increase the role of US special forces.

However, in qualitative terms, any mulled policy 'shift' would probably not alter the military dynamics in the Syrian civil war or overcome the internal divisions of the anti-IS coalition.

Political and public resistance to the use of ground forces will prevent any sizeable deployments of combat troops, though Clinton is probably less averse to this option than Obama is.

Clinton's campaign trail proposal for a 'no-fly zone' would face substantial political and military obstacles and should be viewed with some scepticism, given that it would involve an inherent risk of confrontation with Russian regular or Russian-backed forces.

In practice, a Clinton White House would probably face a similar dilemma to that of the Obama administration -- the need for a 'floor' of non-interference from (or limited cooperation with) Moscow for the campaign in eastern Syria against IS (which is of greater importance to Washington) while simultaneously lacking the political will to carry out pledges to frustrate Russia's aims in the anti-Assad civil war in western Syria.

Clinton's pledges of a Syria policy shift overstate her room for political manoeuvre and ability to shape events on the ground

Counterterrorism and armed UAVs

Obama consolidated the campaign against al-Qaida and its associated groups, developing a more nimble, adaptive and individually focused campaign than the Bush administration.

A key legacy initiative of the Obama White House is the codification of the policy of targeted killing, mostly through the use of armed unmanned aerial vehicles (UAVs or 'drones') as a method of eliminating individual militants while minimising the dangers to US forces.

However, the Obama White House has sought to promote self-restraint by the executive in quasi-legalistic procedures, rather than legislated restrictions on or judicial oversight of the armed UAV programme, leaving significant discretion to his successor (see US/INT: Armed UAV precedent will hinder rules-making - January 28, 2016).

The opposition of national security apparatus would probably encourage Trump not to act on some of his more bellicose campaign threats deliberately to target the families of terror suspects and to reintroduce banned interrogation methods. However, the relatively low political cost of using UAVs for targeted killings would give any Obama successor incentives for their continued use as a central tool of US counterterrorism policy.

Iran nuclear deal and the Middle East

The election of Clinton and retention of the executive branch by the Democrats would mitigate a number of US-driven risks to the Iran nuclear deal posed by anti-deal Republicans.

She would firmly support the continued implementation of the nuclear deal, but would not initiate a further rapprochement with Iran.

Given Obama's difficult relations with a number of traditional US allies in the region after the nuclear deal's conclusion, Clinton would seek to reinvigorate US influence throughout the Middle East. She would likely shore up relationships with Israel and Saudi Arabia while attempting to minimise the military-political influence of Iran and proxies, perhaps leading to something of a reversion to the pre-Obama status quo.

Trump's strong campaign rhetoric on Iran would carry over into his presidency, should he win, but similar to previous presidents, he would be unlikely to override military advice that to risk actual military confrontation with Tehran is contrary to US interests and would further destabilise the region (see UNITED STATES-IRAN: Nuclear deal should hold - August 23, 2016).

While Trump would threaten to scupper the Iran nuclear deal, his advisers are likely to conclude that its survival is in the interests of national security. This would lead to a Trump White House pressing for more stringent measures, with an utterly unreceptive Iran, generating uncertainty, but not an outright collapse of the deal and remilitarised bilateral confrontation.

Asia policy after Obama

Clinton was a strong advocate of the Obama administration's pivot to Asia. Like Obama, she would seek to broaden the US foreign policy agenda beyond its inevitable focus on terrorism and security in the Middle East.

Due mostly to the perceived threats from China, she would strive to restore the trust of traditional allies Japan and South Korea, which have been worried by Trump's statements suggesting a decline in US commitment to the security relationship (see JAPAN: Election calls alliance into question - October 19, 2016).

However, difficult relationships loom with some traditional allies in South-east Asia, notably Thailand and the Philippines, and in outreach to Vietnam and Myanmar still emerging from decades of unfriendly relations (see SOUTH-EAST ASIA/US: Ties will be unchanged, for now - September 22, 2016).

Reliable supporters, such as Australia and Singapore, may see their standing in Washington grow, and enhanced ties with India may be an early foreign policy initiative for the next administration.

Non-ratification of TPP would hinder Washington's goal of a stable economic order in the Asia-Pacific underpinned by US-friendly rules

However, the Trans-Pacific Partnership (TPP) -- which Trump opposed outright and Clinton pivoted against during her campaign, despite earlier support -- could see non-ratification by Congress, creating a regional vacuum that China's economic ambitions could fill, undermining Washington's political clout in affected foreign capitals (see UNITED STATES: TPP faces major hurdles in Congress - October 19, 2015).

The prospect of a fraught TPP renegotiation effort with unsympathetic counterparties is likely to vex either candidate once they are in the White House.

Legitimising illiberalism is Trump legacy to Europe

Friday, October 28 2016

Some of the most vocal and high-ranking supporters abroad of the Republican candidate for the US presidency, Donald Trump, are in Central-Eastern Europe (CEE). The first sitting head of state or government to endorse Trump's bid was Hungarian Prime Minister Viktor Orban; he has been joined by Czech President Milos Zeman. Given Trump's hints at waiving the US commitment to defending this strategically volatile region, this may mask a degree of cognitive dissonance. However, CEE leaders are pursuing domestic games and betting on the star of illiberalism rising, with good reason.

A UK Independence Party supporter wearing a T-shirt featuring Republican presidential nominee Donald Trump at the party's annual conference (Reuters/Toby Melville)

What next

Even if Trump loses the election on November 8, his campaign will go down as a stellar success. In CEE, the region's reaction against the transatlantic liberal order will have gained legitimacy. Ethno-cultural chauvinism will be strengthened in Europe; border fences will go up and immigration will be restricted. Russia's expansionism in what it calls its 'near abroad' will be vindicated, with further threats likely to the sovereignty and territorial integrity of Westernising post-Soviet states.

Impact

- The EU will face disunity and, potentially, disintegration, should it not alter its current 'single-speed' form.
- Russian President Vladimir Putin will get a freer hand; provocations against NATO and neighbouring states are likely to be ramped up.
- The appeal of the Western liberal order will dissipate and new, illiberal forms of development will proliferate in the world.

Analysis

Beyond the pugnacious leaders of Hungary and the Czech Republic, Trump's camp in CEE boasts a wide range of controversial politicians. Among others, it counts among its ranks former Mayor of Tallinn and Putin ally Edgar Savisaar, maverick Polish libertarian conservative Janusz Korwin-Mikke and Serbian nationalist leader Vojislav Seselj, who was acquitted at the Hague war crimes tribunal in April.

They concur with other European politicians who have endorsed Trump in their opposition to immigration. Dutch anti-Muslim leader Geert Wilders, French nationalist Marine Le Pen and the erstwhile head of the UK Independence Party, Nigel Farage, have all offered Trump their support.

