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Global Public Investor 2018

Asset allocation
Global flows
Digital disruption

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Global Public Investor 2018

Global Public Investors, including central banks, sovereign funds and public pension funds, are an important force in the global economy. The policies of 750 institutions with worldwide investable assets of $36tn have a profound effect on global markets. This edition examines shifts in asset allocation strategies, the impact of global capital flows, and the effect of different sources of digital disruption on the performance and functioning of these pivotal players on capital markets.

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David Marsh
Chairman
OMFIF

Disparate institutions, common purpose

The size and overarching nature of transactions in both industrialised and emerging market economies make necessary an intermingling of expertise and a pooling of risk.

Investors connected with the diverse fields of states and statehood are more than ever in the vanguard – not only on financial markets but also in public discussion. The 2018 edition of *Global Public Investor* underlines central themes that have been constant features of five years of publications. The strands linking the disparate categories of institutions making up the 750-strong GPI community are getting stronger. Their actions are pivotal for banking and capital markets. And they are subject to ever greater scrutiny.

Assets under management rose 7.3% over the past year to $36.2tn, the largest increase since OMFIF started recording these developments. Size alone attracts attention. Any future world downturn will see these GPIs become objects of still more intense debate as politicians seek assets and ammunition to plug holes in government finance and prop up living standards.

The relatively shallow economic recovery since the 2007-08 dislocation has aided asset growth, particularly in the light of increasing allocations (even among traditionally risk-averse institutions) towards equities and 'real assets'. But, as interest rate policies gradually normalise (at ominously different speeds) in different parts of the world, growth will almost certainly diminish in the next two to three years.

Central banks' accommodative monetary policies have 'won time' for these institutions as well as for politicians. This may delay the reckoning; it will not prevent it. The longer the delay, the greater the probable force of the forthcoming 'trial of strength' predicted in the 2017 edition.

Size is pivotal in any examination of GPIs' investment diversification. The 2018 edition records that one-fifth of the $2.5tn rise in assets over the past year has been concentrated in four institutions – Norges Bank Investment Management, the People's Bank of China, Swiss National Bank and Japan's Government Pension Investment Fund. These four entities, crossing and overlapping with the different categories of GPIs we have been tracking since OMFIF's foundation, epitomise the wide range of characteristics and increasingly sophisticated investment behaviour of the public investor network.

In 2014, defining 10 guiding principles behind public asset management, we spotlighted 'commonality of purpose and practice' across the three broad institutional groups, as well as the challenges stemming from self-feeding 'demands of sheer size'. Coping with suboptimal returns from traditional currencies and instruments, building up equity holdings, assembling investments in infrastructure, real estate, commodities and hedge funds and diversifying into higher-yielding currencies and other assets were all issues we highlighted in 2014. We stressed, too, the need for more effective interactions between the public and private sectors. This area has gained particular attention over combating climate change – with OMFIF playing an increasing role.

In 2014, we wrote that the spread of issues on which public sector asset managers are required to gain knowledge, hold opinions and make judgments has risen enormously. A growing variety of interdisciplinary characteristics is needed to meet these requirements. The room for co-investments and partnerships of all kinds, both within and beyond the public sector, is expanding rapidly. The size and overarching nature of transactions, for example in the energy, transport and infrastructure sectors in both industrialised and emerging market economies, make necessary an intermingling of expertise and a pooling of risk.

As we wrote in 2014, a research undertaking like *Global Public Investor* will always be work in progress. 'This guide is authentic but not all-defining, effective but not exhaustive. Much effort, analysis and debate lies ahead.' That is still the message.

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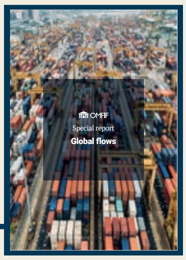

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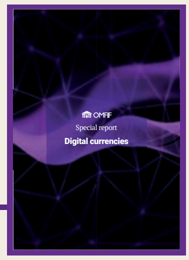

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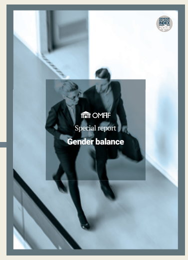

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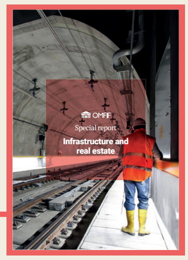

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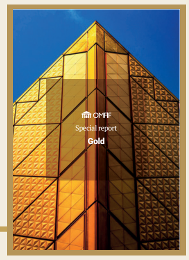

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José Ángel Gurría
Secretary-General of the Organisation for Economic Co-operation and Development

Transformative effect of digital trade

Digital transformation is having a profound impact on international trade. Access to critical knowledge and services is leading to the emergence of micro-multinationals.

Digital transformation is having a profound impact on international trade. Global Public Investors have to be at the forefront of this transformation. As value and knowledge move across borders with greater ease, new systems for exchange are being created, helping consumers access products and services and enabling firms to collaborate better. Digital technologies are allowing firms to internationalise at lower cost, and a growing number of enterprises are engaging in cross-border ecommerce.

Technological advancements, such as big data, artificial intelligence and cloud computing, help firms to access new services with little upfront investment. They help them scale up in response to rapid changes in demand. Access to critical knowledge and services is enabling more small and medium-sized enterprises to compete in international markets. This is leading to the emergence of micro-multinationals.

The challenge for firms is how to maximise the potential of digital trade. Investment in technologies is, in general, associated with higher productivity. But this is only true for firms that are sufficiently agile to adopt new technologies, and only if markets remain open so that firms can source new inputs and technologies to scale production.

Digital trade is as much about digitally-delivered services as it is about enhancing digital connectivity, which facilitates greater traditional trade in goods. Trade in smaller, often lower value physical packages (parcels ordered online) is growing, as are digitally delivered services (such as mobile phone applications). New product types are emerging, including bundled goods and services, or services embedded in goods.

People expect swift transactions in the age of hyperconnectivity. Goods need to cross borders quickly and efficiently, supporting services must be delivered promptly, and information about products needs to be accessible at all times. Small barriers to these flows can have significant consequences.

> “People expect swift transactions in the age of hyperconnectivity. Small barriers to these flows can have significant consequences.”

While business models are evolving, the rules that govern market access are still based on whether the traded products are goods or services, and which borders they cross. Neither of these factors is easy to determine in the digital world.

Market openness must be approached holistically. Digitally enabled goods trade will suffer if logistics services in the receiving or delivering country are made more costly due to service trade restrictions, or if goods are held up at the border by cumbersome procedures.

Data underpin digital trade: as an integral part of production; as a tradeable asset; as a means of delivering services and products; and as a source for coordinating global value chains and improving trade facilitation. But the growing volume of data crossing borders has amplified concerns about digital security and regulatory sovereignty. As a result, governments are restricting some cross-border data transfers, or requiring that data be stored locally.

The implications of these measures are not well understood. There are concerns about the impact these may have on the benefits of digital trade. At the same time, there are legitimate public policy objectives, such as the protection of privacy.

Realising greater benefits from digital trade will require international dialogue and coordination to ensure mutual understanding of differing regulatory regimes. The policy-making process must involve not only governments and international administrators, but also representatives from civil society, trade unions and the business community. These are all major fields of interest for the OMFIF GPI review. I commend it to readers' interest.

Meghnad Desai
Emeritus Professor of Economics at the London School of Economics and Political Science

Unconventional source of disruption

Global Public Investors must be uneasily aware that tweets from the White House will have as big an impact on their fortunes as the decisions of the Federal Reserve.

The largest source of disruption – real and potential – for Global Public Investors over the past year has come from the White House. Donald Trump continues to amaze, enrage and confound with his actions and pronouncements. Trump is the first US president to break all the conventions. People think he is stupid as well as dangerous. Initial dislike at his election led to belief impeachment could quickly remove him. But he is still popular with the Republican party. I predict he will survive the 2018 midterm elections – and he has a good chance at re-election in 2020.

We have to look beneath the noise. When in 2017 Trump issued dire threats to Kim Jong-Un and the North Korean leader responded in like terms, many feared Trump was about to unleash a world war. But Trump knew the language that Kim would understand. This brings hope for a breakthrough on the Korean peninsula.

Trump entered the White House complaining about the state of the US economy. Yet it is booming as it has not done in more than 10 years. Employment, especially among African-American workers, is demonstrably strong. Inflation is low. The stock market is still buoyant.

Trump must be doing something right. Missing the signals could be damaging. Trump may yet be a great success.

Trump's deal-making is unconventional. People are used to transparent, almost linear approaches. Trump plays nonlinear games. He knows where he wants to go but does not take the direct route. His tariff conflict with China is an example. Until he became president the idea was that the US was to guarantee a liberal trading environment by its willingness to supply global public goods such as free movement across oceans and military security. Trump, by contrast, believes in a hub-and-spoke world, with the US as the hub. He sees the US as threatened by China's challenge for the top spot. He wants to take on China in a bilateral tariff war, whatever the collateral damage.

Trump sees the world through the prism of bilateral relationships. He wants to renegotiate all the treaties and agreements signed before he took over, and thinks he can get a better deal.

> "Trump entered the White House complaining about the state of the US economy. Yet it is booming as it has not done in more than 10 years."

He wants European members of the North Atlantic Treaty Organisation to pay their proper share towards defence, especially Germany. He suspects other countries have been free-riding on US benevolence. Trump wants US money back. He is seeking a deal or rather two bilateral deals, one with China and the other with the European Union. Wanting the US to be great again requires Trump to be a mercantilist.

Revoking Obama's nuclear accord on Iran will affect the global economy as oil prices will rise. The EU does business with Iran. As US sanctions are reimposed, European countries will suffer.

The Sunni kingdoms of the Gulf region are urging Israel and the US to contain Iran. The Israeli-Saudi alliance could be what Trump has been encouraging. As in the Korean case, fear of war is in the air. I am reasonably confident that Trump can master a new dialogue in the Middle East. But it will be a bumpy ride. Global Public Investors must be uneasily aware that tweets from the White House will have as big an impact on their fortunes as the decisions of the Federal Reserve.

Dimitar Radev
Governor of the
Bulgarian National Bank

Important journey to euro accession

As a future member of the European single currency, Bulgaria is keenly interested in euro area reforms. The country must translate strong economic recovery into durable convergence.

The joint themes of reform and transition run through this year's OMFIF *Global Public Investor*. The international economy, after almost a decade of recovery from the 2008 financial crisis, may be approaching a turning point, while the world has to weather the changes wrought by the shifts in US foreign policy and the rise of China.

As a future member of the European single currency, Bulgaria is keenly interested in euro area reforms. Within this broader context, the completion of the banking union, for instance, is among the priorities of the Bulgarian presidency of the Council of the European Union in the first half of 2018.

At the same time, we are well aware that if we want Bulgaria to be a fully-fledged participant in the reform process at the European level, we need to further deepen our reform agenda. We must translate our strong economic recovery into durable real convergence.

Indeed, Bulgaria's macroeconomic performance is solid. Monetary stability has been in place for over two decades. The exchange rate is fixed to the euro and the currency board is uncompromised in both good and bad times, even during the financial crisis. Bulgaria keeps a broadly balanced budget and is reputed to have the third-lowest debt-to-GDP ratio in the EU. The banking sector is robust, with capital adequacy and liquidity exceeding the EU averages.

It is logical to expect that a country with such a record should not be blocked, but rather welcomed to start its journey towards joining the euro area through the participation of the lev, the national currency, in the exchange rate mechanism II.

> "The process of euro area accession, starting with the participation of the lev in the ERM II, will be a catalyst for further improvements, adjustments and reforms. All of this will ultimately be beneficial for the economy, irrespective of whether we are in or out."

The actual timing of euro adoption will depend less on the nominal Maastricht convergence criteria, which Bulgaria has been meeting broadly for many years, and more on the real convergence of the economy. There are structural and institutional policies that need to be implemented and consistently pursued, in order to speed up real convergence.

Thus the process of euro area accession, starting with the participation of the lev in the ERM II, will be a catalyst for further improvements, adjustments and reforms. All of this will ultimately be beneficial for the economy, irrespective of whether we are in or out. The journey is at least as important as reaching the final destination. The same holds true for many global public investors that OMFIF highlights in this 2018 edition, which I am sure will fulfil its purpose of spreading better investment practices worldwide.

Executive summary

GPIs shift allocation strategies as market rally boosts values

Global Public Investor, now in its fifth year, takes further than before a cross-sector, multijurisdictional approach to investigating the asset management strategies of official institutions.

These institutions hold assets worth $36.2tn, equivalent to 45% of the world economy. Our coverage includes six special reports – on gold, global investment flows, sustainable investments, real estate and infrastructure, Islamic finance and digital currencies.

Most GPIs are in Europe and North America, which host 245 and 221 institutions respectively and jointly hold just under 50% of all GPI assets. Asia, while lagging in numbers of GPIs (118), is the largest region in terms of assets, holding $13tn or 38% of the total. Of the remaining assets, 11% are held by Middle Eastern institutions, 4% by Latin American ones, and only 2% are in Africa.

Assets across all institutions grew by $2.5tn in 2017, a 7.3% increase. This is the largest such increase since OMFIF started tracking these data, and is substantially higher than last year's 1.1% rise. Comparisons with the figures contained in *GPI 2017* are not always exact because of minor changes in the composition of the 750 GPIs under review as well as other adjustments. For more details see Note on Methodology, p.169.

GPI assets were boosted by the continued global economic recovery, particularly across advanced economies. Only Middle Eastern central banks saw assets fall as their economies struggled with weak commodity prices, geopolitical instability and associated pressures on their exchange rates.

Overall, European GPIs saw the largest increase at 11.8%, propelled chiefly by increases in central banks' reserves. Asset values were supported by the rise in the gold price in the light of the precious metal's significance in central bank reserves. Central banks' gold holdings increased by 371 tonnes over 2017, bringing total holdings to 31,800 tonnes, their highest level since the 1990s. Purchases were led by the Central Bank of Russia, whose holdings have overtaken those of the People's Bank of China.

The equity market rally also supported GPI asset valuations, with equities making up 40% and 36% of sovereign and pension funds' portfolios. However, some investors are wary of high valuations and the potential for volatility. Up to 25% of investors surveyed by OMFIF plan to reduce their equity holdings, with around the same number planning to increase. Infrastructure and real estate were considerably more popular, with 70% and 45% of institutions planning to increase their respective investments in these asset classes, and with none planning to decrease.

Public investors' shift to real assets has been motivated by their search for yield in the context of a challenging macroeconomic background. Central banks' loose policies have depressed bond yields and challenged traditional fixed income allocation strategies. They have also created rising imbalances between debtors and creditors, inviting tensions in international trade and investment. Even as central bank policy normalises, this process will be modest and gradual.

These themes are analysed by the policy-makers responsible for these trends as a major focus of *Global Public Investor 2018*. We examine the impact of macroeconomic influences and digital disruption on asset allocation models, including the development of asset classes such as infrastructure, real estate and sustainable investments, all subjects of major preoccupation for public institutions around the world.

1. Total global public assets up by $2.5tn

The *Global Public Investor 2018* report, now in its fifth year, contains the most comprehensive ranking of assets under management for official institutions. The report covers 750 institutions from 174 countries across five continents, comprising 495 public pension funds, 164 central banks and 91 sovereign funds.

AUM across the 750 institutions grew by $2.5tn over 2017 to $36.2tn from $33.7tn in 2016, a 7.3% rise. This is the largest such increase since OMFIF started tracking the AUM of these institutions, and is substantially higher than last year's 1.1% rise.

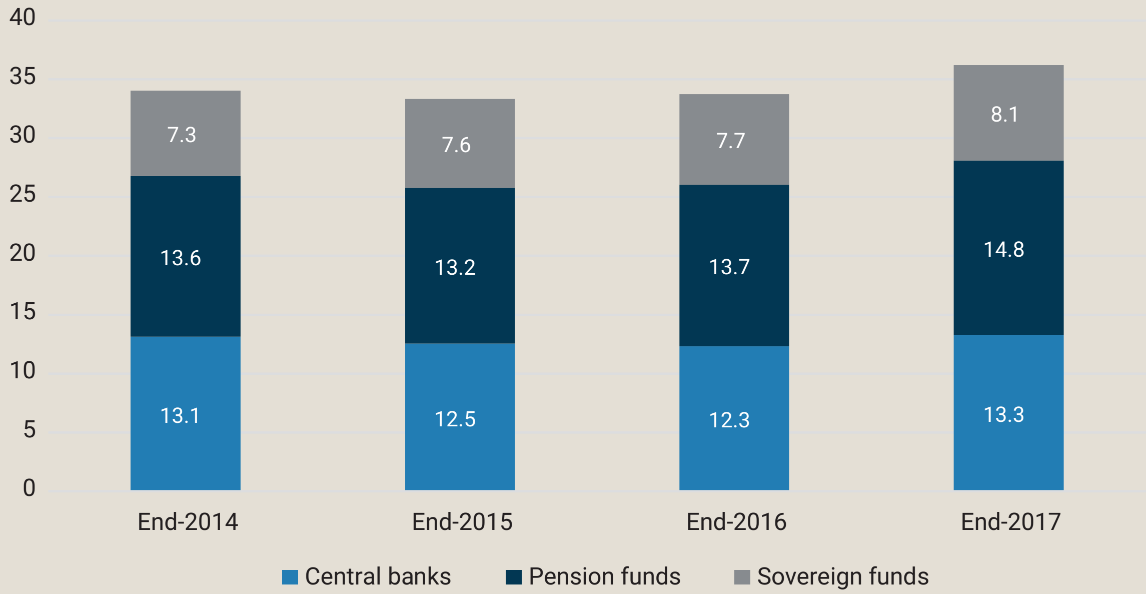
This is also the first time the report records an increase in the assets of all three types of GPI institutions. Pension funds were the driving force, with assets increasing by $1.1tn, up 8.1% from last year. Central banks saw strong growth of 7.8%, or $959bn, reversing the trend of declining reserves over the last few years, while sovereign funds rose 5.1%, or $397bn, from last year.