Trump's revival of the isolationist tradition in US politics, in turn, presents an incentive to those leaders who would like to see a more passive United States on the world stage. Russian and North Korean officialdom have lined up behind him.

Alliance-building beyond borders is nothing new. Yet expressing support for one of the presidential candidates in the world's only superpower -- a major ally of many CEE countries -- may put the region's leaders on the losing side in the diplomatic game.

CEE leaders face controversy at home for declaring support for Trump -- Zeman, for example, is at odds with his prime minister, Bohuslav Sobotka. In doing so, they are playing domestic politics.

Disharmony of interests

When Barack Obama was elected to the US presidency in 2009, CEE intellectuals published an open letter pleading for more US attention to the region's security. Their fear that a resurgent Russia might threaten their independence has, with the 2014 annexation of Crimea, proven more right than they could probably have imagined.

Trump is running on a radically different ticket. He has vowed to make European states 'pay for' their security. Should they fail to do so, Trump has shed doubt on honouring the NATO common defence clause if allies face an attack.

Relativising the importance of NATO and hinting at a complete disengagement from Europe is coupled with a soft tone on Russia in Trump's rhetoric. His hopes for good relations between Russia and the United States and his hints at acknowledging the legitimacy of Russian interests in Eastern Europe would presage CEE's return to the status of a buffer zone between Russia and the West.

In addition, there is no avoiding the fact that Trump has over the past months looked increasingly likely to lose the election. This prompts the question why leaders of small CEE countries should expend significant political capital on his victory.

Trump may seem an odd candidate for CEE leaders to support...

Ideological affinity

Immigration is the most obvious point of agreement. Trump wants to build a wall on the US -Mexican border, something Orban has already done on Hungary's frontiers (see HUNGARY: Invalid referendum will gain Orban little - October 7, 2016). Trump wants to stop Muslims entering the United States; Zeman fears they are 'invading' Europe in an organised manner.

Yet this aversion to immigration, pre-eminently from the Muslim world, is due to their ethno -cultural conception of the nation. Such a conception is more problematic in the United States, the 'imagined community' par excellence, than in an ethnically relatively homogenous CEE.

Trump's rhetoric is a definite departure from traditional, more open, US civic nationalism. CEE leaders, likewise, embrace a nationalism reminiscent of the early decades of the 20th century.

Trump, like his CEE supporters, has perfected a populist performance (see CENTRAL EUROPE: Migrants help keep populists in power - September 26, 2016). Presenting themselves as representatives of 'ordinary people', they encourage voters' grudges against elites and outsiders.

They share, furthermore, a taste for simple answers to complex questions. Combining ethno-cultural nationalism with government handouts, they transcend traditional divisions between left and right.

...but in common is a deliberate populism, encouraging simplistic solutions

Significantly, they share an affection for Putin. Zeman is a long-time admirer, and Orban has pointed to Russia as a model for the illiberal Hungarian state he is building. There are widespread concerns in the EU over CEE's reluctance to extend sanctions against Russia.

A domestic game

While the roots of CEE leaders' support for Trump may vary, their function is the same. Trump's appeal and his relative popularity in the United States grant increased legitimacy to CEE leaders' reactions against liberalism both at home and abroad. Zeman and Orban see themselves as spearheads of an illiberal political trend that spans the Northern hemisphere.

Presented as a rise against the elite, their revolt has so far received a cool reception in both Brussels and Washington. The European Commission has launched a number of infringement procedures, and Washington has sent strong signals of disagreement to Hungary in particular.

With Trump, CEE's illiberals think, the hole in the ship of liberalism is large enough to sink it. The rise of Trumpism in the United States, they feel, portends that they are on a winning bet.

Some are betting on the fall of liberalism

Outlook

That is independent of whether Trump ends up winning. His spectacular rise to the candidacy in itself proves the existence of a revolt against the liberal order in the United States as well.

This lends legitimacy to CEE's own revolt against liberalism, associated with antiquated elites. There is less space to treat Orban or Zeman -- or indeed, their controversial fellow travellers -- as delinquents in the Western world, when a candidate pursuing similar policies has risen to prominence at its very centre.

This bodes ill for liberalism in the world, even if Trump is defeated. Parts of the world have long known that the Western liberal model is not the only road to development. Yet if parts of the West itself jettison liberalism, it is hard to see who would still embrace it.

Saudi tourism sector set for rapid expansion

Friday, August 5 2016

The construction of new theme parks in the next few years will help attract millions more tourists to Saudi Arabia, the Saudi Gazette reported on August 2. The kingdom's Vision 2030 strategy identifies tourism as one of the sectors key to plans to diversify the economy away from oil. Saudi Arabia aims to develop the underdeveloped tourism sector, and increase its contribution to GDP from 2.9% in 2015 to 3.1% by 2020. The focus is primarily on encouraging Saudi citizens to holiday at home, but also targets foreign visitors, particularly the 7 million Muslim pilgrims that visit annually.

Camel racing at a Saudi cultural festival near Riyadh (Reuters/Fahad Shadeed)

What next

The scope of the government's plans signals a rapid expansion of the tourism sector in coming years that, if successful, could significantly improve the range of leisure and entertainment options on offer for Saudi nationals, especially young people. Significant investment will be required in infrastructure, education and training. There also is a risk that the pace of development may result in a tourism sector that offers quantity rather than quality.

Impact

- Development may be slowed by red tape, lack of sufficient finance and underdeveloped transport infrastructure.
- The tourism sector will offer opportunities to foreign investors, especially construction, entertainment, transport and consultancy firms.
- Tourism sector expansion would reduce youth unemployment and dependence on foreign labour.

Analysis

The Saudi government has highlighted tourism as integral to its efforts to diversify away from oil, encourage more Saudi nationals into the private sector and reduce youth unemployment (see MIDDLE EAST: States struggle to cut youth unemployment - July 19, 2016).

The National Transformation Programme (NTP), launched in June, outlines the government's medium-term development targets. It aims to increase the number of jobs in tourism from 830,000 in 2015 to 1.2 million by 2020, and the sector's 'Saudisation' rate from 27.8% in 2015 (around 230,000 Saudi employees) to 29.6% by 2020 (355,200 Saudi employees) (see SAUDI ARABIA: Ambitious reforms will test government - July 8, 2016).

The NTP envisages an increase in the number of trips from 64.5 million in 2015 to 81.9 million by 2020.

Tourism potential

The plan primarily targets encouraging tourism among Saudi citizens, many of whom currently spend holidays abroad. According to the Saudi Commission for Tourism and National Heritage (SCTNH), the government body which leads development of the sector, some 6.4 million Saudis travelled abroad in 2015, spending at least 84 billion Saudi riyals (22.4 billion dollars).