GPI assets grew across all types and all continents, with one exception: central banks in the Middle East saw a $32bn decline. This was partly offset by small gains for Middle Eastern sovereign funds and pension funds. Overall, European GPIs saw the biggest increase in assets at 11.8%, propelled chiefly by increases in central banks' reserves. Asian assets also grew strongly, consolidating the region's status as the world's GPI hub: 38% of all GPI assets are owned by Asian investors.

GPI assets were boosted by the continued global economic recovery, particularly across advanced economies. The equity market rally also supported GPI asset valuations, as did the rise in the gold price in the light of the precious metal's significance in central bank reserves.

All fund types see growth in assets

Assets under management of GPI 750, by institution type, $tn



Source: OMFIF analysis

2. Europe leads asset growth

Europe was the region with the largest percentage increase in assets in 2017. The value of European public investors' holdings rose 12%, significantly above the average 7% expansion seen across the global GPI community. Assets grew to $7.6tn, a $800bn increase from the year before.

As in 2016, Europe's strong performance in 2017 was led by central banks, whose assets grew by $409bn, up 16% from the previous year. Pension funds added $169bn (8%) and sovereign funds $220bn (11%). Non-euro area central banks saw the largest increases. The Swiss National Bank added $133bn, bringing its total assets to $812bn, 20% higher than the year before. This was propelled by large gains in its foreign equity holdings, as well as appreciation of its bond and stock portfolio against a backdrop of a weakening franc. Also owing to exchange rate developments, the Czech National Bank increased its reserves by 73% to $148bn over 2017. This was driven by inflow of foreign capital before the central bank's decision to abandon the exchange rate floor of the Czech currency against the euro in April 2017.

Major euro area central banks, including the Deutsche Bundesbank, Banque de France and Banca d'Italia, saw their assets increase at a double-digit pace. A rising gold price, the currency union's robust economic recovery and the euro's resulting firmness all supported central banks' reserve holdings. Euro area central banks added over $100bn to their reserves, while only two out of the 19, those of Estonia and Austria, saw reserves decline.

Asia Pacific was the second-best performing region after Europe: its assets grew by $948bn, a 7% increase on the year before. With $13.8tn of assets, it remains the world's most important GPI hub and is home to the world's three largest public investors: the People's Bank of China, Japan's Government Pension Investment Fund and the Bank of Japan. Central banks were responsible for more than half of this increase, raising their assets by $476bn. The PBoC played a key role in this development, increasing its reserves by $134bn and reversing the trend of declining reserves seen between 2014-16. As well as a weaker dollar, this appears to reflect the Chinese authorities' efforts to curb capital outflows through tighter regulations on outbound investment by both businesses and wealthy individuals.

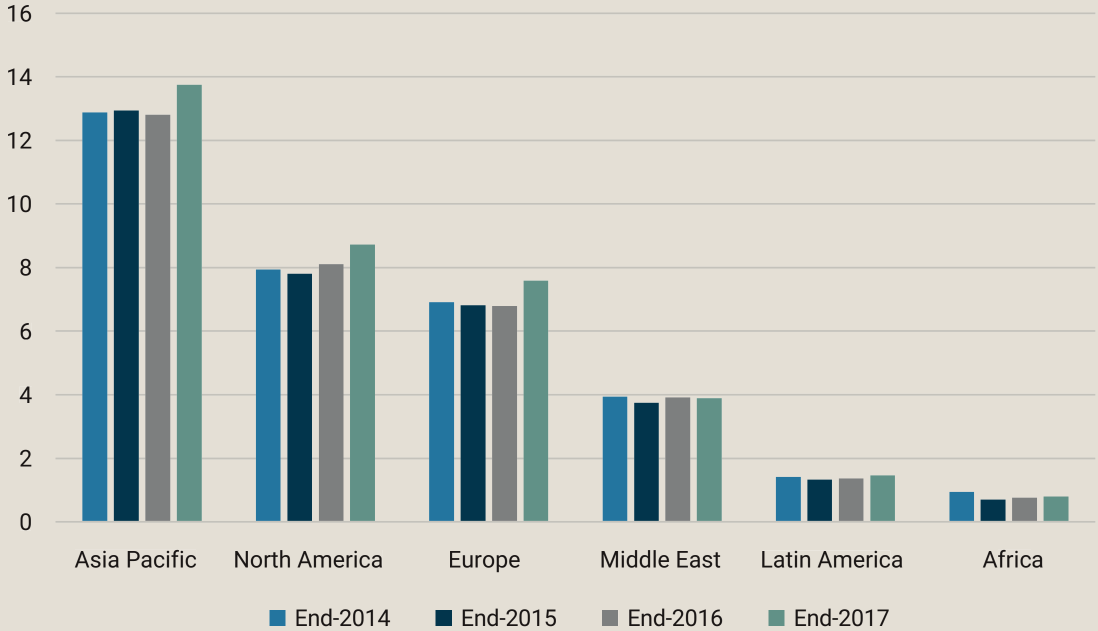
The increase in foreign reserves was further supported by China's strong economic performance during 2017, which saw GDP expand by 6.9%, exceeding the leadership's target of 6.5%. In combination with downward pressures on the dollar, China's robust economic data helped restore confidence in the renminbi, which appreciated by around 10% against the dollar in 2017. This helped ease pressure for further capital outflows and supported the increase in the PBoC's foreign reserves.

Elsewhere in Asia, the Hong Kong Monetary Authority and Reserve Bank of India also increased their reserves at double-digit pace.

North American and Latin American assets grew strongly, by $611bn (8%) and $92bn (7%) respectively. African public investors increased their assets by 6%. However, assets have not fully recovered to their pre-commodity downturn peak and remain almost 15% below their 2014 level. The Middle East was the only region where GPIs saw assets decline, but the drop was marginal at just 0.6%, equivalent to $24bn.

Europe leads GPI growth

Assets under management by region, $tn



Source: OMFIF analysis

European central banks see large swings

Assets under management, euro area central banks, $bn

	AUM end-2017	absolute change ($bn)	% change
Germany	208.7	24.7	13
France	176.1	30.2	21
Italy	152.2	17.0	13
Euro System	78.9	6.2	9
Spain	73.1	4.6	7
Netherlands	40.6	4.7	13
Portugal	27.5	2.5	10
Belgium	25.9	2.5	10
Austria	22.9	-0.3	-1
Finland	11.5	1.1	10
Greece	8.1	1.0	14
Latvia	5.2	1.6	47
Lithuania	5.1	2.5	96
Ireland	4.4	0.8	23
Slovakia	4.0	1.1	38
Luxembourg	2.6	0.2	8
Malta	1.0	0.3	50
Slovenia	1.0	0.2	30
Cyprus	0.9	0.1	13
Estonia	0.3	0.0	-2

Source: OMFIF analysis

3. Middle East suffers asset drop

The Middle East was the only region where global public investors experienced a decline in asset values, losing $24bn (0.6%) between 2016-17. At the end of 2017, the assets under management of all Middle Eastern public investors stood at $3.9tn.

Middle East central banks' assets fell by $32bn (3%) since the end of 2016, while pension funds and sovereign funds increased their assets by $5bn and $3bn respectively. The central banks of oil-exporting countries dominated absolute losses. The Saudi Arabian Monetary Authority's assets fell by $51bn to $496bn; the Qatar Central Bank's by $17bn to $15bn; the Central Bank of Oman's by $3bn to $17bn; and the Central Bank of Yemen's by $400m to $4.8bn.

Lower oil prices since 2014 have created devaluation pressures for these central banks. Worsening terms of trade have forced central banks to draw down on their foreign reserves to maintain their dollar pegs.

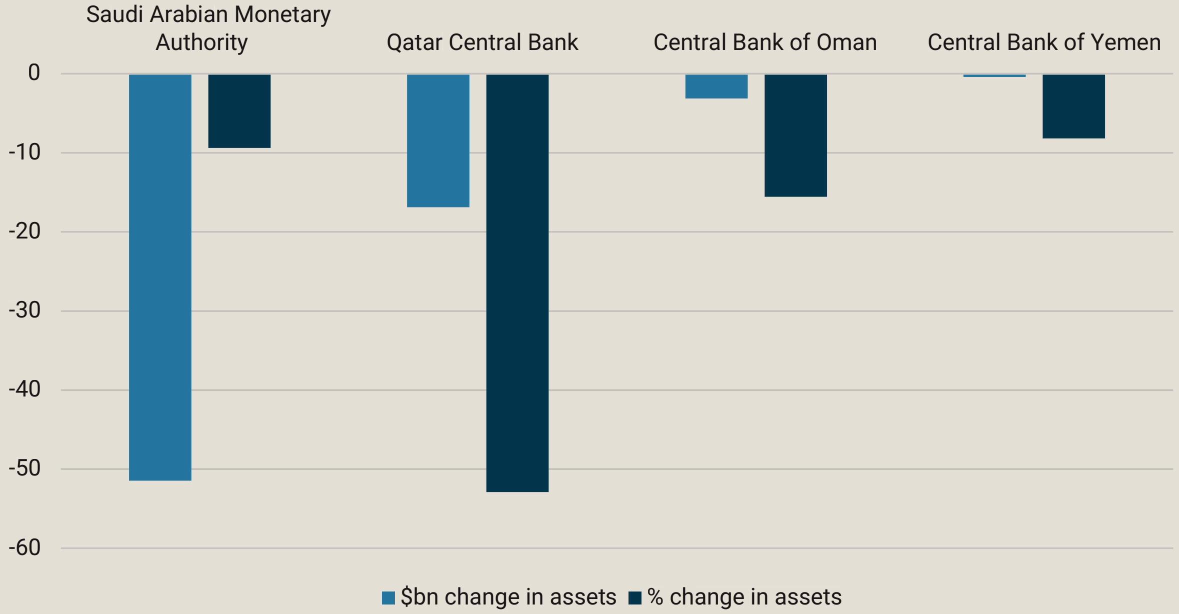
The Qatar Central Bank suffered a loss of more than 50% in its reserves owing to large capital outflows that followed the imposition of sanctions by other Arab states. The Saudi central bank's assets have been declining year on year since 2014 as it has struggled with declining net foreign assets. However, Saudi Arabia's entry into global equity indices and the privatisation of state-owned oil company Saudi Aramco could attract large foreign inflows, which would alleviate depreciation pressures.

The Central Bank of Yemen has struggled to maintain its currency since the start of its civil war in March 2015. Since then, the rial has lost more than half of its value against the dollar. The central bank gained some liquidity relief in January 2018 when it took a deposit of $2bn from the Saudi government to prop up the rial.

Over the coming 12 months, improving oil prices should subdue depreciation pressures on oil-exporters. Greater economic diversification, coupled with improving investor sentiment, should boost capital inflows. This could reverse the decline in Middle Eastern central banks' reserve balances.

SAMA assets fall by more than $50bn in 2017

Change in Middle East central bank assets under management, $bn and %, 2016-17



Source: OMFIF analysis

4. Rising gold price supports GPI assets' value

Central banks added 371 tonnes of gold to their reserves during 2017, bringing total holdings to almost 31,800 tonnes. Gold reserves are at their highest level since the 1990s, although last year showed the smallest annual increase since 2010.

Throughout the year returns on gold holdings rose 13%, bringing the value of gold held by central banks and official institutions to $1.4tn. This is against $11.4tn of foreign reserves held by central banks*.

Most of the increase was led by three central banks. Russia saw the largest year-on-year gold purchases of 224 tonnes, followed by Turkey (86 tonnes) and Kazakhstan (43 tonnes).

According to official statistics, Russia's gold holdings overtook those of the People's Bank of China in early 2018. China has reported no change in its gold reserves since October 2016. This may reflect a reversal of the PBoC's heightened transparency in the run-up to the renminbi's inclusion into the International Monetary Fund's special drawing right in October 2016. China released quarterly data on gold holdings between 2015 and late 2016, all showing increases, but these figures have not been updated since then. As a result, official data may not accurately reflect China's gold holdings.

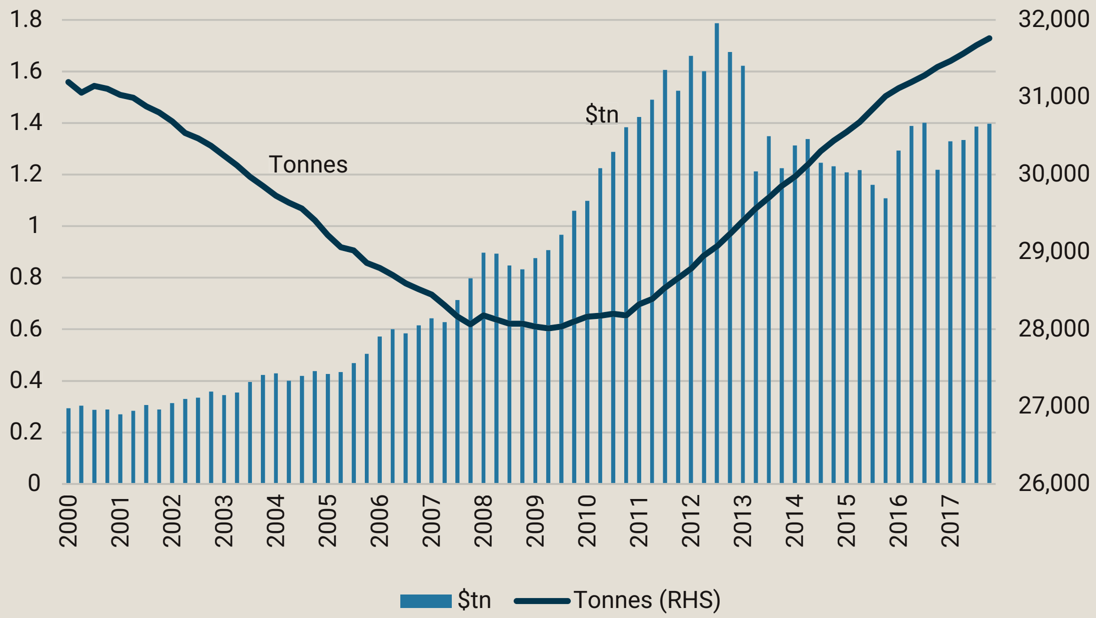
Central bank purchases sit within an increasingly complex market for the precious metal, in which alternative sources of demand, new investment products and differing investor dynamics are playing a larger role.

Central banks' share of total gold demand fell to 8% in 2017 from 14% in 2013. Gold investment products, led by exchange traded funds and retail gold products in China, Japan and elsewhere in Asia have become important factors behind year-on-year demand swings.

Investors behind these trends have different motivations for buying gold than traditional buy-and-hold institutions such as central banks. A growing share of demand from hedge funds, ETFs and others could make prices more volatile and sensitive to policy announcements.

Central bank holdings highest since 1990s

Total gold holdings, tonnes, and value, $tn



Source: World Gold Council, GFMS, OMFIF analysis
**See methodology section for details*

5. Public investors adopt flexible allocation strategies

The strong performance of equity markets since 2009 has encouraged many yield-seeking public investors to rebalance their portfolios. Sovereign funds and public pension funds have an average equity allocation of 40% and 36%, respectively, according to OMFIF data.

Significant growth in these markets in 2017 was responsible for a large part of the $1.1tn increase (8%) in pension fund assets and $397bn increase (5%) in sovereign fund assets. However, investors remain wary of high valuations and the potential for heightened volatility arising from the unwinding of central bank's quantitative easing programmes.

Up to 25% of investors plan to reduce their equity holdings over the next 12-24 months, and around the same number are planning to increase. This is according to an OMFIF survey of 65 institutions with total assets under management of $11.6tn, representing 32% of total AUM of all global public investors.

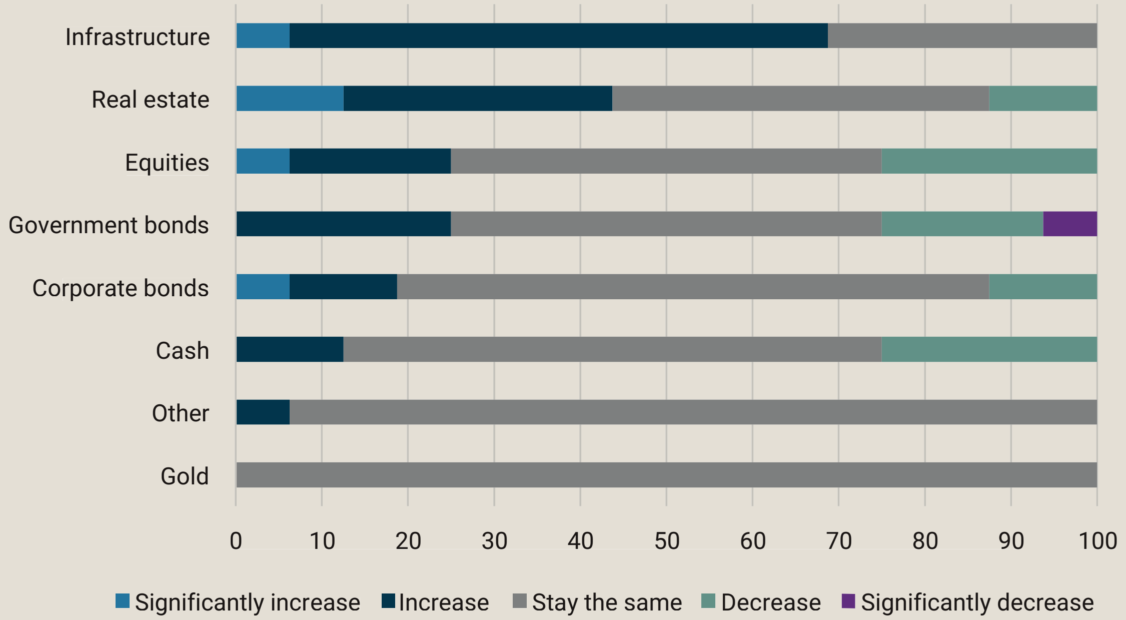
By contrast, around 70% of institutions plan to increase or significantly increase their infrastructure investments, and none plans to decrease. This is the highest share for all asset classes. Real estate is the next most popular asset class, with almost 45% of respondents planning to increase or significantly increase their investments.

The long-term, stable, inflation-adjusted returns of real assets makes them useful for funds with long-term liabilities and a tolerance for illiquidity. Low yields on traditional fixed income products have accelerated this shift. Over the last three years more than 70% of respondents to the survey increased (by up to 3%) or significantly increased (3%-6%) their real asset investments, while none had reduced their allocation.

This rapid growth has resulted in heightened competition for prime assets in core locations, leading to more niche investments. Value-add and opportunistic strategies are becoming more pronounced, and investors are entering new markets and pursuing novel ways of accessing real assets, particularly direct equity and debt.

Infrastructure and real estate are most attractive assets for investors

'In the next 12-24 months do you plan to increase, reduce or maintain your allocation to the following asset classes?', % of total responses, by asset type



Source: OMFIF analysis

6. ESG concerns guide allocation decisions

Public investors are adjusting their investment strategies to reflect their commitment to responsible ownership. This has often taken the form of divestments from companies and industries that contradict environmental, social and governance principles, as well as use of shareholder rights to influence companies' ESG strategies. Tobacco investments have already been banned for decades by Californian public pension funds Calpers and Calstrs, while in January 2018 New York City announced that its public pension funds will be divesting from fossil fuel investments over the next five years.

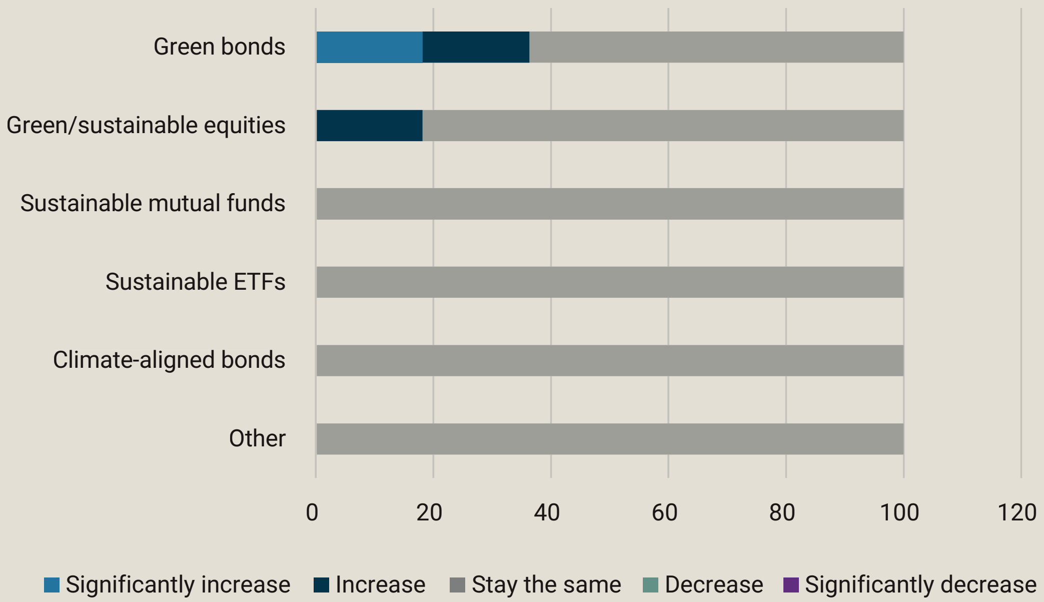
According to the results of OMFIF's 2018 asset allocation survey, of the subset of asset owners whose portfolios are partially managed externally, 76% said they require external managers to consider ESG issues in their investments. Norges Bank Investment Management, for example, includes five mandates for environment-related investments.

Public investors are increasingly investing in sustainable assets, with 73% of GPIs surveyed reporting that they already invest in green or sustainable assets. The emergence of green finance options such as green bonds enables public investors to become significant players in this market. Among the GPIs covered in OMFIF's allocation analysis, 62% of those who invest in sustainable assets invest in green bonds, compared with 46% for green equities. Looking ahead, 36% responded that they were planning to 'increase' or 'significantly increase' their green bond investments over the next 12-24 months, with the equivalent figure at 18% for green equities.

The green bond market has grown rapidly over the past few years, climbing to $156bn in 2017 from $82bn in 2016 and $41bn in 2015. Four sovereign green bonds have been issued in 2018 so far, by Poland, Indonesia, Belgium and Fiji, with some of the demand coming from GPIs.

Public investors planned increased exposure to green assets

'Are you planning to increase your allocation to 'green' real asset investments over the next 12-24 months?', % of total responses, by asset type



Source: OMFIF analysis

7. Public investors plan significant increase in renminbi exposure

Over the next 12-24 months 18% of public investors surveyed by OMFIF plans to increase their exposure to renminbi, and none plan to decrease. This is the highest response for all currencies. It is growing from a low base – central banks, the largest holders of renminbi, have just $123bn worth, less than Australian or Canadian dollars – but the pace of demand growth is impressive.

Between the fourth quarter of 2016 and the end of 2017, central bank holdings of renminbi have grown by 35% in value, the second highest growth for all currencies after yen (47%). This reflects the currency's growing use in international financial transactions. In March 2018 the first renminbi-denominated oil futures contract was launched on the Shanghai International Energy Exchange, creating a Chinese oil pricing benchmark to rival those in Europe and the US.

A growing share of China's trade is conducted in renminbi, particularly with other Asian countries. From June 2018, more than 200 A-shares (shares of mainland China-based companies) will be eligible for inclusion in MSCI's indices, further boosting the renminbi's use as an investment currency. Huge renminbi-funded infrastructure projects that form part of Beijing's Belt and Road initiative further increase the currency's use across Asia and the Middle East.

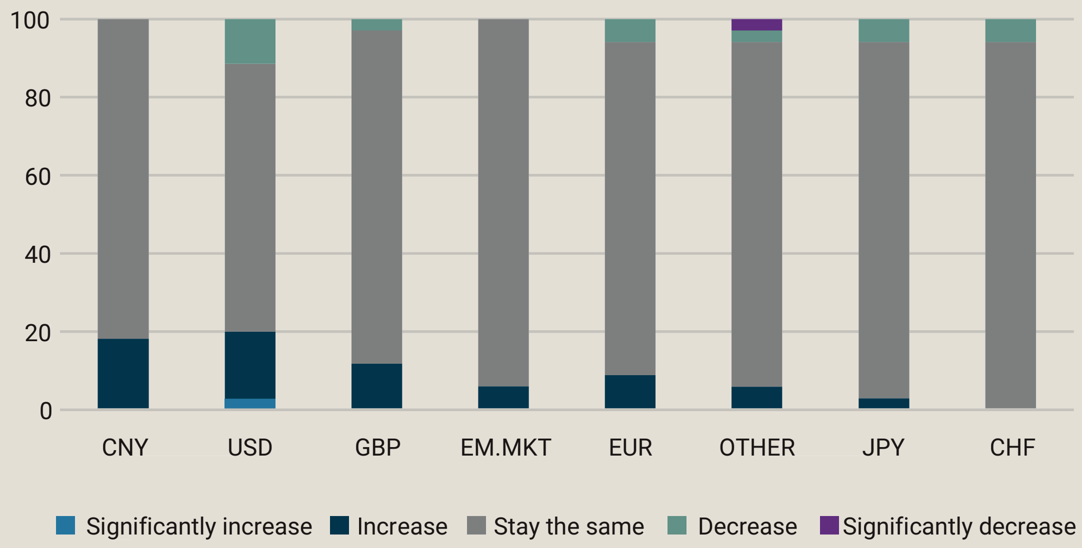
The growing role of the renminbi as a trade and investment currency raises the importance of holding it as a reserve asset to ease any short-term balance of payments pressures that may arise with China and to ensure liquidity.

However, public pension funds remain wary of boosting their renminbi exposure, with none planning to increase it over the next 24 months. This reflects concerns over China's large debt build-up and periodic stock market volatility.

Sudden currency devaluations cannot be ruled out. Fears of a bond market bubble are prevalent, as rising yields over recent years indicate. Looking ahead, how China addresses its imbalances without destabilising growth will determine the extent of the shift to renminbi.

Investors plan significant renminbi increase

'In the next 12-24 months, are you planning to increase, reduce or maintain your exposure to the following currencies?', % share of total responses



Source: OMFIF analysis

8. Gender balance worsens in central banks

Central banks scored 19.4% in OMFIF's 2018 Gender Balance Index, a decline of more than 10 percentage points from last year's 30.6%. The figures represent the ratio of men and women in senior positions at central banks, weighted by level of seniority and their country's share of the global economy. OMFIF expanded the research this year to sovereign funds and European pension funds, which scored 12% and 40% respectively. These institutions' scores were weighted by assets under management.

The study covered 415 institutions and 5,963 individuals. Only 44 of these institutions are headed by women: 11 central banks, nine sovereign funds and 24 pension funds.

Africa performed best among the regions. It is the clear leader among sovereign funds, boosted by six African institutions in the Top 20 for gender balance.

Europe's gender balance was propelled by the central bank scores of non-euro area economies, despite Western Europe's weak overall performance. North America's central bank score suffered from the departure of Janet Yellen as chair of the Federal Reserve board of governors. Owing to the large share of US output in the global economy, Yellen's exit is also partially responsible for the decline in the global central bank score.

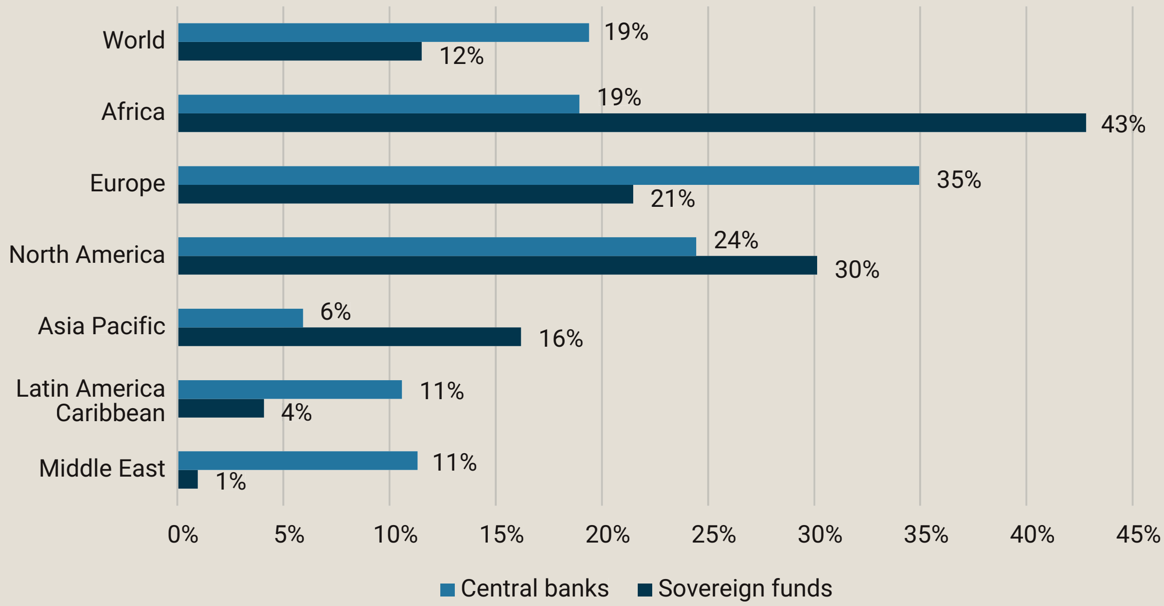
There is room for improvement in Asia Pacific and Latin America Caribbean. The former's sovereign fund score was bolstered by high marks for Australia and Singapore, while the latter's central bank scores were similarly increased by six institutions in the Top 20. Latin America Caribbean welcomed two new female central bank chiefs last year.

Sovereign funds in the Middle East had the worst scores, owing mostly to the absence of women in the senior staff of the five biggest funds in the region. Central banks perform better, in large part because of Karnit Flug's governorship of the Bank of Israel.

For the full Gender Balance Index, see page 81.

Africa more balanced than developed regions, while Middle East lags behind

GBI scores*, %



*Source: OMFIF analysis, * 100% = perfectly gender balanced*

9. Global investment imbalances rise to record levels

The global gap between creditors' and debtors' international investment positions widened in 2017 to $32.7tn, its highest level on record. This reflected both net financial flows and valuation changes arising from fluctuations in exchange rates and asset prices.

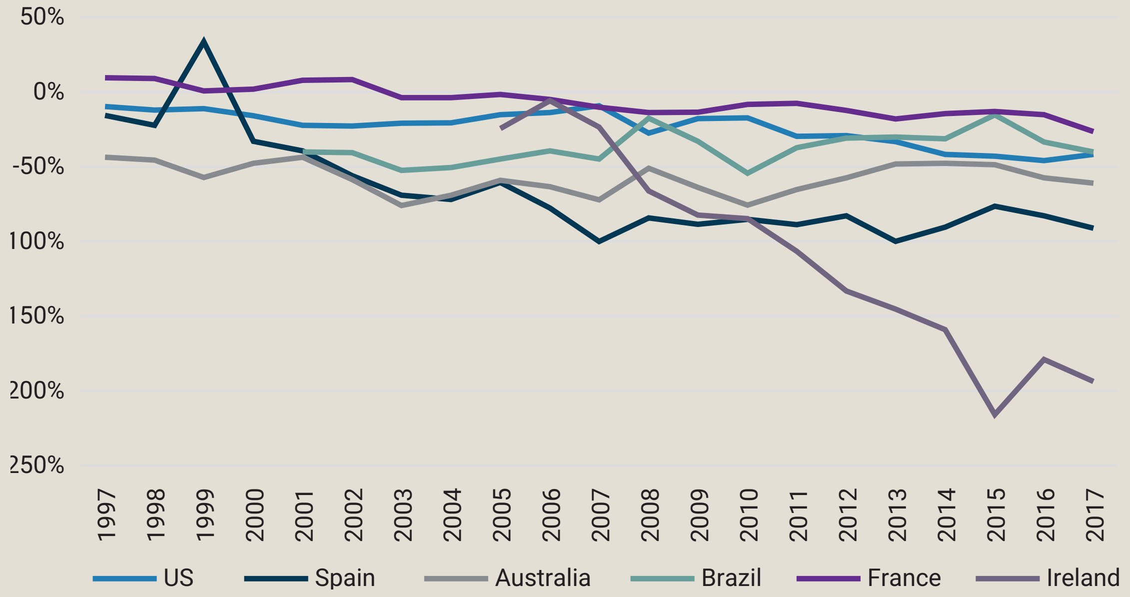
Exchange rate developments included the reversal of the rally in the dollar, the value of which fell over 2017 for the first time in five years, the strengthening of the euro in the light of the euro area's robust economic recovery and the reversal of the renminbi's depreciation trend. US equities saw one of their strongest years in 2017. This helped to offset exchange rate effects and supported overall increases in the value of foreign holdings of US assets.

The US, the world's largest debtor, saw an improvement in its position as net assets increased by more than liabilities. China's position narrowed, with liabilities increasing more than assets. The country's trade surplus with the US reached a record $276bn over 2017, despite a fall in its overall trade surplus with the rest of the world to $426bn. Reserves held by the People's Bank of China increased for the first time since 2014, as strong economic performance supported the renminbi, weakening incentives for capital outflows.

China's GPIs and state-owned enterprises have continued to diversify their foreign holdings, with a further shift away from debt securities and into equities recorded this year. Its foreign direct investment assets stand at a record $1.5tn. However, there are challenges ahead for Chinese FDI. Recipient economies, particularly in Europe and the US, are considering tightening their screening rules for Chinese investment into strategic infrastructure and technology assets.

Major debtors see net liabilities increase, with US sole exception

Net international investment position, % of GDP, top six debtor economies



Source: International Monetary Fund Balance of Payments, OMFIF analysis

10. Four funds responsible for 21% of all GPI assets' increase

One-fifth of the $2.5tn rise in GPIs' assets in 2017, equivalent to $519.8bn, was concentrated on Norges Bank Investment Management, the People's Bank of China, Swiss National Bank and Japan's Government Pension Investment Fund. Steady global economic expansion and low volatility in financial markets have bolstered asset growth, especially for institutions with substantial equity investments.

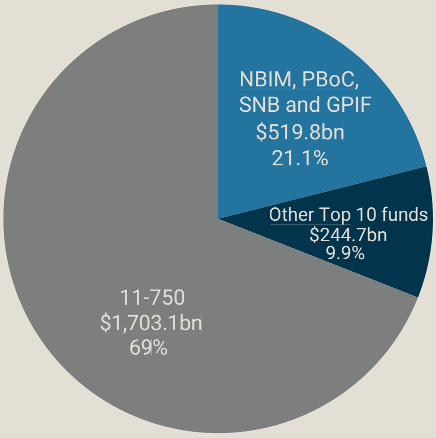
Among the four top-ranked institutions, the SNB posted the largest percentage increase, at 19.6%, because of foreign currency purchases and high equity returns. NBIM's total assets increased by 14.8% thanks in large part to equity gains, which were worth almost twice as much as the combined returns on fixed income and real estate investments.

Assets of Japan's GPIF grew by 8.9% thanks to the strong performance of its equity investments. The world's largest pension fund announced in late 2017 the appointment of an infrastructure investment manager, following institutional investors' shift towards alternative asset classes. The PBoC's assets increased by just 4%, though this is still substantial owing to the size of its balance sheet.

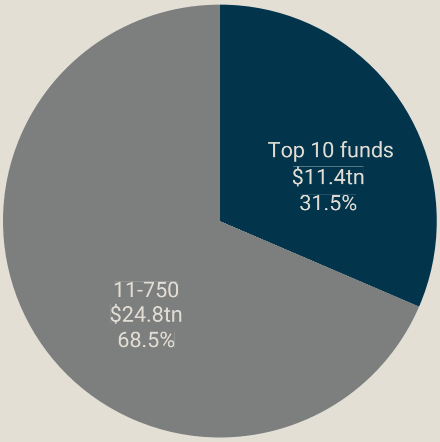
Other institutions in the Top 10 rankings showed increases in assets, except for the Abu Dhabi Investment Authority and China Investment Corporation. Together, the 10 largest funds account for 31.5% of GPI assets, slightly lower than last year's 31.7%.