One of the reasons why Saudis prefer to holiday abroad is the lack of quality tourism attractions on offer at home. The government aims to address this as part of the NTP:

- The government restructuring in May saw the creation of the General Authority for Entertainment, whose mission is to create more leisure and entertainment opportunities for young Saudis in particular.
- Some US firms such as Six Flags and SeaWorld plan to open amusement parks in Saudi Arabia.
- Cinemas, which have been banned since the 1980s, are expected to reopen soon.

$22bn

Estimate of Saudi spending on tourism overseas

The kingdom has the potential to develop new kinds of tourism, such as sea and desert tourism, 'geo-tourism' in mountain areas and 'agro-tourism' to farms.

Foreign tourists

The government also wants to encourage foreign visitors. Pilgrims are likely to be the main target, with the aim being to encourage them to spend money outside of their pilgrimage at tourist attractions such as museums and archaeological sites.

Starting a tourism sector for non-pilgrim visitors is unlikely to happen soon, owing to opposition from religious conservatives over introducing a tourism visa.

Saudi culture

The government seeks to place Saudi culture at the heart of the sector's expansion, and has set some ambitious targets for cultural attractions in the kingdom, aiming to increase by 2020:

- the number of museums from 155 to 241;
- the number of accessible archaeological sites from 75 to 155; and
- the number of festivals and events from 300 to 500.

The kingdom has the capacity to build infrastructure at the rate needed to meet these targets; the main risk is that new facilities do not meet the high standards required to attract high numbers of visits.

By boosting cultural attractions and education, the government has a clear political aim of strengthening national identity and patriotism among young Saudis, in an effort to prevent radicalisation.

Ripple effects

Expanding tourism would benefit a whole range of sub-sectors such as cafes and restaurants, hotels, furnished apartments, shops, services and transport.

Most tourism and leisure trips are currently made to the Hejaz region (including Mecca, Medina and Jeddah). Expansion of the tourism industry could help local economies in poorer regions.

In addition, the tourism drive could help revive the country's handicrafts sector, which has been marginalised by the rise of the oil economy and (primarily Chinese) imports (see MIDDLE EAST: Manufacturing faces growth barriers - October 1, 2015).

Political drive vs implementation challenges

The SCTNH is headed by the second son of King Salman, Prince Sultan bin Salman Al Sa'ud, and is therefore likely to have the strong political leverage needed to drive the expansion plans forward.

However, these plans will require appropriate investment in infrastructure and knowledge, as well as efforts to address broader structural and bureaucratic challenges in the economy:

Regulatory frameworks

Regulatory frameworks for the sector need to be evolved. Tourism associations (the Saudi Travel and Tourism Association, the Saudi Tourist Guide Association and the Saudi Hospitality Facilities Association) were established in 2014 to define procedures regarding quality standards, a fundamental requirement for attracting private sector investment. However, they failed to do so, and were restructured in February 2016, only 14 months after their establishment.

Finance constraints

Investors have faced financial constraints due to the low price of oil and high land prices. They have been calling for governmental support, such as the creation of a specialised fund for tourism sector development and the provision of land at low cost.

Financing and high land prices are limiting the sector's expansion

Transport infrastructure

The country's transport infrastructure remains underdeveloped. In particular, poor roads deter Saudis from travelling by car, creating higher pressure on internal airlines.

Training and education

The number of specialised tourism industry education and training facilities will need to be increased. Currently, there are four colleges focusing on tourism and hospitality and 14 other colleges and universities offering courses on tourism. Some 11,000 graduates have so far benefited from these programmes.

Another issue is poor educational standards -- around two-thirds of Saudi university graduates have no technical or vocational skills, and nearly half are currently jobless.

Saudi attitudes to tourism jobs

A major challenge will be attracting more Saudi nationals to work in tourism. Saudi citizens tend to prefer public-sector to private-sector jobs, owing to better job security, salaries and shorter working hours in the former.

Efforts by the SCTNH to introduce Saudi culture and tourism-related education into school curricula should help address this, as should their "Live Saudi Arabia" programme, which encourages Saudi students to visit different parts of the kingdom.

Digital healthcare will expand in developed countries

Friday, July 15 2016

Though the idea of digital healthcare has been discussed for decades, it has shown promise for rapid growth only recently. A trend is emerging towards consumer-facing and preventive healthcare. This goes in tandem with the development of technological applications. Flourishing venture capital (VC) funding geared towards consumer- and provider-facing applications has flushed the market.

An implant chip containing patient medical records (Reuters/Colin Braley CB/JP)

What next

Shifts in healthcare incentives and government priorities, combined with a nascent market for VC funding into digital healthcare start-ups, will support the growth of the digital healthcare market over the next five-to-ten years. Funding cycles should result in stronger industry growth, as digital healthcare integrates into the existing payment structures and the Internet of Things (IoT).

Impact

- Savvy players should benefit from expanding offerings in the growing industry of digital healthcare over the coming decade.
- Cyber security will be key to the sector's expansion; in 2015 one in three US patients' healthcare data were hacked.
- While security concerns must be heeded, they are not a reason to look away from the digital healthcare market.

Analysis

With record-high healthcare expenses in most developed countries, new ways are needed to reduce costs.

US healthcare expenses account for 17.6% of national GDP, nearly 600 billion dollars more than might be expected for a nation of the United States' size and wealth, according to a McKinsey study (see UNITED STATES: Health expenditures may rise - September 18, 2014).

Investments in innovation and technology could help lower these costs.

Analysts estimate that the global healthcare technology market will reach a size of 220-230 billion dollars by 2020, growing at a compound annualised growth rate (CAGR) of 13.4% in 2015-20.

A 2015 McKinsey report estimates that the greatest global economic gains related to the IoT will occur in the healthcare space. It predicts that the healthcare-related IoT market will increase sevenfold to contribute 600-800 billion dollars in global value by 2018.

An increasing number and types of companies are involved in the digital healthcare space, including:

- those related to consumer mental health;
- those producing diagnostic tools for specific conditions such as Alzheimer's disease;
- companies related to tools to improve clinician-patient interaction and decrease time spent charting in electronic health records (EHRs); and
- companies producing consumer-facing applications to help patients quit smoking.

New investments

$4.5bn
Digital healthcare funding reported by Rock Health in 2015

A number of new venture firms have risen to fill in the need for financing in the digital healthcare space. They include Rock Health, which reported 4.5-billion-dollar funding in this industry in 2015, nearly identical to that reported the year before, resulting in a 32% CAGR for 2011-15.

Traditional healthcare providers are also entering digital healthcaKaiser Permanente Permanente, a California-based healthcare organisation. It has made substantial investments into digital healthcare start-ups through its VC arm, Ventures.