The fall in the Kuwait Investment Authority's assets, at 11.5%, is the largest among top-ranked sovereign funds. The Qatar Investment Authority's assets decreased by 3.9%, while the CIC's dropped marginally by 0.03%. This contrasts with last year, when both CIC and the QIA led sovereign fund growth. The slowdown for CIC and Middle Eastern funds reflect their continuing struggle with low oil prices.

Four funds lead global asset growth
Increase in total assets, 2016-17



Ten biggest funds hold one-third of global assets
Total GPI assets, end of 2017



Source: OMFIF analysis

OMFIF asset allocation analysis

Investors shift to alternatives

Falling yields on top-rated fixed income assets since the financial crisis put substantial pressure on central banks, public pension funds and sovereign funds. More than 70% have increased their 'real asset' investments over the last three years, while 18% plan to increase their exposure to renminbi over the next 12-24 months.

Analysis of the investment patterns among central banks, public pension funds and sovereign funds reveals a marked shift in allocation resulting from pressure on income in traditional asset classes.

Through in-depth surveys and annual reports, OMFIF collected and analysed data from 65 institutions with total assets under management of $11.6tn – representing 32% of the total $36.2tn AUM of all global public investors (see Figure 1).

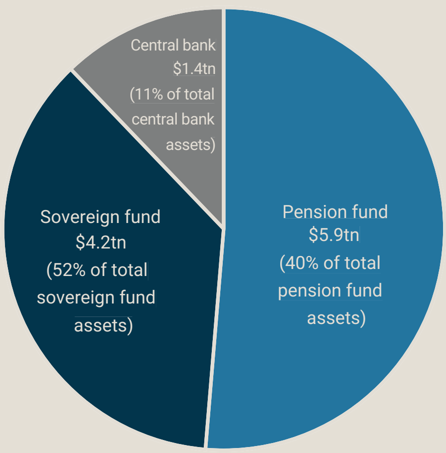
GPIs have an average allocation of 36% to government bonds, according to this research. Central banks have the highest allocation, at 71% of their total portfolio, against 27% for pension funds and 17% for sovereign funds (see Figure 2). Corporate bonds account for a further 9% on average, bringing the total average fixed income share to 45%.

Falling yields on top-rated fixed income assets since the financial crisis put substantial pressure on public investors (see Figure 3). Pension funds, facing additional challenges from aging populations and slower productivity growth across developed countries, have been particularly hard hit.

While central banks have also been affected by low yields given their large allocation to bonds, their primary concern is with preserving rather than augmenting asset value.

Figure 1: Allocation analysis details

Breakdown of institution types covered in allocation analysis, collective AUM and % of institution type total assets



Source: OMFIF analysis

Nevertheless, an increasing number of central banks are making more use of their balance sheets to boost returns, such as the Polish central bank's heavy participation in repo markets or the Argentine, Hungarian and German central banks' active gold swaps.

Some central banks have forayed into corporate bonds and equities, though most remain wary of proceeding too far in this direction. The Swiss National Bank is an exception, with equities accounting for almost 20% of its total assets. The Bank of Japan holds almost $165bn of equities, mostly exchange traded funds, but this is for monetary policy purposes and makes up for just 3.6% of its balance sheet.

Central banks on average have a 1.5% allocation to equities. Sovereign funds have a 40% allocation, followed by pension funds with 36%, making these institutions an important force in global capital markets.

Boost for real assets

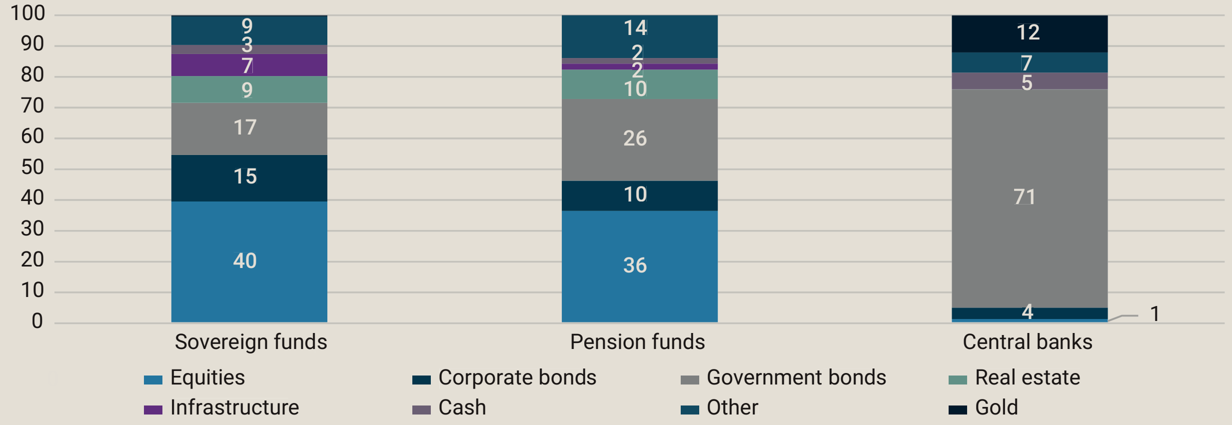
The strong performance of stock markets since 2009 has encouraged many yield-seeking investors to rebalance their portfolios towards equities. Rising valuations here are responsible for a large part of the $1.1tn increase (8%) in pension fund assets during 2017. One large European pension fund responding to the survey said that 'over the last 12 months very high returns on public equities have been the main driver' of their overall portfolio performance.

While sovereign funds have a higher average allocation to equities, they experienced a smaller year-on-year increase in total assets of 5%, owing to budgetary pressures arising from low oil and commodity prices, which make up a large part of their revenue.

The relatively high allocation to equities presents risks. While 2017 was a remarkably non-volatile year, the unwinding of central bank quantitative easing is likely to cause problems in the months ahead. Volatility in equity markets at the start of 2018 was the highest in years. Fears of faster than expected interest rate tightening by the Federal Reserve, combined with concerns over an impending trade war between the US and its main trade partners, rattled markets.

Real assets, particularly real estate and infrastructure, tend to provide more stable returns over longer periods, and are often linked to inflation. This makes them attractive to institutions seeking to match long-term liabilities, such as pension funds. Real assets have been the fastest-growing portion of investors' portfolios in recent years.

Figure 2: GPIs heavily allocated to fixed income Comparison of asset composition, % of total portfolio



Source: OMFIF analysis

According to a 2018 report by BNY Mellon and OMFIF, between 2009 and 2017 sovereign funds and public pension funds' combined allocation to real estate investments rose by nearly 120%, while infrastructure grew by 165%, albeit from a lower base. Excluding central banks, many of which are banned from investing in relatively illiquid real assets, the average allocation by sovereign and public pension funds to real estate is 9.3% and to infrastructure 3.6%.

More than 70% of survey respondents said they had increased (by up to 3%) or significantly increased (3%-6%) their real asset investments over the last three years, while none had reduced their allocation (see Figure 4).

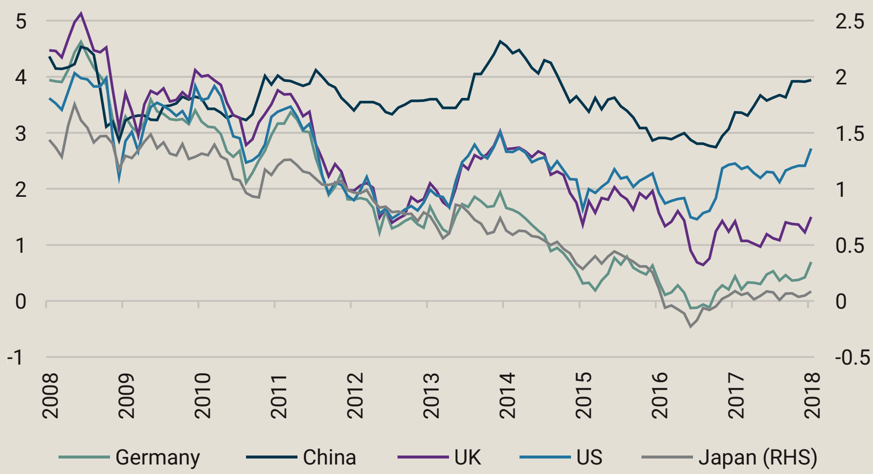
Over the next 12-24 months almost 70% of respondents plan to increase or significantly increase their infrastructure investments, and none plans to decrease. This is the highest share for all asset classes (see Figure 5). Real estate is the next most popular asset class, with almost 45% of respondents planning to increase or significantly increase their investments here, although this is somewhat offset by 12% of respondents planning to reduce their real estate holdings.

This reduction is mostly led by institutions with large allocations to real estate that have seen the value of their investments grow over recent years. Most said they intend to re-invest the proceeds in new real estate projects. Value-add and opportunistic projects, which offer greater potential for value appreciation and are less expensive than prime real estate in core locations, are the main targets for these acquisitions.

According to a large US pension fund, 'redeployed capital has focused on quality, well-located assets acquired at a discount to "perfected" core pricing'. Value on these assets 'will be derived from repositioning, renovating and improving levels of quality of leasing'.

Equities are the third most popular asset class based on future allocation plans. Almost 19% of respondents plan to

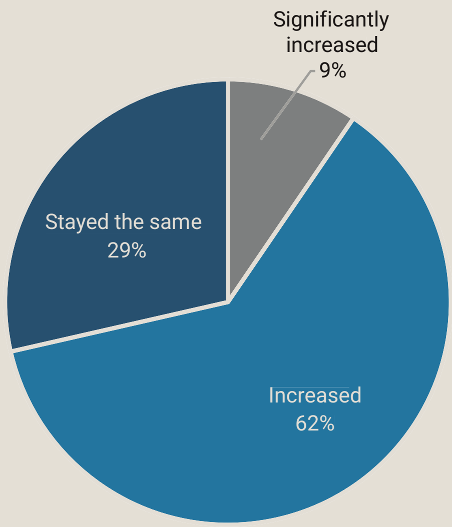
Figure 3: Investors hit by low bond yields
10-year government bond yields, selected economies, %



Source: Thomson Reuters, OMFIF analysis

> "Volatility in equity markets at the start of 2018 was the highest in years, as fears of faster than expected tightening by the Fed combined with concerns over an impending trade war."

Figure 4: Majority of funds have boosted allocation to real assets
'How has your allocation to real assets changed over the last three years?', % of total responses



Source: OMFIF analysis

increase, and 6.5% plan to increase significantly, their equity investments over the next 12-24 months. Wary of the currently high valuations on equity markets, 25% plan to reduce their holdings, leaving only a small net increase.

Corporate bonds also experience a small net increase, while investors expect a net decrease in allocation to government bonds. Cash and gold mostly remain the same.

The dollar is the largest currency exposure for all public investors, with 51% on average, followed by the euro (17%), sterling, yen and Swiss franc (4% each) (see Figure 6). 'Other' accounts for a collective 19%, mostly made up of domestic currencies. Non-euro European currencies, particularly the Swedish krona and the Danish krone, as well as the Australian and Canadian dollars, make up a large share of the total. Emerging market currencies and renminbi make up a further 1% each.

Asian and North American funds have the highest average dollar exposure, at 62% and 61% respectively, followed by 54% for Latin America, 42% for Africa and 40% for Europe. European funds have a 25% average exposure to euro, followed by Asian funds with 14%, Latin America (10%), Africa (9%) and North America (8%).

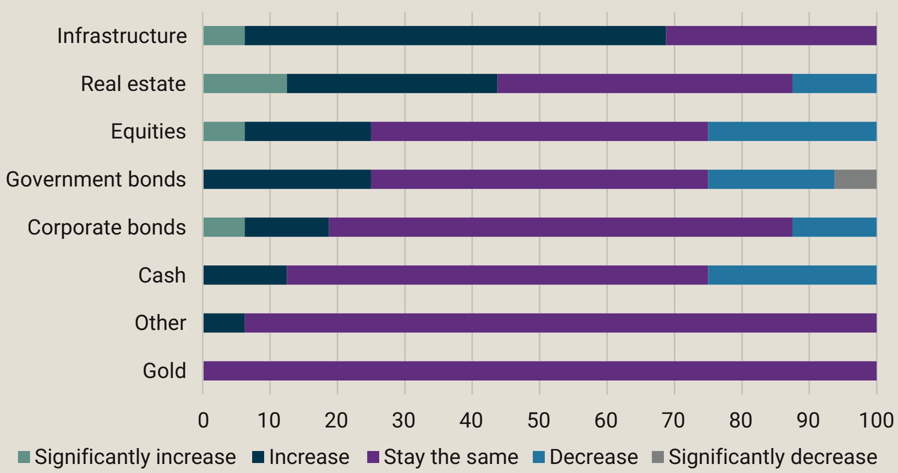
Over the next 12-24 months 18% of institutions plan to increase (by up to 3%) their exposure to renminbi, and none plans to decrease. This is the highest response for all currencies (see Figure 7). It is growing from a low base – central banks, the largest holders of renminbi, have just $123bn worth, less than Australian or Canadian dollars – but the pace of demand growth is impressive.

A net 9% of institutions plan to increase or significantly increase their dollar exposure, led by central banks and some pension funds. Nine percent expect to increase their exposure to sterling, followed by 6% for emerging market currencies and 3% for euro.

The Swiss franc is expected to see the largest decrease of all currencies, with 6% of institutions planning to reduce their exposure, followed by the yen with 3%. This reflects divergence between the Swiss and Japanese central banks, which remain committed to looser monetary policy, and the Fed, European Central Bank and Bank of England, which are on a course of gradual tightening.

The SNB views the franc as overvalued and has intervened in currency markets over the last few years to prevent significant appreciation. As a haven currency, the franc experienced large inflows following the UK's referendum on leaving the European Union and, more recently, the rising fears of a trade war, resulting in intervention to limit the overall rise of the currency – a big reason for the rise in Swiss reserves in 2017.

Figure 5: Infrastructure and real estate are most attractive assets
'How do you plan to change your level of investment in the following assets over the next 12-24 months?', % of total responses

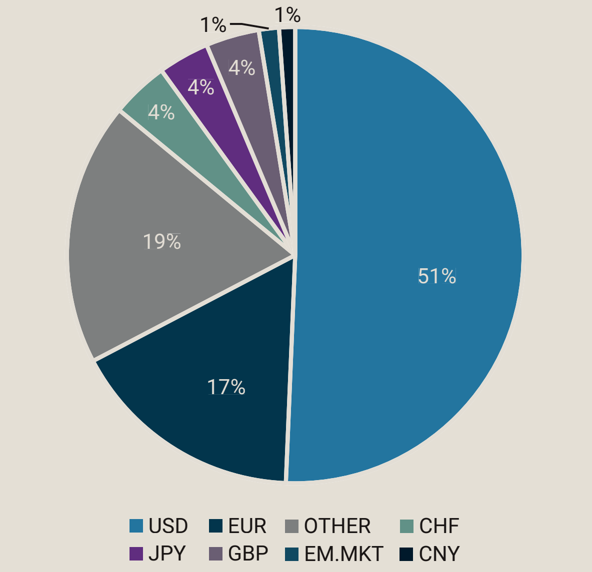


Source: OMFIF analysis

> "Institutions with large allocations to real estate have seen the value of their investments grow over recent years. Most intend to re-invest the proceeds in new real estate."

Figure 6: Dollar dominates investment currency

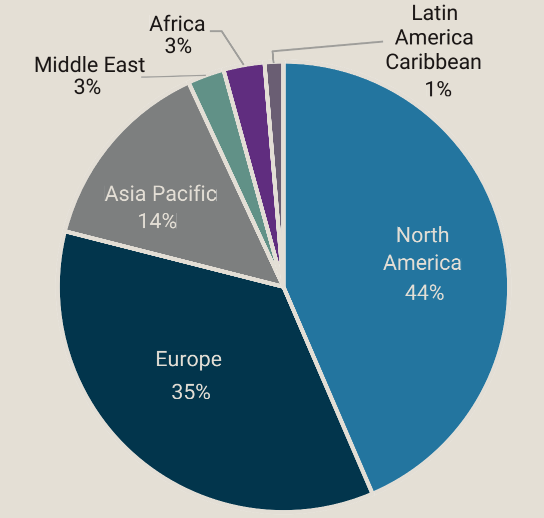
Average currency exposure for all institution types



Source: OMFIF analysis

Figure 8: US is biggest market for GPIs

Location of investments, average % of total portfolio



Source: OMFIF analysis

The Bank of Japan remains committed to large-scale monetary stimulus. In March, Governor Haruhiko Kuroda spoke about a potential winding down of the programme, possibly starting in 2020 and depending on inflation developments. Any reductions would be gradual, and the governor highlighted that the central bank is ready to provide more stimulus if necessary. With other key central banks slowly raising interest rates, this divergence is likely to increase the spread between yen and other currencies.

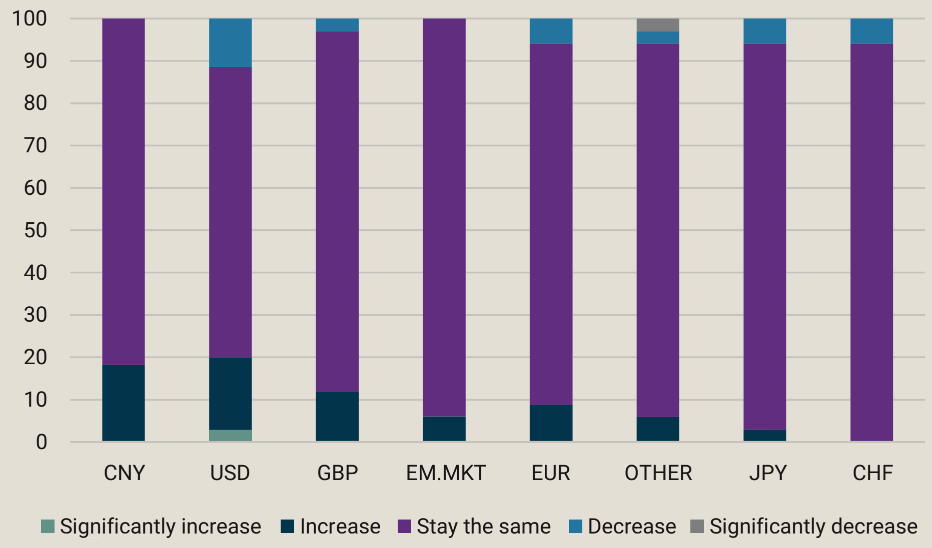
North America's large and liquid financial markets attract 44% of the public portfolio, followed by Europe (36%) and Asia Pacific (14%). The Middle East, Africa and Latin America have a combined share of 6% (see Figure 8).