Providence Health, another US hospital network, launched a 150-million-dollar VC fund in 2014, called Providence Ventures.

Even the US state of Massachusetts has become involved in digital healthcare, initiating the 'MassChallenge' movement, with the mission of catalysing a start-up renaissance, including significant funding put towards digital healthcare initiatives.

MassChallenge is affiliated with the creation of the Massachusetts Innovation Catalyst Fund, a 26-million-dollar VC fund announced on June 1.

While the healthcare space is traditionally risk-averse and has been slow to adopt to digital technology over the past decades, the changes in funding allocation signal an increasing alignment of incentives and political will, aimed at integrating digital healthcare into the overall healthcare system.

Changing incentives

Risk aversion in the healthcare industry is understandable given the high cost of mistakes, but much of the hesitancy to adopt digital technologies in the US healthcare market is due to economic disincentives to innovation and threats of litigation.

A number of policy changes have occurred in the country over the past five years, with hopes decreasing industry costs (see UNITED STATES: Doctor shortage may drive health costs - March 31, 2014). Such trends are likely to continue for the near future.

A primary feature of these changes is a move towards 'managed care', which provides a single fee per patient, rather than the traditional fee-for-service model. The fee-for-service model incentivises providers to perform a large number of costly tests and treatments, while managed-care systems aim to minimise treatments and maximise patient health.

Such preventive measures lend themselves well to technological interventions, as witnessed by a rise in US employers and insurers paying constituents to use wearable devices, such as Fitbit. Players in the market are realising the business benefits that healthcare technology can provide, such as:

- incentivising constituents to maintain healthier lives, saving on healthcare costs; and
- providing aggregated data on constituent risk pools, to better tailor actuarial pricing and offerings.

The industry of employer-managed care, together with technology to help manage employees' health through their own technology devices, is growing, as evidenced by the raising through the company Jiff of an additional 17.7 million dollars, in addition to 23.5 million dollars raised last year.

Jiff's aim is to help bring together "all the innovations in digital healthcare that an employer may have bought, as well as ones they purchase through Jiff, into one coherent place and driving employees to use them to bring down healthcare costs and drive up healthy outcomes."

Security concerns

Aside from risk aversion, the digital healthcare industry is aware of security concerns (see INTERNATIONAL: Ransomware could target IoT next - April 25, 2016). Consumer healthcare data are an alluring target; they have been increasingly targeted by hackers and identity thefts in recent years.

The average cost of stolen data is 154 dollars per record. Such number escalates to 363 dollars per record for each single healthcare piece of data.

$363

Average cost of stolen healthcare data, per record

Large healthcare data hacks in 2015 in the United States resulted in one single data breach affecting over 80 million individuals' records. At least two others affected over 10 million individuals each.

A report issued in January 2016 estimates that 98% of healthcare data breaches came about because of hacking (see UNITED STATES: Data will imperil health companies - June 19, 2015).

As the industry moves towards more digitisation, with increasing levels of connectivity and sensor data, industry players will have to pay more attention to the protection of patient and consumer data, or face the consequent backlash of a breach.

Outlook

Digital healthcare has sat on the outskirts of the US healthcare system up until recently; it is finally emerging to find its place in the spotlight. This comes as both federal and local governments increase funding incentives for 'healthcare innovation' and as healthcare payment systems shift to reward more consumer-facing and preventive care.

Additional investments into start-ups in the digital healthcare space by VC funds over the past years should spur growth in the industry through 2020 at least.

Chile pension reform may be slow despite pressures

Friday, August 19 2016

On August 9, President Michelle Bachelet unveiled proposals for a pension reform that would imply significant changes to Chile's largely privately managed, defined-contribution system. Unlike tax, educational and constitutional reform, pensions did not figure prominently in her election platform but, more than halfway through her four-year term, public anger has mounted over low pensions, as reflected in mass demonstrations around the country on July 24.

Protesters demand changes to the Chilean pension system (Reuters/Rodrigo Garrido)

What next

The government has emphasised that its proposals are open to discussion, indicating that it hopes to reach a "national agreement" before presenting a reform bill to Congress. When this would occur is not yet clear, but legislative priority over the rest of this year will almost certainly be given to the 2017 budget, which has to be presented by end-September, and a major reform of higher education, submitted to Congress in July. In 2017, attention will soon turn to campaigning for the November presidential and legislative elections.

Impact

- The government hopes to repeat the impact on its popularity of the previous Bachelet administration's pension reform.
- Businesses will see the proposed 5% pension contribution as a new payroll tax.
- Without a rise in the retirement age, it will be difficult to increase pensions significantly.

Analysis

Chile has a three-tier pension system:

- *Defined-contribution system of individual savings accounts*. All payroll employees must pay 10% of monthly earnings (up to an upper limit) into these accounts which are managed by private companies (AFPs). Launched in 1981 under the Pinochet dictatorship, the system now has around 5.5 million active contributors (out of a labour force of 8.7 million) and manages some 171 billion dollars in assets (equivalent to almost three-quarters of GDP).
- *Redistributive tier*. Introduced in 2008 by the previous Bachelet administration (see CHILE: Pension reform may boost government image - January 28, 2008), this tax-funded tier pays pensions to some 600,000 people without an AFP pension and a supplementary pension to some 750,000 whose AFP pension falls below a threshold.
- *Voluntary individual pension savings*. These instruments, offered by different financial institutions, are used principally by the highest-earning segment of the population due to tax incentives.

AFPs

There are six AFPs. The largest is Provida, controlled by US-based MetLife, with 47 billion dollars of assets under management. Next is Habitat (46 billion dollars of assets under management), a joint venture of US-based Prudential Financial and the Chilean Chamber of Construction. Other important players include US-based Principal Financial Group and Colombia's Sura Group.

Proposed changes

Since 2008, the redistributive tier has gone a long way to reducing old-age poverty and the changes now proposed target principally the middle class whose AFP pensions are falling short of expectations.

The system originally promised an income replacement rate (pensions as a percentage of working income) of 70%, assuming a 4% real annual return on assets under management. However, according to the OECD's Pensions at a Glance 2015, the replacement rate is only 37.7% (net of taxes for an average earner) as compared to an OECD average of 63.2%.

70.0%/37.7%
Forecast/actual replacement rate

Rather than a problem of returns -- which, albeit declining in recent years, have well exceeded 4% -- this reflects gaps in contributions over the course of a person's working life, a problem particularly acute among women who take time out of the labour market for child-rearing, as well as under-declaration of earnings and increased life expectancy.