Green and sustainable assets continue to be an area of strong demand growth for GPIs, with 76% of institutions investing in these assets. For further information on green assets see p.115.

A detailed assessment of global investment flows is provided from p.47, digital currencies from p.63, real estate and infrastructure from p.103, gold investments from p.126 and Islamic finance from p.135.

Figure 7: Investors plan significant renminbi increase

Planned change in currency exposure, next 12-24 months, % of total responses



Source: OMFIF analysis

> "The Swiss and Japanese central banks remain committed to looser monetary policy, while the Fed, ECB and BoE are on a course of gradual tightening."

Regulations, reforms, restructuring

ESG issues becoming more important for sovereign and pension funds

Norway blocks sovereign fund from investing in private equity and considers allowing investment in unlisted renewable infrastructure

Norway will not allow its sovereign fund to invest in private equity, as announced by the finance ministry in April 2018. The is becaue of the lack of transparency over the fees private equity groups charge. This ruling separates the fund from the majority of institutional investors, which are increasing investment in this asset class. The fund will be allowed to move into solar parks and wind farms. The opposition Labour party supports unlisted renewable infrastructure investment and is pressing parliament for a timeline to discuss this option.

Pension funds divest from fossil fuels

Divestment from fossil fuels is gaining momentum. As of January 2018, a group of New York pension funds is in the process of analysing the divestment of $5bn in securities invested in fossil fuel companies. The city has also decided to sue BP, Chevron, Conoco Phillips, Exxon Mobil and Royal Dutch Shell for damages pertaining to the effects of climate change. In 2017, the European Parliament called on public and private pension funds in the European Union to divest from fossil fuels. Norway's sovereign fund has proposed divestment and Ireland's parliament passed legislation that would make their sovereign fund sell all fossil fuel-related assets.

Liberalisation of Swedish pension funds

In June 2017, the Swedish finance ministry proposed a number of changes to AP1-4, the national pension funds, such as a 40% ceiling on illiquid investments replacing the 5% cap on unlisted instruments. The new allowance includes real estate, which was previously uncapped. The proportion of assets that must be invested in the safest bonds will be lowered from 30% to 20%. The requirement that 10% of assets must be managed externally will be eliminated and the funds will not be able to invest in commodity derivatives.

Expanded mandate for People's Bank of China

During the National People's Congress in March 2018, the China Banking Regulatory Commission and the China Insurance Regulatory Commission merged. The amalgamated body, which falls under the recently established Financial Stability and Development Committee, does not have the combined powers of the previously separate regulators. Instead, the responsibility for drafting regulation and macroprudential supervision will now be part of the PBoC's expanded mandate. One of the aims of this consolidation is to limit pass-through channels in the banking and insurance industry and regulate off-balance sheet activities of banks. The PBoC will have the ability to strengthen the macroprudential policy framework, and explore the inclusion of shadow banking, real estate financing and online financing in it.

Findings of the Norges Bank Act review

In 2015 a commission was set up to review Norges Bank and the Norwegian monetary system. Svein Gjedrem, a former central bank chairman, led the commission and the findings were announced in June 2017. The commission proposed the establishment of a new monetary policy and financial stability committee that would be independent of the central bank's administration and executive board. The commission also recommended that the Government Pension Fund Global, the sovereign fund, should be managed separately from the country's central bank owing to its size. The review's third recommendation was that the independence of the central bank should be strengthened by giving it the ability to set counter-cyclical capital buffers for commercial banks.

Korea Investment Corporation adopts a stewardship code and pushes for the inclusion of ESG considerations

The Korea Investment Corporation will allocate roughly $300m to an environmental, social and governance fund and embrace stewardship responsibilities (under a proposed stewardship code) from January 2018. This was pledged in August 2017. The ESG fund is in line with the South Korean sovereign fund's decision to increase its investment in alternative assets.

Chilean pension reforms

Chile is expected to undertake significant pension reforms in the first half of 2018. Sebastián Piñera, president since March 2018, has pledged to change the once-revolutionary system after public protests over sub-par pension payouts for members. The previous administration started the process, by adjusting the limits on alternative assets pension funds can invest in – a 2016 decree allowed funds to hold 5%-15% of their total assets in alternatives. The Piñera administration may pursue increased competition among private pension funds alongside a newly formed state-run fund.

Brunel Pension Partnership

The Brunel Pension Partnership brings together 10 local government pension schemes in the UK. The assets of the Avon, Buckinghamshire, Cornwall, Devon, Dorset, Gloucestershire, Oxfordshire, Somerset and Wiltshire pension funds will be combined with that of the Environment Agency. This is part of a wider policy to encourage local government pension schemes to pool their funds. BPP is one of eight such pooled schemes.

Proposed reforms to the Central Bank of Iran

Iran has not reviewed its banking laws since the 1979 revolution. President Hassan Rouhani could not pass his 'twin banking bill', in part owing to excessive governmental deliberation that left an opening for parliament to create and pass a diluted version in August 2017. The latest government blueprint proposes the formation of an independent council similar to the Money and Credit Council, Iran's highest financial decision-making body; the current council has close ties to the executive. This proposed blueprint, if it passes, may make the Central Bank of Iran independent. The proposed banking reforms come in the wake of the 2018 merger of Iranian credit institutions and the application of global financial standards to money laundering, terror finance and general governance and compliance. The new measures also aim to create greater transparency in bank and credit institutions. Us revocation of the Iran nuclear deal may delay these reforms.

Withdrawal of South African Reserve Bank nationalisation proposal

The ruling African National Congress has re-tabled a motion to remove private shareholding in the South African Reserve Bank. The party withdrew the bill in March 2018, hours before the proposed debate. The sale of the privately held shares of the bank is a perennial issue within the ANC, which has been pushing for full nationalisation. President Cyril Ramaphosa, who is regarded as pro-business, has signalled his support for a fully state-owned bank.

Abu Dhabi Investment Council merges with Mubadala Investment Company

The merger of the Abu Dhabi Investment Council with Mubadala Investment Company was announced on the 21 March 2018 via the twitter account of Crown Prince Mohammed bin Zayed. This move will increase Mubadala's assets under management to about $250bn. This follows the successful incorporation of the International Petroleum Investment Company into Mubadala in 2017. The emirate's more than $1tn worth of assets are now consolidated into three funds.

Decision-makers behind the assets

The men and women who oversee investment trends

Farouk Bastaki

Kuwait Investment Authority

Farouk Bastaki took over from Bader Al-Saad as managing director of the world's oldest sovereign fund in 2017, having previously served as the executive director for alternative assets. His expertise is in line with the trend of sovereign funds diversifying their reserves away from traditional asset classes. The Kuwait Investment Authority has increased its transparency. An International Monetary Fund breakdown in 2017 showed uncharacteristically detailed estimates and forecasts on KIA's savings.

Nicole Beuken

Stichting Pensioenfonds ABP

Nicole Beuken leads one of the largest pension funds globally and the second largest in Europe. Under her direction, ABP is in the process of implementing an online personal pension pot for every member that shows not only the annual accrual but also a simplified, projected accrual for retirement. ABP has recently divested €3.3bn from tobacco and nuclear energy after the adoption of more rigorous corporate responsibility criteria.

Ilan Goldfajn

Banco Central do Brasil

Ilan Goldfajn took the helm at Banco Central do Brasil in June 2016, tasked with managing a troubled economy after President Dilma Rousseff's impeachment. The bank has projected a stable image amid a difficult economic and political transition and presided over a period of significant disinflation. The slashing of the benchmark Selic rate to the record low of 6.5 % is in line with the governor's aim to attract local and foreign investment to boost Brazilian infrastructure.

Eva Halvarsson

AP2

Eva Halvarsson has led AP2, the Swedish national pension fund, for over a decade. In 2004 she was part of the working group that produced the Swedish Corporate Governance Code. Under her leadership the fund has brought environmental, social and governance aspects into its quantitative management of global equities through the creation of two multi-factor indices. These will replace the six that are currently used, as the new benchmarks give more weight to environmental, social and governance concerns.

Veerathai Santiprabhob

Bank of Thailand

Alongside his role as governor of the Bank of Thailand, Veerathai Santiprabhob chairs the Bank for International Settlements' central bank governance group. He spearheaded the prohibition of Thai financial institutions investing in cryptocurrencies but has overseen the proposed adoption of blockchain for the bank's bond issuance, which would cut the underwriting time from around 15 to just a few days. Additionally, the bank has piloted a central bank digital currency project that aims to improve the management of interbank baht settlement.

Theresa Whitmarsh
Washington State Board of Investment

Theresa Whitmarsh, executive director of the Washington State Board of Investment, is an impassioned advocate for gender equality and corporate responsibility in investment. Speaking at Davos this year, she discussed how short-term action for profit can lead to significant problems in the long term. The pension fund expanded its investment in its home state, to $2.4bn in June 2017, which is a 29.5% increase on the previous fiscal year.

Shin woo Kang
Korea Investment Corporation

Shin woo Kang joined as chief investment officer in June 2017 at a pivotal point. The sovereign fund has pledged to follow in 2018 a domestic version of the Stewardship Code, the UK Financial Reporting Council's guidelines for furthering responsible investment practices. KIC will set aside around $300m in a fund dedicated to environmental, social and governance issues, with increases in allocation dependent on performance.

Alison Tarditi
Commonwealth Superannuation Corporation

Alison Tarditi is the chief investment officer at the superannuation fund responsible for the pension assets of Australian government and military employees. Before her decade-long tenure at the fund, Tarditi was director of equity strategy at Citigroup Australia. She chairs the World Economic Forum's council on the future of long-term investing. Owing to legislation passed in March, the board of CSC will decrease from 11 to nine members.

Angela Rodell
Alaska Permanent Fund Corporation

Angela Rodell was appointed chief executive in 2015. Under her leadership, assets grew by 17.4% in the past year. The state of Alaska has a $2.25bn deficit and legislators are deciding how much of this the fund has to plug. This uncertainty is affecting APFC's ability to maintain long-term strategies. Rodell is noted for her inclination towards value-added and opportunistic investments, such as retirement homes and medical properties.

Lesetja Kganyago
South African Reserve Bank

In January 2018, Lesetja Kganyago was appointed chairman of the International Monetary and Financial Committee, in addition to his role as head of the South African Reserve Bank. He has safeguarded the independence of the bank in the face of political pressures, specifically around inflation targeting. The governor has resisted calls for the bank's nationalisation (it has a small number of private shareholders). The motion has been proposed by the ruling African National Congress on numerous occasions.

Dawn Turner
Brunel Pension Partnership

Dawn Turner formerly led the UK Environment Agency's £3bn pension fund. She now presides over the amalgamation of 10 local government pension schemes under the Brunel Pension Partnership, which has £28bn under management. The fund has announced it is looking for equity managers with low-volatility expertise, as BPP plans to invest £1.2bn in UK equities and £600m in global low-volatility strategies this year.

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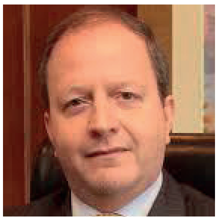
Section 1

Market environment

Macroeconomic influences
Global flows
Digital economy

Building yield, managing risks

The cost of accumulating international reserves has increased for emerging markets. This means the traditional way of managing foreign assets based on capital protection and high liquidity is no longer the best strategy.



Carlos Fernández Valdovinos
Central Bank of Paraguay

Many central banks are searching for higher yields. This has forced many to revise their conventional safety and liquidity concepts.

Last year in April, I shared the good news about the Central Bank of Paraguay's record level of international reserves on my personal Twitter account: $8bn. The tweet was widely celebrated and one of my most popular. But why?

An adequate level of foreign reserves usually improves confidence in an economy, especially in emerging markets. Foreign assets have a central role in our economies, serving a wide variety of purposes. These include backing the domestic currency, intervening in the foreign exchange market to mitigate extreme volatility, safeguarding financial markets liquidity, enabling international trade and providing trust that a country is able to repay its foreign debt. Paraguay's foreign reserves have grown at an annual rate of 18% since 2008, while real GDP grew at around 5% on average during the same period. These assets now represent 8.5 months of imports, 27% of GDP and almost 150% of foreign debt. By all standards, the country is well placed to face external shocks.

The CBP has been using a traditional approach to manage its external assets, defined by the investment priorities of safety, liquidity and return. This approach has led many central banks to allocate a large portion of reserves to the short end of the sovereign yield curve, primarily in dollars (64% of global reserves). An overweight position in dollars can be profitable while rates are declining or the dollar is strengthening. But when rates are rising or the dollar is depreciating, the traditional approach may pose considerable foreign exchange and interest rate risks. Therefore monetary institutions have to broaden the set of assets they invest in.

This may not be an easy task. Globalisation is driving asset class correlations higher, which usually increase during market downturns, making it harder to hedge via classic asset class diversification. In addition, public accountability of reserves management has led to a short-term mentality, where safety does not only mean zero tolerance for default risk, but also zero tolerance for a principal loss in any interest rate environment. In many countries, public tolerance for losses is practically nil. Another problem for emerging markets is that their foreign reserve returns have not been able to offset the rising cost of monetary policy. Consequently, central banks could be severely limited in the pool of asset classes and currencies where they will be able to invest.

Despite the restrictions they face, many central banks have started a search for higher yields. This has forced many monetary institutions to revise their conventional safety and liquidity concepts. Safety can be defined by the maximum level of volatility a central bank is willing to tolerate, and liquidity by the liability and crisis coverage needed. Several central banks, such as Uruguay, have looked at investing in diversifying currencies, including the renminbi. In 2012, the Central Bank of Chile approved a new investment that seeks to reduce the cost of holding reserves, adding a portfolio with a long-run goal of earning a higher absolute return. The Central Bank of Brazil has started to partially invest in stock and commodity indices, and the BIS started providing investment pools for renminbi and corporate bonds to meet the demand for products that can generate higher yields.

External expertise

An alternative for emerging markets is to use the experience of external asset managers that are accustomed to more sophisticated products and riskier investments. The CBP recently joined the World Bank Reserves Advisory Management Program. In addition, old management practices can be revised by subdividing reserves into portfolios with different objectives, horizons, acceptable asset classes and risk budgets. Using longer time horizons, performance could be assessed beyond market volatilities

The cost of accumulating international reserves has increased for emerging markets due to historically low policy rates. As a result, the traditional way of managing foreign assets based mainly on capital protection and high liquidity may not be the best strategy any more.

Central banks from these economies will need to adapt their portfolios to new risk budgets, expanding their acceptable asset classes and horizons to obtain better yields. Importantly, zero tolerance of capital loss should be set aside, since looking for higher returns usually implies taking greater risks. Still, it will be a challenge for central banks to obtain better yields while adhering to stringent investment guidelines. Meeting these requirements will be a central task in coming years. ●

Carlos Fernández Valdovinos is Governor of the Central Bank of Paraguay.

Promoting a sustainable policy mix

The shift to a balanced policy mix has succeeded in closing the output gap in the global economy. But markets now require a further policy shift, this time towards supporting sustainable growth.

Adam Glapiński
Narodowy Bank Polski

Sustainable growth has been gaining importance. Inequality is a growing problem in many societies, as economic growth has benefited different groups disproportionately.

The global economy appears finally to be in a broad-based upswing. The recovery is in no small part due to the extraordinary efforts of policy-makers, especially central banks, who were 'the only game in town' for several years after the 2008 financial crisis. The sharp rise in public debt during the crisis pushed governments to undertake painful fiscal adjustments.

The policy mix became more balanced after 2015. The decline in bond yields following the announcement of the European Central Bank's outright monetary transactions and asset purchase programmes has translated into a substantial reduction in interest payments on government debt in the euro area.

This space has been used to provide fiscal support to the economy. According to the Organisation for Economic Co-operation and Development, between 2015-18 the euro area fiscal stance relaxed by a total of 0.8 percentage points of GDP.

The shift to a balanced policy mix has succeeded in closing the output gap in the global economy – the International Monetary Fund and OECD expect the gap to turn positive this year. Markets must now shift towards supporting sustainable growth.

There are several dimensions to sustainable economic growth and numerous channels through which public policies can help achieve this target. One dimension is the conventional concept of potential output and policies which contribute to its increase, such as promoting innovation, productive investment growth or labour market participation.

Policy-makers have drawn important lessons from the crisis. The financial system is now better capitalised and equipped to mitigate the negative consequences of financial cycles on the economy. Owing to low interest rates and quantitative easing in advanced economies, prices of many assets around the world have risen substantially. The gradual withdrawal of monetary stimulus will test whether the concern about asset valuations was justified.

Sustainable growth needs to be wide-ranging and inclusive. Inequality is a growing problem in many societies, as economic growth has benefited different groups disproportionately. This is partly the consequence of globalisation and technological change. The former entails offshoring low-skill jobs to countries with lower salaries, while the latter leads to the disappearance of such jobs. Advances in technology increase the productivity of capital and skilled labour.

The negative impact of rising inequality on growth extends beyond the observation that inequality may lead to political instability. It is increasingly recognised that inequality, even at moderate levels, is directly related to potential output growth. Research from the OECD strongly suggests that high inequality hinders the ability of individuals from a low economic background to invest in their human capital, both in terms of level of education and, more importantly, quality of education.

Sustainable growth strategy

Globalisation presents challenges for tax collection. Instead of paying taxes where profits are generated, corporations are tax shopping between jurisdictions and arranging individual deals with selected governments. Another problem, specific to the European Union, is the exploitation of the free movement of goods to extort VAT refunds. Addressing the erosion of tax revenue should be a key component of a sustainable growth strategy.

Poland is successfully implementing the sustainable growth agenda outlined above. Throughout the crisis and post-crisis period, Narodowy Bank Polski has pursued a conventional monetary policy with positive interest rates and no QE. Fiscal policy has also been prudent. Following a brief loosening in 2008-10, there has been no return to fiscal expansion, with the structural deficit steadily declining and likely to have reached close to 1% of GDP in 2017. Public debt remains below 60% of GDP.

The Polish government has made a concerted effort to reduce income inequality and boost investment. The introduction in 2016 of a benefit programme has cut extreme child poverty substantially. Government spending on infrastructure is rising rapidly – public investment is set to reach 4.3% of GDP in 2018, the fifth highest level in the EU.

Financing for these measures has been secured through the elimination of VAT fraud. After the introduction of a wide range of measures to improve VAT collection, revenues increased to 7.8% of GDP in 2017 from 7.0% of GDP in 2015. ●

Adam Glapiński is President of Narodowy Bank Polski.

Solving the UK's productivity puzzle

UK productivity growth has fallen well below its pre-financial crisis trend and is lower than the G7 average. This is a worry for central bankers who set monetary policy, as productivity growth is the key determinant of how much demand can grow without creating inflation.

Silvana Tenreyro
Bank of England

Higher productivity is associated with higher GDP and consumption per person and tends to lead to higher real wages. More productive countries have better health outcomes.

The so-called productivity puzzle is the observation that UK productivity growth has fallen well below its pre-financial crisis trend. Productivity, defined as how much a typical worker produces hourly, fell sharply in 2008 and 2009. Since then, it has been growing, but at a rate significantly lower than before the crisis. Although other advanced economies have experienced this slowdown, it appears to be more accentuated in the UK.

Focusing just on the past 50 years, the decade since the crisis looks like an aberration. Productivity growth barely deviated from its 2% per year trend until 2007 (it has grown by only an average 0.4% per year since the crisis).

It is little wonder, therefore, that forecasters including the Bank of England consistently predicted that productivity growth would recover.

Cross-country comparisons are tricky, but the Office for National Statistics estimates that, compared with the UK, labour productivity is on average 18% higher in the rest of the G7 – 28% higher in the US and 35% higher in Germany.

Higher productivity is associated with higher GDP and consumption per person and tends to lead to higher real wages. Welfare gains from productivity are not purely financial. While causality is less clear cut, more productive countries have better health outcomes.

There is scope for UK productivity to catch up to that of other advanced economies. UK companies have all the factors in their favour to be at the technological frontier: an advantageous institutional and legal framework, a favourable geographic location, top-rate research and innovation centres, and the human capital to harness resources to foster growth.

The big question is timing. The global economy and Europe, in particular, are undergoing an investment boom, yet the UK is not part of it. The likely culprit is the uncertainty regarding future trade relations with the European Union. This uncertainty is keeping domestic and foreign investment in the country relatively low. Understandably, companies are postponing some of the investments and structural changes needed to increase productivity.

Productivity is crucial to setting monetary policy. The Bank of England's Monetary Policy Committee sets out a 2% inflation target over an appropriate time horizon with the rationale that inflation stability can lay the foundations for strong and sustainable growth. Productivity growth is the key determinant of how much demand can grow without creating inflation, and as such is a critical input into forecasts and deliberations.

As a member of the MPC, I voted for no change in the bank rate and the stock of asset purchases in August and September 2017. There was a small but negative output gap (a measure of the difference between the actual output of an economy and its potential output), weak wage growth and only temporarily high inflation.

As labour market slack reduced – evidenced by surveys reporting increasing recruitment difficulties, robust employment growth and record-low unemployment – by November I felt that removing a small amount of stimulus was justified.

In December, with unit labour cost growth still subdued and inflation likely to be around its peak, my view was that there was ample time for us to continue to monitor the transmission of the November policy before voting for another change in interest rates.

With steadily increasing domestic inflationary pressures, perhaps a couple more increases in the bank rate will be required over the next three years. But a different outcome for productivity growth would affect that policy rate path.

In the medium-term, I am optimistic that productivity growth will recover to rates above its weak, post-crisis average. It is perhaps a sign of how poor our productivity performance has been, however, that growth rates close to those we saw pre-crisis are unlikely.

Whether a more or less positive scenario for productivity materialises, the question from an MPC perspective will be how quickly demand responds. A key part of my job will be to gauge the size of any emergent gaps between demand and output potential. ●

Silvana Tenreyro is a Professor of Economics at the London School of Economics and a Member of the Monetary Policy Committee at the Bank of England. This is an abridged version of a speech given as part of the Peston Lecture series at the Queen Mary University of London on 15 January 2018. The full speech can be viewed at https://www.bankofengland.co.uk/speech/2018/silvana-tenreyro-2018-peston-lecture.

Era of mega free-trade agreements

The world economy is in an uncertain state amid rising protectionist and antiglobalisation sentiment. To supplement the World Trade Organisation's framework, we should promote mega-regional trade deals like the EU-Japan agreement and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

Hiroyuki Ishige
Japan External Trade Organisation (JETRO)

A jumble of small-scale free trade deals will result in myriad differing rules and increased business costs. Multilateral frameworks are more business-friendly.

In trade circles, 2017 was an epoch-making year, punctuated by the agreement in principle of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the conclusion of negotiations on the European Union-Japan Economic Partnership Agreement. Both should enter into force in 2019. Negotiations on another mega free-trade agreement, the Regional Comprehensive Economic Partnership, are halfway to conclusion.

The world economy is in an uncertain state amid rising protectionist and antiglobalisation sentiment. The World Trade Organisation is deadlocked, as seen in the failure to adopt a unanimous declaration at its ministerial conference in Argentina last December. The world trade framework suffers from a gap between the reality of trade and investment and the rules that govern them. Filling this governance gap is critical. Amidst this backdrop, Japan has demonstrated significant leadership in the Japan, US and EU trade ministers' meeting and the initiatives for ecommerce by 71 WTO members.

Advances in the digital economy, including in artificial intelligence, big data and increased cross-border data transfers, are reshaping the business world. While technological developments and globalisation herald obvious benefits, without proper wealth redistribution they can exacerbate income disparity.

To rectify the 'digital divide', a potential source for such disparity, policy-makers are paying more attention than ever to the benefits of inclusive trade and to correcting economic inequality. Forming new rules in these nascent fields will help improve the predictability and transparency of business dealings. Dialogues through the CPTPP, the Japan-EU agreement and the RCEP, as well as negotiations over a possible 'Free Trade Area of the Asia Pacific', will play a role in forming those rules.

The decision by the US to withdraw from the Trans-Pacific Partnership, which the CPTPP replaced, and its absence from other mega free-trade agreements lower the momentum behind trade liberalisation. For the expansion of a free, fair and open economic zone within Asia Pacific, we hope the US will return to the TPP. The formation of mega-regional trade deals like the EU-Japan agreement and CPTPP must be promoted to supplement the WTO framework.

A jumble of small-scale free-trade deals will result in myriad differing rules and increased business costs. Multilateral frameworks are more business-friendly. In terms of rules of origin, for instance, they allow for a broader range of value-added processes to be covered by the agreement.

Policy-makers must likewise pay close attention to the trajectory of the Belt and Road initiative, China's strategy for developing closer economic and diplomatic ties with other countries. China appears to be basing the system on its own values. It is imperative that multilateral trade frameworks based on free and fair rules flourish.

I hope that the US and other countries that are currently not involved in mega free-trade agreements will change tack and join these frameworks over the coming years.

Even amid rising antiglobalisation in some large markets, Japan continues to champion free trade by supporting the adoption of mega-regional trade agreements. Japan is the only country to participate in all three of the mega agreements mentioned above. If these deals create sustainable benefits and stimulate broad and comprehensive economic development, and if this spreads throughout the region, all member countries will benefit. We at the Japan External Trade Organisation will act as an intermediary in reflecting the voices of domestic and overseas companies in the policies of governments, while contributing to the improvement of the global business environment. ●

Hiroyuki Ishige is Chairman and Chief Executive Officer of the Japan External Trade Organisation (JETRO).

Structural shifts in global trade

There has been an astounding change in the systemic importance of global trade over the last few decades. The development of global value chains has important implications for interpreting bilateral trade flow data.

Robert Koopman and Christophe Degain
World Trade Organisation

The share of US components in most EU exports has declined since 2001. Conversely, China's contribution to European production networks is increasing, especially since it joined the WTO.

Between 2011-16 global trade growth was slow by historical standards, largely due to weak investment and consumption growth. These components have since begun to improve, in line with broad-based global economic growth. There was a strong recovery of trade growth in 2017, which the World Trade Organisation expects to continue this year.

The WTO expects trade growth to increase to its long-term average of between 1.3-1.5 times GDP growth. This is mainly related to the historical relationship between investment and consumption growth, as well as a slowdown in trade liberalisation efforts. Research suggests liberalisation efforts account for around 25% of trade growth over the last 20 years.

There has been an astounding change in the systemic importance of global trade over the last few decades. In 1980 the US, certain European countries and Japan were by far the most systemically important traders. Today, many more countries are systemically important. One of the reasons for this was the development of global value chains, propelled by falling costs, trade liberalisation and technological advances.

Input-based balances measurement

The traditional measure of the bilateral trade balance, in gross terms, is expressed as the difference between an economy's exports and its imports from another economy, with the underlying assumption that 100% of the export value originates from the exporting country. However, this assumption no longer holds, especially for manufactured goods produced within global value chains. This is because the content of exports may have multiple geographical origins.

As an alternative, the value-added measure of bilateral trade balances relies on the distinction between the domestic and foreign sources of exports. Only the domestic value-added content of exports is retained and the value of foreign inputs, which exaggerates the imbalances in gross terms, is excluded.

The domestic value-added content in the exports of all major European economies decreased between 2000-11 and recovered slowly afterwards. In 2014 the share of domestic inputs in total exports ranged between 72%-81% for Germany, France, the UK and Italy. This has resulted in a proportionate increase of the foreign value-added content and the rise of exchanges within global value chains, and especially European supply chains.

Germany, the UK, Italy and France source a large part of the foreign inputs used for their exports from the European Union. The contributions of European supply chains to the exports of major EU economies were relatively stable between 2000-14. One exception is the Netherlands, which has become the main value-added provider for Germany since 2013. This may be due in part to the increase of German imports of chemicals intermediates from the Netherlands.

European value chains

The US remains a major non-European supplier of value-added to EU exports, though the share of US components in most EU exports has declined since 2001. Conversely, China's contribution to European production networks is increasing, especially since it joined the WTO in 2001.

Major oil and gas producers, such as Norway and Russia, were among the main value-added contributors to EU exporters in 2011-12. This reflects the first stages in manufacturing production chains, starting with the provision of primary products. However, these shares may be taken with caution, as they vary according to changes in international commodity prices. Not surprisingly, the importance of gas and oil producers dropped significantly in 2014, in line with the decline of commodity prices.

Eastern European economies have been increasingly integrated into global supply chains, especially since 2004, when the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia joined the EU. Germany is the main input supplier for the Czech Republic and Poland, representing, in 2014, 12% and 7% respectively of the value contained in their exports of final goods and services. The share of German value-added in Czech and Polish exports of intermediate goods is much lower, at 5% and 3%. China contributes increasingly to the exports of the two economies. In 2000 the share of Chinese value-added in Czech and Poland exports was close to zero – by 2014 it was among the top five sources of value-added in these countries' exports.

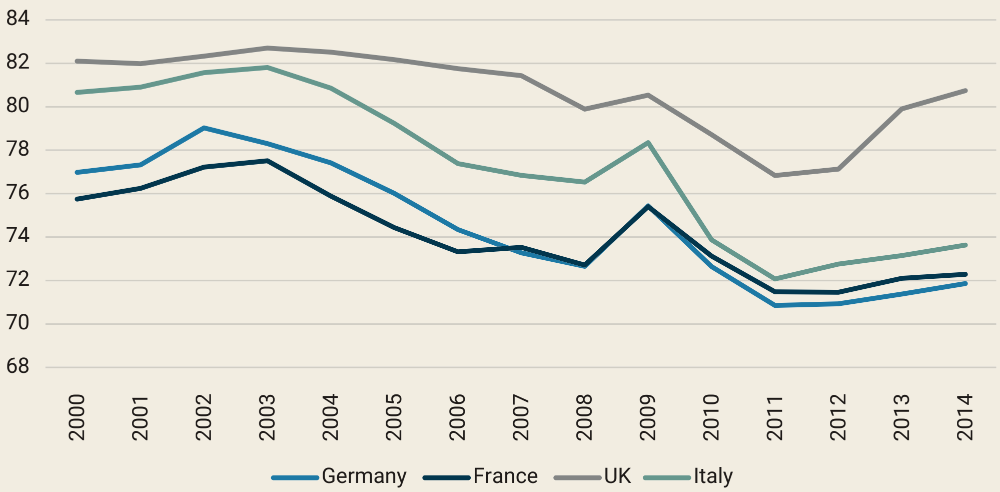
The development of global value chains has important implications for interpreting bilateral trade flow data and recognising that imports have become increasingly significant for exporting. Dramatic changes in the composition of trade over the last 20 years are likely to continue over the coming decades. Developing rules and engaging in negotiations that reflect a dynamic and changing economic and trading environment will be essential to help ensure trade flows as smoothly as possible. ●

Robert Koopman is Chief Economist and Christophe Degain is Senior Statistician in the Economic Research and Statistics Division of the World Trade Organisation.

Eastern European economies have been increasingly integrated into global supply chains, especially since 2004.

Domestic value added in exports of major EU countries shows recovery

Domestic value added in exports, % share of total exports of the economy



Source: UIBE GVC index database, WIOD data

A connected Africa competes better

Connecting African countries through the Continental Free Trade Area, which will establish a market of 1.2bn people with a GDP of $2.5tn, will help raise the competitiveness of these economies and enhance their integration into the global economy as active globalisers.

Hippolyte Fofack
African Export-Import Bank

Non-tariff barriers and market fragmentation help explain why African countries trade more with the rest of the world than with each other. Intraregional trade accounts for around 15% of total African trade, against 68% in Europe and 58% in Asia.

Competitiveness is a key determinant of sustainable growth and effective integration into the global economy. In this context, an important issue for Africa is consolidating existing but fragmented economic communities through the Continental Free Trade Area, which will establish a common market in the region. Earlier this year, 44 of the 55 African Union states signed up to the CFTA agreement, which has the potential to enhance the competitiveness of African economies and buttress the forces for convergence in the world economy.

The CFTA emerged at a time when the impact of competitiveness on trade and development has increased significantly, reaching stratospheric levels in the era of globalisation. Several factors contributed to this rise of competitiveness, not least the increasing technological content of manufactured goods. The CFTA is also coming together at a time of creeping protectionism, when leading economies are adopting mercantilist systems that treat the size of trade surpluses as a measure of economic performance. This has been illustrated recently by the escalation of trade wars between large economies and the marginalisation of the World Trade Organisation.

In this increasingly beggar-thy-neighbour trading landscape, competitiveness has perhaps become even more important for countries striving to integrate into the global economy. Only the most competitive economies are expanding their share of the global market. These economies have emerged as 'active globalisers', those most able to take advantage of the benefits of globalisation and sustain their growth and trade performance. In contrast, the least competitive economies have become 'passive globalisers', victims of globalisation that supply the raw materials and natural resources required to expand the manufacturing output of active globalisers.

Passive globalisers – those at the bottom of the global competitiveness ladder – are disproportionately more vulnerable to the adverse effects of globalisation. These include such risks as the increased speed of global transmission of negative shocks, swings in commodity prices and long-term deterioration in the terms of trade for commodities. Over time, these risks have stifled the aspirations of lagging nations, most of which are locked in vicious cycles of excess growth volatility and structural balance of payment crises.

In Africa these risks have been exacerbated by a host of constraints to competitiveness and trade. These include non-tariff and regulatory barriers like border delays, burdensome customs and inspection procedures, as well as multiple licensing and the rise of national transit bonds along key routes. In addition to a large financing gap and infrastructure deficit, African firms have had to contend with these constraints that raise transaction costs and limit the movement of goods, services, labour and capital across borders. As a result, trading among African countries is more costly and time consuming than in any other region of the world. While the average cost of importing a container within the region is around $2,500, the same costs $900 in the East Asia and Pacific region and $1,500 in Latin America and the Caribbean.

Removing barriers

Although the structure of production and the direction of trade inherited from the colonial model of resource extraction have played major roles, the prevalence and scale of non-tariff barriers and market fragmentation help to explain why African countries trade more with the rest of the world than with each other. Intraregional trade accounts for around 15% of total African trade, against 68% in Europe and 58% in Asia.

Uniting Africa through the CFTA, which will establish a market of 1.2bn people with a GDP of $2.5tn, is an important step in the process of defragmentation and deepening regional integration. This will help raise the competitiveness of African economies and enhance their integration into the global economy as active globalisers. Measures such as cross-listing firms on different stock markets and the establishment of credit reference bureaus could raise access to finance in a region where fragmentation has impeded competitiveness and private sector growth.

Besides the implications for financial markets, consolidating regional economic communities to establish one of the world's largest free trade areas could boost the competitiveness of African economies through other channels. These include technology transfers, cross-border investment and industrial development in a context of increasing economies of scale, diversification of sources of growth and the expansion of intra-African trade.

Preliminary estimates of the expected benefits of the CFTA for trade performance and regional integration are positive and significant. Intra-African trade, largely dominated by industrial products and manufactured goods, could increase by more than 52% above the baseline by 2022. It could even double over the same period if the reforms envisaged under the CFTA are complemented by robust trade facilitation measures. Economies of scale created by the establishment of a larger continental market could lower production costs and encourage inward foreign direct investment and cross-border investment. The benefits of this would include greater technology transfers and strengthened regional value chains in a context of rapidly rising intraregional trade in intermediate and capital goods.

'Factory Africa'

The development of regional value chains would raise African economies' competitiveness and enhance their integration into the global economy. Data show that, despite the increased outsourcing of activities involved in the production of a good to several countries, much of the value-added distribution in global value chains remains in regional blocks. 'Factory Europe', 'Factory North America' and 'Factory Asia' are the regions where these value chains are primarily concentrated. In time, the emergence of 'Factory Africa' and the strengthened integration of Africa-based businesses into the global economy will help set the world on a path towards truly global value chains.

Realising Africa's potential has been markedly difficult, partly as a result of artificial trade barriers and the fragmentation of markets inherited from the colonial development model of resource extraction. The CFTA will help overcome these limitations and boost the competitiveness and integration of African economies as active globalisers.