In a bid to address this and other problems, the government's proposals include:

Creation of a new solidarity fund

Employers would have to pay a new contribution, equivalent to 5% of employees' monthly earnings, introduced gradually over ten years, into this fund (to which the state would not contribute except in its role as an employer). Details have yet to be defined. However, the government has indicated that part of it would be used to boost current pensions and part would be saved against future pensions. According to government estimates, the new contribution would raise some 3.8 billion dollars a year.

Changes in AFP regulation

Under the new proposals, AFPs would not be allowed to charge contributors an administration fee, currently 0.4-1.5% of monthly earnings, depending on the AFP, when their return on assets under management is negative. On grounds of transparency, they would also no longer be able to debit to contributors' individual accounts the fees they pay to intermediaries for investments abroad and in local mutual funds. Instead, they would need to cover them out of their administration fee, which, because of the amounts involved, would presumably rise.

AFPs would, moreover, have to incorporate representatives of contributors in key determinations such as investment decisions and the election of their board of directors, although it is not yet clear how this would happen.

Industry competition

To increase competition in the industry, the government will insist on the creation of a state AFP on which a bill has been before Congress since June 2014 (see CHILE: Bachelet prepares to address pension reform - February 19, 2014). It has also mooted auctioning contributors to AFPs to lower administration fees.

The 2008 reform introduced auctions of rights to receive new contributors who will join the system over the next two years. These sales have reduced fees, but the idea of auctioning existing contributors is controversial, partly because it would limit employees right to choice of AFP.

Compulsory AFP contribution by the self-employed

This is currently voluntary and, as of 2014, almost three-quarters had opted out.

Cross-subsidy for women

In a bid to increase the pensions received by women, with their longer life expectancy, AFPs and insurance companies paying pension annuities would have to use the same actuarial life table for men and women.

Criticisms

There is broad consensus on the need to raise pensions and reduce inequalities, but important criticisms of the government's proposals have been voiced:

Retirement age

They do not address the retirement age, which is 65 for men and 60 for women. An increase would be politically unpopular, but advocates point out that men of 65 men now have a life expectancy of 21 years, up from 13 years when the AFP system was created; for women of 60, the increase has been from 21 to 30 years.

A rise in the retirement age would be unpopular but necessary

Impact on investment policy

The industry has warned that, if AFPs are not allowed to charge administration fees when their return on assets under management is negative, they would be likely to adopt more conservative investment policies with a negative impact on long-term returns and, therefore, contributors' future pensions.

Back-door nationalisation?

The creation of a state AFP, combined with the auction of existing contributors (which is by no means certain), could, in practice, result in gradual nationalisation of the system. A state AFP, without the pressure of making a profit for shareholders and perhaps with a state subsidy, would have the advantage of being able to offer a lower administration fee.

Oxford Analytica

Kenya's new banking law may spur consolidation

Friday, September 30 2016

Standard and Poor's global ratings managing director for sub-Saharan Africa yesterday expressed doubt that Kenya's new banking law would strengthen the sector. Concerns over the implications of a new Banking Amendment Act on the sector's profitability have precipitated falls in Kenyan banking stocks. Nevertheless, improved lender efficiency may offer potential benefits. Higher deposit rates could enhance liquidity, thereby increasing financial intermediation in the long-term.

Equity Bank's Chief Executive Officer James Mwangi addresses investors at the Equity Bank headquarters in Nairobi (Reuters/Thomas Mukoya)

What next

Downward pressure on the Central Bank of Kenya's policy rate (resulting from lower inflation) will likely weigh on the banking sector's prospects in the short term. Larger local banks with diverse business models and foreign subsidiaries that can raise cheaper funds abroad are most likely to withstand the expected slump in profits. Smaller banks may become merger and acquisition targets, but concerns over asset quality could slow potential consolidation.

Impact

- High yields on government debt will remain a significant barrier to the growth of private sector credit under the new regime.
- Visa's entry in the mobile money market could spur further development in formal financial services.
- President Uhuru Kenyatta will argue for the merits of the law during the run up to the 2017 general election.
- If banks limit credit to the private sector, gains in financial inclusion could erode.

Analysis

Kenya's Banking Amendment Act came into effect on September 14, requiring commercial banks to cap the interest rate on loans at 400 basis points (bps) above the Central Bank Rate (CBR), which currently stands at 10% (see KENYA: MPs will assert legislative independence - August 17, 2016). In June, banks were charging average interest rates of around 18%.

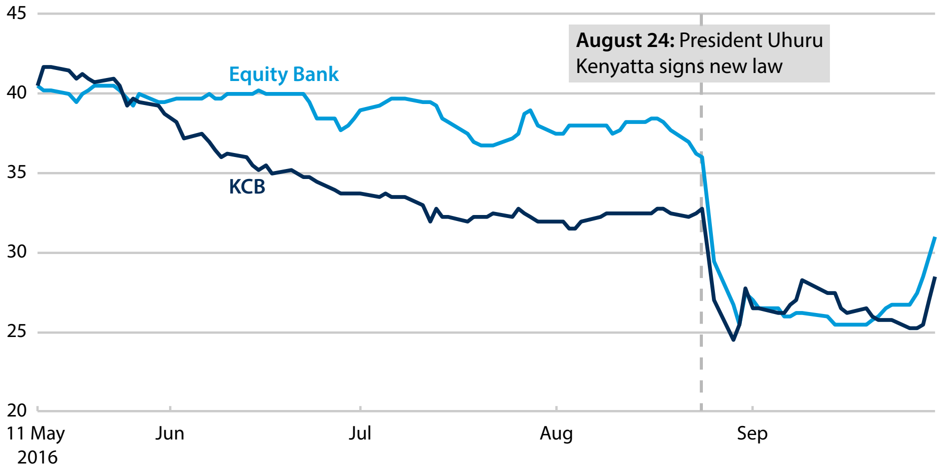
Under the new regulation, deposit rates also must not fall below 70% of the CBR (7% currently). Previously, larger depositors could earn around 5% on their savings, while smaller depositors were earning closer to 2.7% at institutions such as Equity Bank, Kenya's largest bank by customer base.

Bearish bank stocks

Although not mandatory, the Kenya Bankers Association on September 1 announced that its members had agreed to apply the new rules to their existing loan portfolios, precipitating a sharper fall in the sector's interest margins and exacerbating declines in banking stocks.

Around two-thirds of Equity Bank's deposits are in savings and fixed deposits. As a result, the bank's cost of funds is set to increase at the new rates, which is in part responsible for the 30% contraction in Equity's share price since August.

Other local players with large exposures to the retail sector such as Kenya Commercial Bank (KCB) have lost value. KCB's share price declined by around 20% since mid-August.



Equity Bank and KCB stock price (Kenyan shillings)
Source: Bloomberg

Foreign-owned lenders such as Barclays Kenya and CFC Stanbic, which mainly lend to larger corporates, have been less affected, with their stocks falling by 10.31% and 1.25%, respectively. CFC Stanbic was already offering 7% on its savings accounts prior to the new law, a rate equal to the new deposit rate floor following the central bank's 50 bps rate cut on September 21.