Making this transition will depend on the speed and ability of countries and emerging corporate leaders to overcome hurdles on a path towards structural transformation. Regardless of geography, scientific and technological advances as well as improved infrastructure have been fundamental for cost reduction and efficiency gains in the development of regional and global value chains. African countries must more vigorously adopt these innovations.

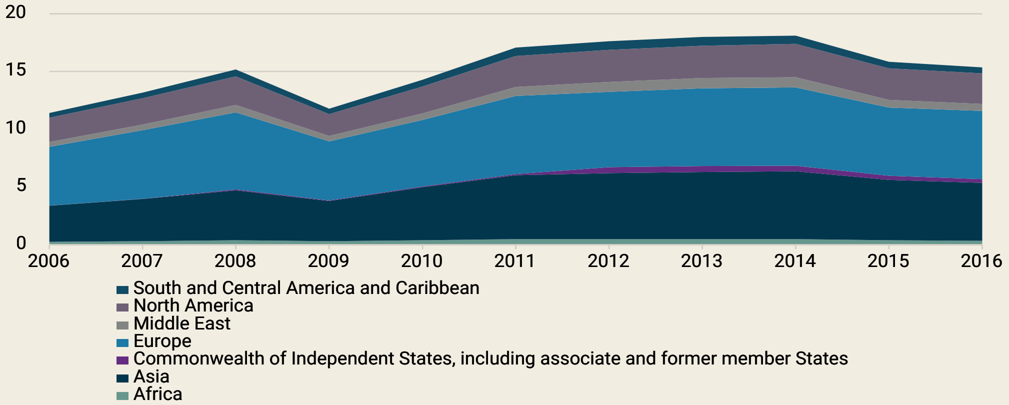
The benefits of regional integration will be greatly enhanced if the CFTA principles are supplemented by non-border reforms. These should include measures to liberalise services trade, investment provisions, intellectual property rights protection and the harmonisation of standards and regulations. These are all essential for reducing trade costs between countries within the region. Beyond raising regional trade intensity, the CFTA could unleash forces for African dynamism and position the continent as a globally competitive export-processing platform. ●

Hippolyte Fofack is Chief Economist of the African Export-Import Bank.

In time, the emergence of 'Factory Africa' and the strengthened integration of Africa-based businesses into the global economy will help set the world on a path towards truly global value chains.

African trade significantly below that of other regions

World merchandise trade of WTO members, $tn, by region



Source: WTO secretariat

Note: World trade is calculated as an average of exports and imports of merchandise trade

Financial services key to UK growth

Collaboration between government and industry will be vital to help the UK expand its global footprint. The strengths of the financial services industry, especially asset management, will provide a firm foundation for future UK growth in a world of growing opportunity.

Liam Fox
UK Department for International Trade

The IMF predicts that 90% of global growth in the next decade will occur outside Europe. Yet the EU does not have trade agreements in place with many of the major nations in Africa, Asia and the Indian subcontinent that will propel this growth.

Leaving the European Union presents the UK with an unprecedented opportunity. It will allow the country to shape trade policy that benefits the economy, businesses and consumers. The Department for International Trade's ambition is for Britain to be a champion of free trade and take advantage of growing global trade and economic prospects.

The International Monetary Fund predicts that 90% of global growth in the next decade will occur outside Europe. Yet the EU does not have trade agreements in place with many of the major nations in Africa, Asia and the Indian subcontinent that will propel this growth. Continued growth in emerging markets will create considerable commercial opportunities for UK service suppliers, especially when the government is able to take advantage of new freedoms to determine an independent trade policy.

On current trends, the global middle class is expected to include more than 5.4bn people by 2030, with most growth taking place in Asia. China alone will soon pass the 600m mark. With increasing life expectancy and disposable income, there will be a greater need to save for retirement and healthcare. There will be rising demand to manage and increase savings and retirement funds, which will create huge growth potential for the UK investment management industry.

Promoting UK services

The UK is the largest centre for asset management in Europe and second largest globally, with around £8.1tn of assets under management. The asset management industry is a major source of jobs across the country, employing around 38,000 people. A further 56,000 people are employed in outsourced and other related services.

Collaboration between government and industry will be vital to help the UK expand its global footprint. DIT will promote industry through its overseas network and regular trade missions, helping develop innovative investment strategies and laying the foundations for long-term growth.

This will involve coordinated international engagement to attract overseas firms to locate in the UK and promote UK firms overseas. DIT already does this through its 'one stop shop' concierge service for asset managers looking to invest and operate in the UK. The idea is simple – DIT will provide advice and support from market opportunities, to access to a UK-wide network of asset managers, services and advisers, ensuring that operating in the UK is as easy as possible.

While the UK asset management industry has a significant global reach, some barriers to market access remain. In many emerging economies, UK funds are not permitted to be distributed without the presence of 'passporting' arrangements. In China for example, foreign funds cannot be distributed in the local market without obtaining relevant quota.

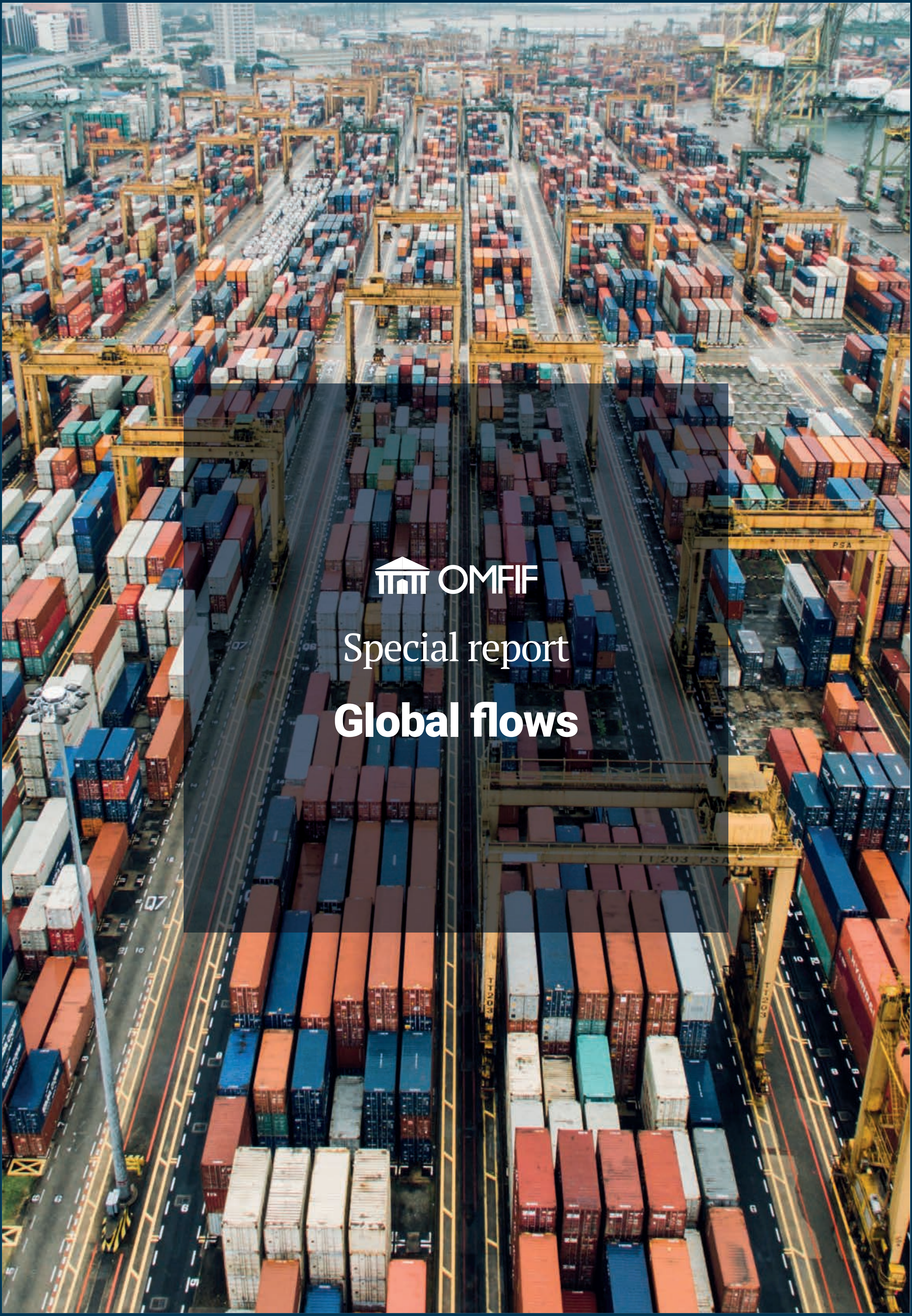
Alongside the UK Financial Conduct Authority, the British government will explore the possibility of mutual recognition agreements. These would allow UK asset managers in target markets to distribute their funds in each other's jurisdiction, seeking to deliver tangible benefits to UK-based firms and the wider UK economy.

The white paper entitled 'Preparing for our future UK trade policy' highlights the government's aim to ensure continuity of existing agreements as well as pursue ambitious new trade relationships. Free trade agreements will help facilitate trade flows and provide legal certainty to businesses. Several countries have already shown interest in deepening their trading relationships with the UK through such arrangements. These agreements, however, are just one of the many mechanisms available to UK trade negotiators.

In recognition of the asset management sector's importance to the UK economy and the industry's global reach, the government will guarantee that future free trade agreements complement the country's international regulatory co-operation and reflect the priorities and concerns of UK asset managers.

With a stable, responsive and innovative business environment, the sector will continue to thrive, delivering the best outcomes for consumers and business. The strengths of the financial services industry will provide a firm foundation for future growth in a world of growing opportunity. ●

Liam Fox is UK Secretary of State for International Trade, President of the Board of Trade and Conservative Member of Parliament for North Somerset.



OMFIF

Special report

Global flows

Imbalances widen to record levels

The trade deficit between the two largest economies, the US and China, widened in 2017. The growing trade imbalance has provided a backdrop for escalating tensions between the two countries, with repercussions for creditors and debtors around the world.

The global gap between creditors' and debtors' international investment positions widened further in 2017 to reach $32.7tn, its highest level on record (see Figure 1). These changes reflect both net financial flows and valuation changes arising from fluctuations in exchange rates and asset prices.

The overall widening was despite a reduction in the net foreign liabilities of the world's largest debtor economy, the US, as well as a fall in the net foreign assets of one of the world's major creditors, China. Both these developments can largely be attributed to the fall in the dollar's value over 2017, partly offset by the continued rally in US equity markets.

Despite dollar weakness, the trade deficit among the world's two largest economies continued to widen, with the US importing $504bn worth of Chinese goods in 2017, against $130bn of US goods exports to China. The trade imbalance has provided a backdrop for growing tensions between the two, culminating in President Donald Trump's decision in March 2018 to impose tariffs on steel and aluminium imports. Both the US and Europe are considering tightening rules on screening of foreign investment, reflecting western government and business concerns over increasing levels of Chinese foreign investment.

As a share of GDP, global imbalances actually narrowed between 2016-17 (see Figure 2). This was further supported by a narrowing in the creditor position of oil exporting nations and advanced Asian countries. Meanwhile, European creditors increased their net foreign assets. This trend was led by Germany, Switzerland and Norway. Germany's net international investment position grew to $2.2tn from $1.8tn, overtaking China as the world's second-largest creditor after Japan. This was a result of both a decline in liabilities, which have fallen by a similar amount to the Bundesbank's total purchases of German bonds under the European Central Bank's quantitative easing programme, and an increase in assets. These are mainly held in foreign debt securities, with Germany's holdings of foreign bonds overtaking foreign investors' holdings of German bunds in 2017 and shifting its net debt securities holdings into positive territory, its highest level in decades.

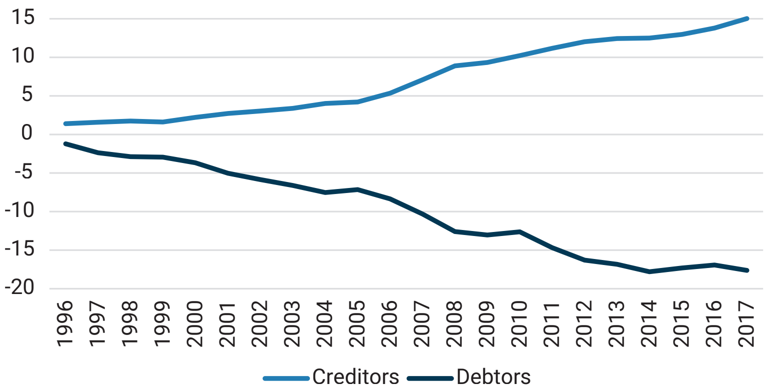
Apart from the US, all other debtor regional groups retained stable international investment positions. One exception was Britain, whose net liabilities more than tripled to $351bn from $107bn. This was partly a reversal of the fall in liabilities seen in 2016 in the wake of the referendum on leaving the European Union and the resulting weakening of sterling. This year's sharp fall in the capital account surplus was mirrored in its current account deficit. The deficit narrowed to 4.1% of GDP in 2017, the narrowest since 2011. This was chiefly because of a decline in imports driven by a slowdown in the economy: GDP expanded at its slowest pace in five years in 2017. This left the UK with the slowest GDP growth among G7 countries, as the decision to leave the EU pushed up inflation and weighed on consumer spending. The global economic recovery also supported the narrowing of the deficit by boosting British exports, while sterling's weakness boosted earnings on British investments abroad.

US debtor position narrows

US NIIP narrowed to minus $7.8tn in 2017, from minus $8.3tn in 2016. But it retained its position as the world's largest debtor. As

Figure 1: Global investment imbalances widen

Net international investment positions, creditors v. debtors, $tn

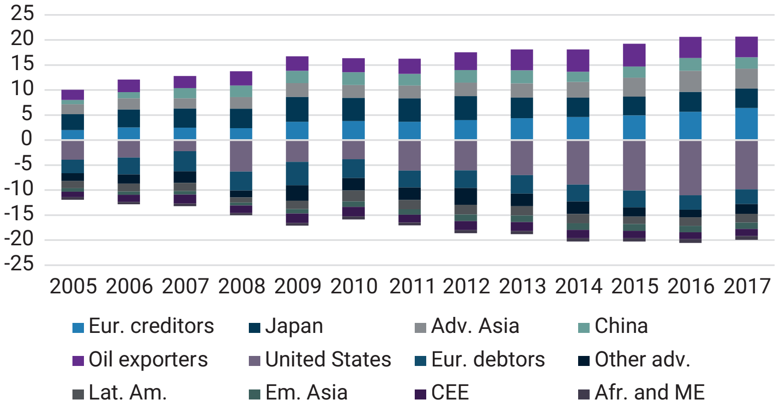


Source: International Monetary Fund Balance of Payments, OMFIF analysis

> European creditors increased their net foreign assets. This trend was led by Germany, Switzerland and Norway. Germany's net international investment position grew to $2.2tn from $1.8tn, overtaking China as the world's second-largest creditor after Japan.

Figure 2: Global net international investment positions

% of global GDP, by region



Source: International Monetary Fund World Economic Outlook (April 2018), OMFIF analysis

> Low inflation and strong economic performance elsewhere, particularly in Europe, made the dollar less attractive. However, US stock markets continued their rally amid positive company earnings and relatively robust economic growth, rewarding foreign holdings of US equity.

a share of US GDP, its net liabilities narrowed to 40% in 2017 from 45% the year before.

The fall in the dollar, the first such annual decline in five years, partly explains this development. The ICE dollar index, which measures the currency's value against a basket of six others (euro, yen, sterling, Canadian dollar, Swedish krona and Swiss franc), fell by nearly 10% in 2017, the largest annual decline in almost 15 years. This was despite continued tightening of monetary policy by the Federal Reserve, which raised interest rates three times. Low inflation and strong economic performance elsewhere, particularly in Europe, made the dollar less attractive. However, US stock markets continued their rally and broke record after record amid positive company earnings and relatively robust economic growth, rewarding foreign holdings of US equity.

Still, the overall change in the US net liabilities was marginal and consistent with the long-term average that makes the US one of the most stable among countries with a large net position. However, the net change masks significant shifts in the underlying components of US assets and liabilities: assets grew by $3.8tn while liabilities increased by $3.3tn in 2017. These compare with equivalent changes of just $497bn and $376bn in 2016 and are well above the average pace of fluctuation seen in US assets and liabilities over the last decade. Looking at the underlying trends, both direct and portfolio investment recorded large flows, with the equity and investment fund components explaining most of the changes. Lending and reserve assets grew only marginally.

These large volumes of capital flowing into and out of the US are further evidence of its important role as a hub for international capital flows. This is supported by its function as one of the main host economies for global public investors. More than 25% of all GPIs examined in this report are in the US, with collective assets under management of $7.2tn, around one-fifth of total GPI assets. This makes the US the largest single country by level of assets, well ahead of the second largest GPI hub (China with $4.3tn) and third largest (Japan with $3.2tn). The US is also the only debtor country with a presence in the Top 10 GPI institutions: its Military Retirement Fund and Federal Employees Retirement System are two of the world's largest pension funds, with $730bn and $641bn of assets under management respectively. Only Japan's Government Pension Investment Fund is larger in the global ranking.