Access to finance

The new law aims to facilitate access to credit. In practice, most banks will likely reduce lending, particularly to high-risk borrowers, which includes small and medium enterprises (SMEs) -- those firms the law is designed to support. Many banks may also close branches and reduce staff to save on costs, potentially reversing improvements in opening access to formal financial institutions over the past decade.

The proportion of Kenyans with access to formal financial services increased from 26.7% to 75.3% (the highest in sub-Saharan Africa) between 2006 and 2016, largely due to the success of mobile and agency banking. Outside of mobile money, access to physical banking has also increased markedly: the number of bank branches countrywide tripled over the past ten years.

75·3
Percentage of Kenyans with access to formal financial services

Banks had planned to continue this trend, seeing opportunities in the recently devolved county structure. The new law may impel lenders to pare back or abandon these ambitions given growing costs.

Kenyan banks may also reduce the number of savings products available to the retail segment of the market -- particularly among local players with large exposures to the business line (Equity, KCB and Cooperative bank) -- to maintain their substantial profit margins.

However, the risk of increasing banks' asset liability mismatch by relying heavily on zero-interest current accounts will likely limit the uptake of this strategy.

Moreover, with deposit rates exceeding the rate of inflation (6.26% in August), the prospect of earning a positive real return on savings may attract deposits, helping to strengthen the sector's balance-sheet liquidity.

Demand for credit

Paradoxically, a law ostensibly passed to increase commercial lending may most benefit the government. The finance minister in May admitted that Kenya's budget deficit for the 2016-17 financial year would reach 9.3% of GDP, up from 6.9% announced in February (see KENYA: Public debt will be sustainable - July 11, 2016).

With relatively risk-free government debt yields now priced above the capped commercial lending rate of around 15%, banks are likely to increase their holdings of government securities in the short-term. Preference for government debt could disincentivise efforts to improve credit referencing needed to screen higher-risk borrowers.

Larger corporate borrowers may also fare better as banks increasingly extend loan offerings. These firms could enjoy lower rates as competition for their business grows. Equity Bank announced on September 14 that it had around 988 million dollars available for additional lending, mainly for the wholesale market. Equity is also offering rates as low as 10.5% for its "best clients".

Those crowded out of the sector (especially uncollateralised borrowers) may resort to lenders not subject to the new regulations, including higher cost microfinance institutions or informal lenders which charge usurious rates.

The net effect could stifle demand for loans from the majority of Kenya's SMEs -- the backbone of the economy.

Consolidation

Kenya's highly fragmented banking system may face increased pressure to consolidate. With 42 banks for a population of 47.5 million, Kenya has the highest number of banks per capita on the continent (Nigeria has 22 banks for 180 million people). However, the top seven banks account for 80% of the sector's assets, resulting in strong competitive pressure among smaller players for market share.

The banking sector may come under pressure to consolidate

The failure of three banks between August 2015 and April 2016 underscored the extent of risk-taking at the lower end of the market and fueled depositors' flight to safer banks (see KENYA: Bank woes belie strong 2016 growth prospects - April 13, 2016). Furthermore, increased loan-loss provisioning, together with the loss of cheap deposits under the new Act, could spur mergers to secure their market position.

Outlook

In the longer term, banks may need to increase lending volumes to offset pressure on profit margins and maintain business growth, especially if interest rates continue to fall. Lending to retail may therefore hold the key to long-term sustainability in the sector despite lower interest rates.

The government may need to improve the credit culture among borrowers as well as limit the macroeconomic volatility that can place upward pressure on interest rates and consequently default rates.

Blockchain will lead next global tech revolution

Tuesday, July 5 2016

Blockchain is a cryptographically enabled database technology that can make many transactions free of counterparty risks and nearly instantaneous, eliminating transaction costs. It was created and tested with bitcoin, a cryptocurrency. The financial industry is interested in it, given its scale and need for reliability and speed.

A bitcoin paper wallet with QR codes and a coin (Reuters/Benoit Tessier)

What next

Within the next few years, blockchain could see its first deployment in commercial applications, starting in less-regulated areas such as social media. Adoption by financial institutions is likely to take five-to-ten years, given regulatory oversight, need for scale and network effects. Institutional resistance and adjustment to information-technology systems will present challenges. Financial regulators are likely to be latecomers, but the technology could prove transformative to governance and regulation.

Analysis

Blockchain is the technology that allows creation of a digital chronological ledger of transactions with many advantages:

- All events are recorded in the ledger.
- Events are time-stamped for accurate chronology.
- Parties adding events to the blockchain can use cryptographic validation.
- The storage of the ledger itself is decentralised and distributed.

Having the data decentralised means that no single party has control over it. Having it distributed means that the ledger is replicated across thousands of computers, creating a system of mutual verification.

Distribution also ensures that no single party can alter or erase the blockchain. The ledger is made permanent and impervious to change or tampering, eliminating the need for manual verification and validation of events on the blockchain.

Also called 'distributed ledger technology' (DLT), it can be applied to many sectors where it can address counterparty risks and reduce transaction times and costs. Permissioned blockchain networks are private platforms where access privilege can be determined.

Most commercial DLT initiatives are private and can incorporate 'smart contracts', that are instructions coded into the blockchain, resulting in the automatic execution of a predetermined transaction once the specific conditions are met.

IBM is working on a platform for international trade where each step in shipping, clearing customs and accepting delivery and payment is automated and guaranteed via blockchain. This eliminates the need for separate verification (see INTERNATIONAL: Trade and shipping will grow slowly - June 20, 2016).

Impact

- Blockchain use could expand beyond cryptocurrencies, with the financial industry leading it towards real-life applications.
- As the blockchain technology could be disruptive, banks are attempting to influence and direct its development early on.
- Corporate strategists will be the predominant investors in blockchain start-ups rather than traditional venture capital.

Blockchain could obviate the need for 'trusted intermediaries' for settling transactions. Intermediaries can suffer from agency problems and can be subverted.

Blockchain could obviate the need for 'trusted intermediaries' for settling transactions

If DLT is adopted, the industry may lose 11-12 billion dollars in securities transaction and settlement fees, according to Goldman Sachs. If systems like IBM's trade platforms were adopted, they would eliminate the need for letters of credit and escrow services.

This will improve operating efficiency, leading to thousands of jobs disappearing.

Banks understand both the threats and the opportunities. After the lessons of the internet, they are attempting to influence the technology's evolution. Some banks have set up 'blockchain labs', where they experiment with the technology. This allows them to develop platforms that can be adapted into their own infrastructure.

It also allows banks to gather data and evidence to educate and guide regulators. Blockchain solutions are likely to be a piece of enabling technology for financial institutions rather than something that can supplant them entirely.

Securities exchanges

Securities exchanges are natural candidates for this technology. There have been attempts to reduce settlement times for years.

Blockchain has the necessary functionality to allow instantaneous settlement of trades. Exchanges would gain competitive advantage, as this would free up trillions of dollars of their customers' capital currently stuck because of capital requirements.

Listed companies would save on operating costs and custodial fees. DLT could enable features such as real-time dividend payment, proxy votes and streamlined tax reporting.

The Australian Securities Exchange (ASX) is testing the technology. It selected Digital Asset Holdings as its technology partner and funded the company in January 2016, acquiring 5% of the capital. ASX plans to make its final decision next year; if the decision is to proceed, it expects implementation to take up to ten years.

Regulation and compliance

A technology initially created to skirt regulators may become their most powerful tool. A truthful and permanent record of transactions would reduce the burden for both regulator and industry. Blockchain applications could provide effective solutions for key compliance issues:

KYC

Know your client (KYC) requires customer due diligence to be performed before a client is brought on board. These checks are performed manually and are expensive.

Background checks are replicated across many financial institutions. If the relevant information and identity of the new client is secured in a blockchain and shared within the industry, it would make KYC streamlined and efficient.

AML

Anti-money laundering (AML) requires institutions to monitor transactions for potential money-laundering activities. Currently, as much as one in 20 transactions is reviewed manually (see INTERNATIONAL: Money laundering policy rethink ahead - July 16, 2015).

Fewer than 0.1% of the reviews reveal suspicious activity. Many false alarms are caused by human errors in the transaction chain, such as missing information or mis-spelling.

A distributed database that codifies transactions and eliminates the need to verify identification would streamline AML compliance and nearly eliminate false alarms. Much of a regulator's work consists of verifying the information provided by the industry to ensure compliance.

A distributed database eliminating the need to verify identification would streamline AML compliance

If the integrity of the information were guaranteed through a proper blockchain, it would transform the regulating process.

Challenges

As with any nascent technology, challenges remain:

Scalability

As a distributed database, blockchain relies on a network of computers. The more data, the more network and storage capacity will be required.

The financial industry will have to invest and build capacity to cope with vast amounts of data.

Speed

Current blockchain platforms can process about 100 transactions per second, while speeds required by banks and exchanges are higher. A technological breakthrough may be needed.

Standardisation

Permissioned DLT networks are likely to be created. These platforms need to be standardised and interoperable for it all to work. The Linux Foundation's Hyperledger Project is the premier effort to standardise blockchain platforms.

Privacy

Companies and individuals may be wary of any type of permanent and unalterable record of transactions. Sharing counterparty data on a distributed database may face resistance.

Blockchain's potential impact on business and society overall is enormous; if it attracts a combination of financial backing and talent, it should result in solutions for these challenges. However, DLT is not a near-term solution for the banking sector, which suffers from low interest rates and rising compliance costs.

DLT may change the banking sector, but may take a long time to realise.

Outlook

Blockchain technology can be as revolutionary in the next two decades as the internet was in the past two. What internet did to liberate the transfer of information, blockchain may be able to do to the transfer of value.

Once adopted, DLT-based systems may prevail in many sectors of society, unlocking liquidity for assets previously ineligible for trading or transfer.

Industry 4.0 will arrive unevenly

Wednesday, October 12 2016

Dubbed variously 'Industry 4.0', 'intelligent manufacturing' or the 'internet of everything', cyber-physical systems that control the flow of materials, products and information are starting to transform industrial production and supply chains. They will eventually disrupt business models and challenge policymakers.

SoftBank's robot 'Pepper' in Taipei, Taiwan (Reuters/Tyrone Siu)

What next

Developed economies will promote Industry 4.0 as a pathway to enhanced global competitiveness, a resurgence of manufacturing and disruptive product innovation in the hope that it will create and retain well-paying domestic jobs. Falling costs as the underlying technologies scale will make this feasible. However, substantial technology, business model and regulatory challenges would need to be overcome. Cybersecurity risks will increase exponentially. Net new job creation may take far longer than a likely lengthy initial period of job destruction, fueling social restiveness.

Impact

- Improved production flexibility and vertical integration with customers should facilitate bespoke manufacturing ('mass customisation').
- Entire value chains will vertically integrate, embracing product design, procurement, production, distribution, sales and maintenance.
- Horizontal integration around smart factories will create new business models based on manufacturing as a service (MaaS).
- Pay-by-use and subscription-based MaaS could upend traditional models for financing capital expenditure on plant and equipment.

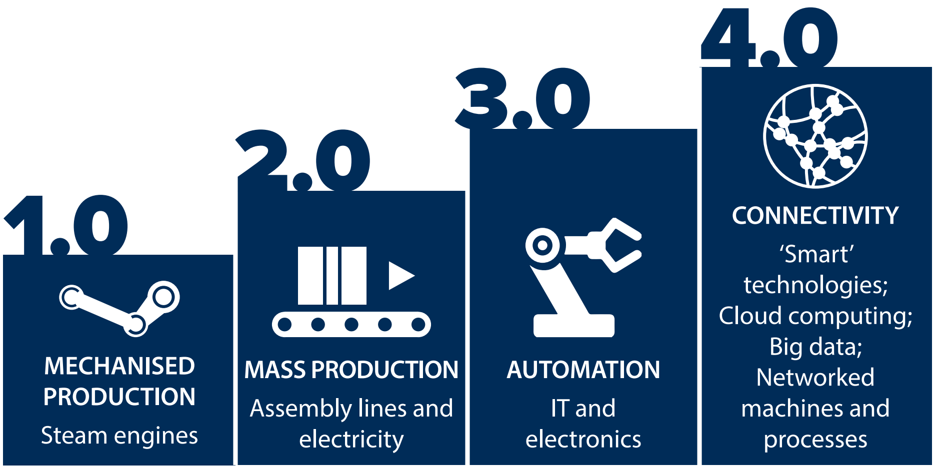
€200mn

German government funding for an Industry 4.0 working group

Analysis

The term Industry 4.0 derives from the German-government-sponsored Industrie 4.0 Working Group set up in 2011 to study the advanced computerisation of manufacturing and subsequently backed with 200 million euros (221 million dollars) of government research and development (R&D) funding.

The reference to a prospective fourth industrial revolution was a deliberate move to connect Industry 4.0 to the three revolutions that went before: manufacturing driven by steam power, assembly line production driven by electricity and automation driven by electronics/IT.



The stages of industrial development
Source: Oxford Analytica

In the United States, Industry 4.0 is called the internet of everything as it brings together the internets of things, services, data and people.

Sensors, radio chips, software and embedded intelligence are integrated into networked industrial products and systems to manage and optimise product sourcing, production, performance and service needs.

Making machines self-aware, self-organising and continually self-optimising, and networking them together along the value chain should create industrial systems that perform more efficiently, collaboratively and resiliently than conventional manufacturing.

The underlying technologies involved also include big data and analytics, predictive analytics, artificial intelligence, robotics, additive manufacturing ('3D printing'), everything-as-a-service and cloud computing, and business-to-business online marketplaces.

Technology convergence

Four factors have reached a scale and convergence that is starting to turn the highly automated plants of multinational consumer and industrial goods companies into pioneering Industry 4.0 platforms. They are:

- advances in computational power and connectivity that allow the processing of large data volumes and their visualisation;
- the application of analytics and artificial intelligence to business logic and processes;
- the manifestation of digital programmes in the physical world through, for example, 3D printing; and
- the development of interfaces for human-machine interactions such as touch screens and virtual reality.

In future, these industrial platforms will be able to link to other 'smart' networks, for example, autonomous logistics and transport networks, smart grids for power and energy-optimised smart buildings and other infrastructure.

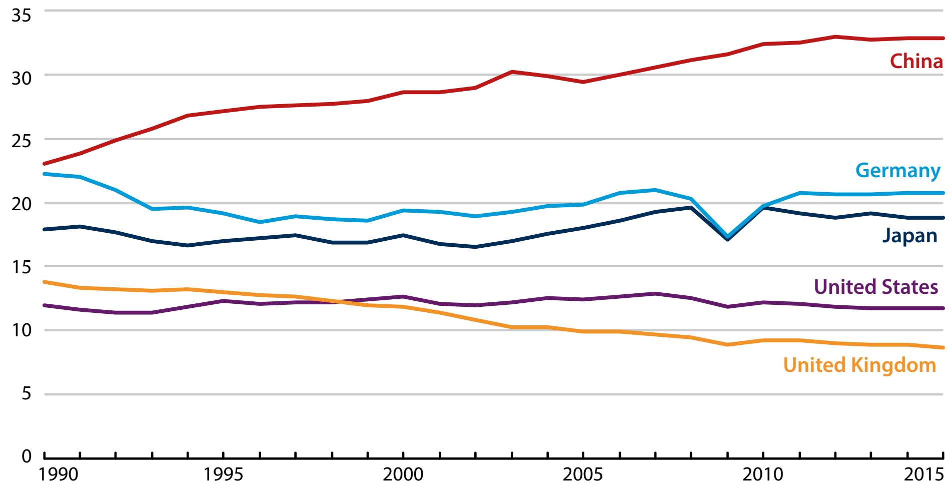
Government support

Developed economies, notably Germany and the United States, are funding Industry 4.0 R&D and infrastructure. They mostly incorporate it into industrial policy via promoting public-private partnerships for innovation centres connecting business and researchers, centres of manufacturing excellence and apprenticeships to fill skills gaps.

In Germany, Industrie 4.0 is the centrepiece of the government's High-Tech Strategy 2020 Action Plan. The US administration launched the public-private Advanced Manufacturing Partnership in 2011 and updated it in 2013.

Japan, somewhat of a laggard despite longstanding automation of its factories, has set up the Industrial Value Chain Initiative. The United Kingdom is similarly focusing on advanced supply chains. France and Italy have smart factory programmes and the Netherlands a smart industries equivalent. In 2015, the European Commission launched the Cloud-based Rapid Elastic Manufacturing research project to promote the concept.

China, already the world's largest market for industrial robots, is closely following the German model and spending heavily on industrial R&D to support a national goal for its advanced manufacturing to be on an equal footing with the United States, Germany and Japan by 2045.



Manufacturing value added as % of total GDP (constant 2010 dollars)
Source: United Nations Industrial Development Organization (UNIDO)

Benefits

All these nations see Industry 4.0 as enhancing the global competitiveness of their industrial firms and providing a potential resurgence of manufacturing production and exports that will create and retain domestic manufacturing jobs as well as potentially repatriating those previously lost to lower-cost developing economies.

Industry 4.0 could help developed economies create and retain domestic manufacturing jobs

Potential efficiency gains through the agility, flexibility and scalability of cyber-physical production systems should lower manufacturers' costs, raise product quality and productivity, as well as promise disruptive product innovation.

However, while some production in developing economies may return to developed countries, increasingly the need to produce goods locally, especially in new growth markets, will inform decisions on where to locate production.

Obstacles

Multiple hurdles remain to widespread implementation.

Reliability and safety

Engineering across the digital-physical divide is not a trivial problem. Nor is the integration of heterogeneous and legacy systems across internal and external networks. The much greater complexity of cyber-physical systems over conventional manufacturing means many more potential points of failure, which will be of particular concern to the medical and healthcare industry.

Standardisation

Machines will need standard interfaces -- with global acceptance -- to communicate with each other and share data seamlessly. These standards will likely take years to be agreed and be a point of national government contestation.

Security

Industry 4.0 requires high levels of data sharing. This will further elevate the already heightened cyber risks of data theft, industrial espionage and other cyberattacks (see INTERNATIONAL: Demand will outpace cyber insurance - August 12, 2016).

Corporate resources

Surveys show that most companies lack both the staff and IT infrastructure to make the transformation to Industry 4.0. This is particularly true for small and medium-sized companies, although they potentially could be the greatest beneficiaries from Industry 4.0.

Uneven technology development

Industry 4.0 requires the exponential growth of many new technologies from artificial intelligence to nanotechnology. These are unlikely to happen in parallel.

Legal issues

Questions of legal liability, data privacy and protection of intellectual property (IP) will become increasingly complex and new legal frameworks will be needed.

Data sharing and IP rights will be a particular problem for companies operating in countries where state controls over data are extensive and used as a policy tool of industrial protectionism.

Taxation

3D printing will allow the production of products across countries with no physical crossing of national borders, putting new demands on VAT and custom duties regimes.

Labour markets

A report for the International Federation of Robotics in 2013 forecast that industrial robots would create 1-2 million new jobs in 2017-20. However, a frequently cited study by Oxford University researchers Carl Benedikt Frey and Michael Osborne the same year forecast that many times that number of jobs would be at risk in industrialised economies.

It seems likely that, as happened in earlier industrial revolutions, the effects on labour markets will be asynchronous (see INTERNATIONAL: Artificial intelligence - June 28, 2016). Displaced unskilled or semi-skilled production workers will not have the skills or qualifications needed to be employed in Industry 4.0, possibly on a large scale, while at the same time there will be skills shortages.

This will profoundly challenge policymakers in the provision of education and training to deal with skills mismatches and social welfare provision for displaced workers.