Multinationals' profit shifting determines Irish balance of payments

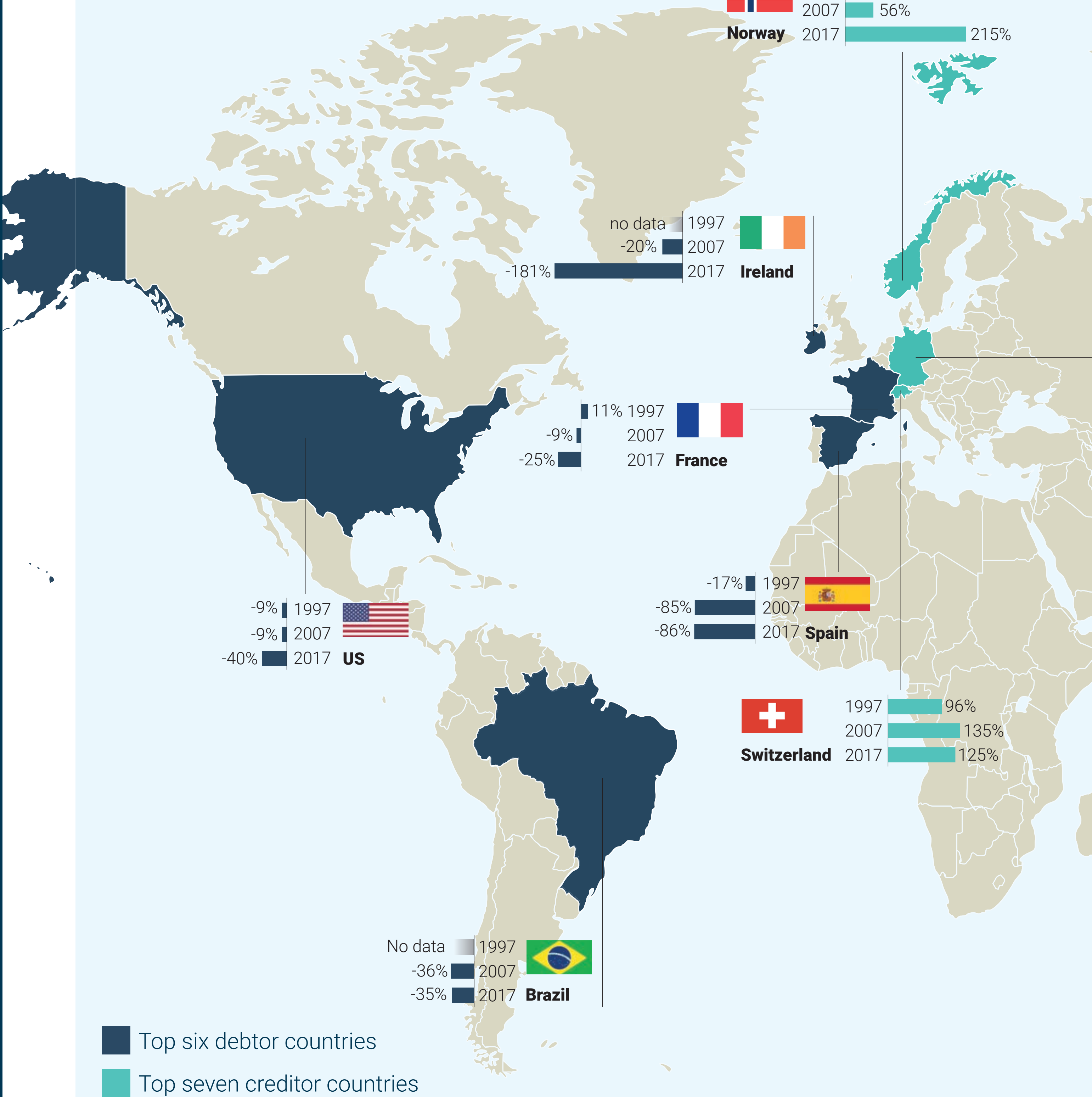
The role the US plays as a hub for GPIs and as a location through which substantial volumes of capital flow distorts its balance of payments. Multinationals' efforts to take advantage of favourable taxation in foreign jurisdictions means official statistics generally underreport US services exports. At the same time, the statistics overstate income receipts on foreign direct investment, as US multinationals transfer their profits to subsidiaries in low tax jurisdictions. This has led to the distortion in the balance of payments of low tax jurisdictions, with Ireland being a prime example.

Ireland's international investment position has been one of the most volatile, with a gradual build-up in liabilities making it an outlier among the world's major debtors (see Figure 3). Its NIIP widened to minus 181% of GPD in 2017, partly offsetting the fall in liabilities between 2015-16 to minus 171% of GDP from minus 192% and resuming the trend of gradually increasing liabilities that began in 2005.

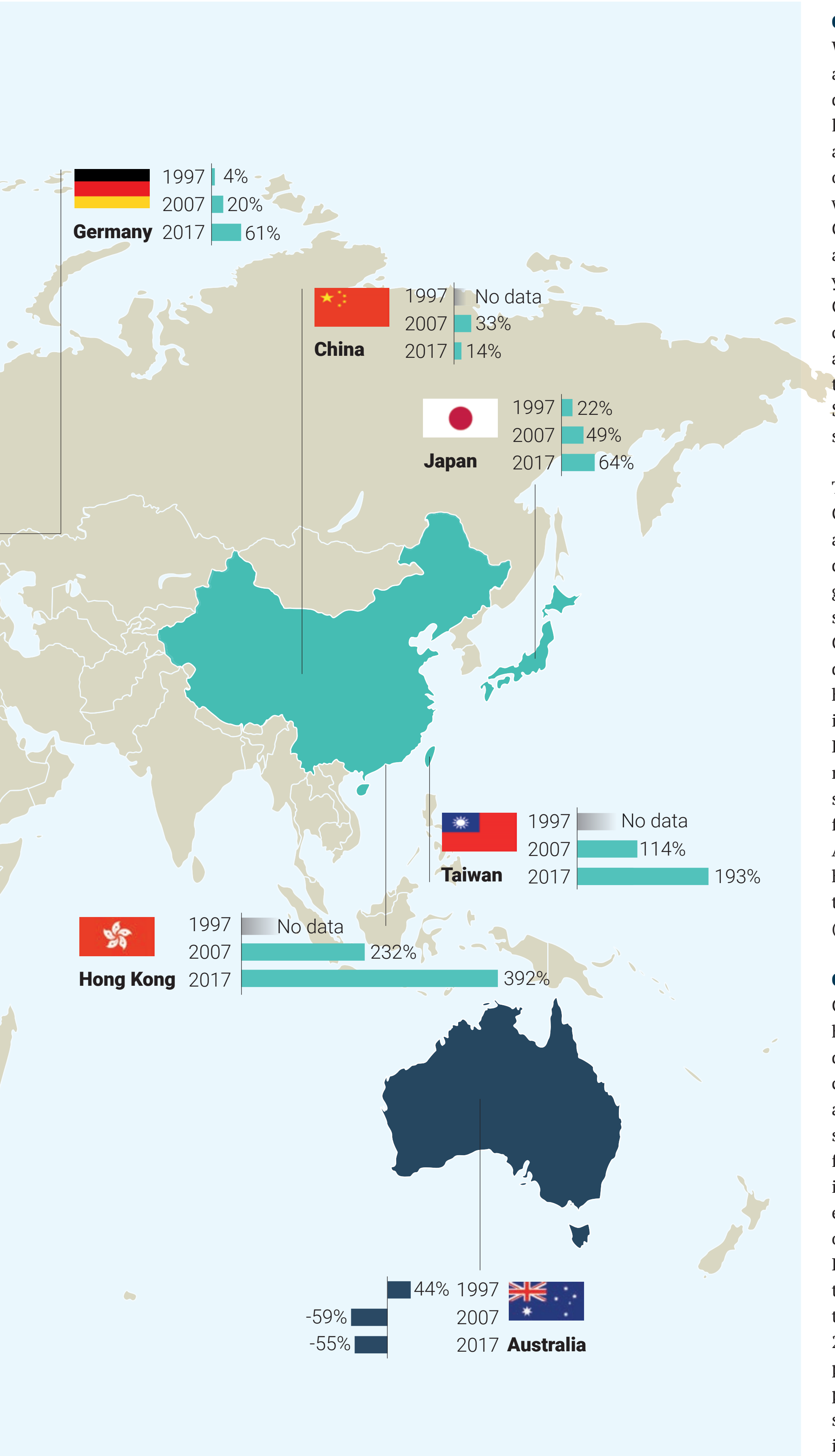
Much of this is explained by Ireland's role as a financial centre with competitive taxation arrangements, rather than a reflection of economic fundamentals. Over the past few years company redomiciliations to Ireland have included technology firms like Apple that have shifted their intellectual property assets to Irish subsidiaries, as well as pharmaceutical, medical and aircraft companies. The process of contract manufacturing, which occurs when a country contracts a firm in another country to manufacture a good on its behalf and then sells it to a third country, further distorts Ireland's NIIP position. Contract manufacturing is not considered a change of economic ownership and is thus not recorded in the balance of payments.

Figure 3: Major debtors versus creditors

Net International Investment Position, % of GDP, top six debtor, creditor economies



Source: International Monetary Fund Balance of Payments, OMFIF analysis



Creditor nations behind GPI assets

While creditor nations' overall foreign assets increased, this masked important differences. Only three of the world's six largest creditors – Norway, Switzerland and Germany – saw their NIIP as a share of GDP increase. Norway, home to the world's largest sovereign fund and the GPI with the largest increase in assets across all 750 public investors in this year's report, increased its NIIP to 215% of GDP, overtaking Taiwan as the largest net creditor for the size of its economy. Still, in absolute terms it remains the smallest of the top creditors. The GPI assets of Norway, Switzerland and Germany all increased substantially.

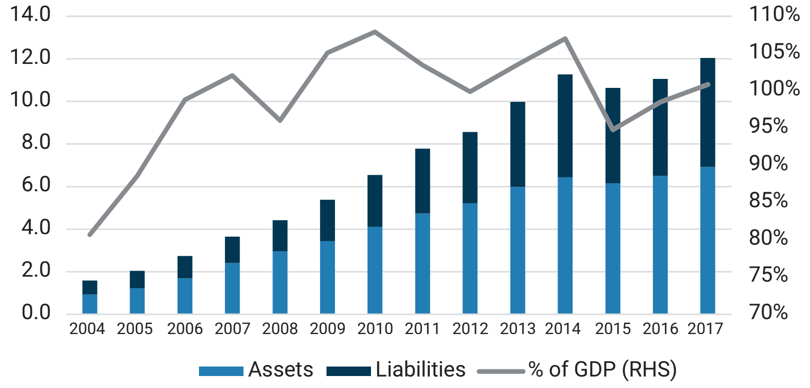
The net foreign assets of Hong Kong, Taiwan and China declined as a share of GDP, even though in absolute terms their assets increased while their liabilities decreased. Asian net creditors have generally maintained high current account surpluses, with the notable exception of China, whose current account surplus has declined steadily. Japan's surplus remains high; its demographic profile may require it to begin drawing down reserves. Hong Kong, Singapore, South Korea and Taiwan maintain current account surpluses significantly larger than their pre-2008 financial crisis levels. The net effect is that Asia's overall surplus is around $600bn, higher than the combined surplus of the large European surplus economies (excluding Norway).

China expands role in global system

China's role in the global financial system has grown substantially over the past decade. This is reflected in the level, composition and shifts in its total foreign assets and liabilities, which have risen sevenfold to more than $12tn in 2017 from $1.6tn in 2004. On that metric, it ranks behind only large advanced economies including the US, UK and Japan, or important financial centres such as Luxembourg and the Netherlands. It is the only emerging market to feature in the Top 10, with Russia and Brazil ranked 20th and 21st respectively. Even so, China punches below its weight in terms of its participation in global financial flows, suggesting there is room for further integration and growth. As a share of GDP,

Figure 4: China increases role in global financial system

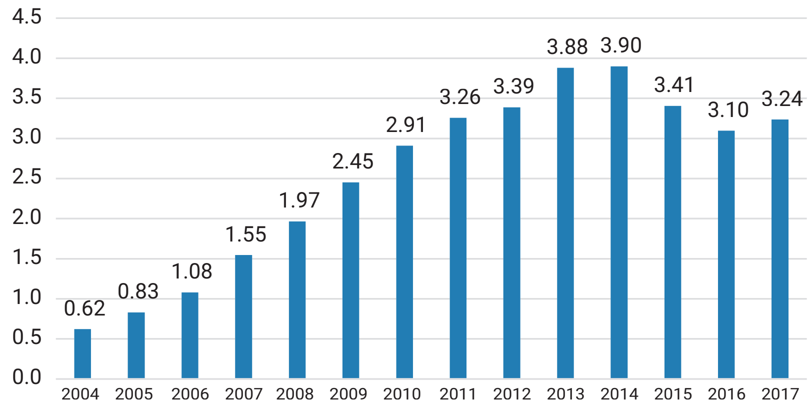
Total foreign assets and liabilities, $tn and as % of GDP (RHS)



Source: International Monetary Fund Balance of Payments, OMFIF analysis

Figure 5: Chinese reserves reverse downward trend

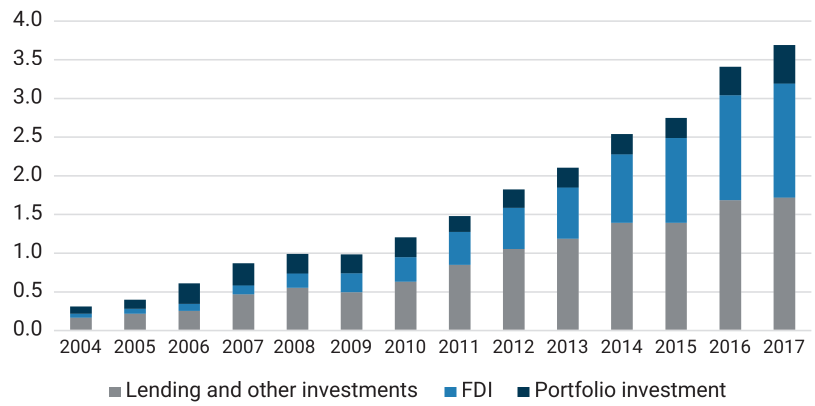
Reserve assets, $tn



Source: International Monetary Fund Balance of Payments, OMFIF analysis

Figure 6: Portfolio and direct investment grow in importance

Chinese foreign assets*, by type, $tn



Source: International Monetary Fund Balance of Payments, OMFIF analysis
**Excludes foreign reserve assets*

the sum of its foreign assets and liabilities was 101% in 2017, substantially below that of advanced economies (as shown on page 55, the equivalent shares for the US and Japan were 326% and 310% respectively) and even below those in some emerging markets such as Russia, Brazil and Mexico.

One component supporting the growth of China's foreign reserve assets has been the accumulation of reserves by the People's Bank of China, the world's largest GPI. Reserves held by the central bank increased to $3.9tn from $600bn between 2004-14 as China became more integrated into the global economy. This was propelled by the government's liberalisation policies and removal of restrictions on capital flows. The trend is clearly towards a more open capital account. After declining between 2014-16, PBoC reserves grew again in 2017, back to $3.2tn by the end of the year, as strong economic performance boosted the renminbi, weakening incentives for capital outflows (see Figure 5).

On liabilities, China's government has started to open its bond and equities markets to foreign investors through its qualified foreign institutional investors and renminbi qualified foreign institutional investors programmes. The number of QFIIs and RQFIIs approved by Chinese regulators has grown quickly. Following their introduction in 2003 and 2011, there are now 287 QFIIs and 196 RQFIIs, with quotas of $99.5bn and $97.6bn respectively. Additionally, MSCI's decision to include Chinese A-shares in its global benchmark equity index from June 2018 will bolster Chinese foreign equity liabilities.

Chinese rebalancing of foreign asset holdings

As an important component of Chinese foreign assets, the decline in foreign reserves over 2014-15 meant that assets also fell in that year. However, the following year's decline was offset by increases in other components of Chinese total assets, particularly FDI and portfolio investment into foreign bonds and equities. FDI and portfolio investment have been important vehicles for deploying Chinese reserves. China has financed infrastructure projects abroad, including in countries connected to Beijing's Belt and Road initiative, as well as resource-rich economies in Africa and Latin America.

China has invested heavily in real estate and technology in advanced economies, particularly in Europe. This is reflected in the impressive growth of Chinese FDI assets over the past decade to around $1.5tn in 2017 from just $115bn in 2007. This was supported by equally strong growth in loans, which were used to finance FDI (see Figure 6). Portfolio investment has remained stable and constitutes a small part of China's total foreign assets.

In FDI and portfolio investment, there has been a significant shift away from holdings of debt and towards equities over the last few years. The debt component of Chinese foreign assets (excluding foreign reserves) has fallen to 58% in 2017 from over 90% on average between 2004-13. At the same time, the equities component has increased rapidly to reach $1.6tn or 42% of the total in 2017 (see Figure 7). This shift in 2014 coincided with the year in which the PBoC began drawing down its reserves, suggesting a deliberate move away from low-yielding safe investments such as US treasuries and into overseas equities holdings. 2016 was the first year when total foreign investment (FDI, portfolio and lending) exceeded the value of the PBoC's foreign reserves ($3.4tn v. $3.1tn). This shift to equities mirrors the trend seen in the GPI community, as the world's major advanced central banks' unconventional and exceptionally loose monetary policies depressed global bond yields.

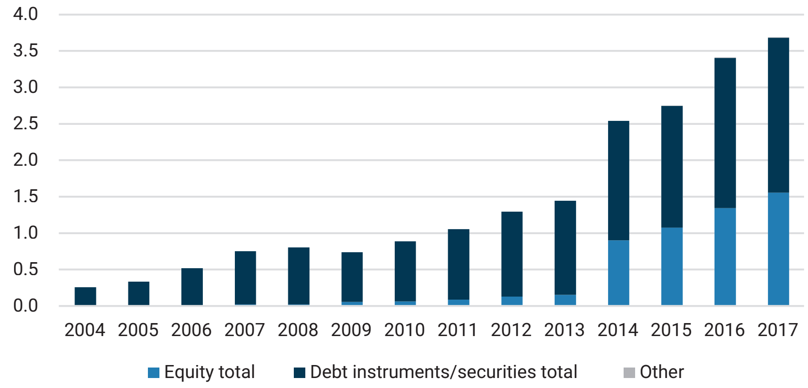
European real estate and infrastructure most popular categories for Chinese FDI

Since the establishment of the China Investment Corporation in 2007, China's sovereign fund and the world's sixth largest GPI, China has gradually increased its holdings of foreign equities and other greenfield and brownfield investments through FDI and portfolio investment. Investments by the CIC and Chinese state-owned enterprises increased to $185bn in 2017 from $29bn in 2007. Most of these have been in infrastructure, with $454.7bn invested between 2005-17, almost half of the $1tn total.

Britain has been the most popular destination for Chinese investment into the EU, with 78 investments between 2011-17, the highest of any EU country and greater than that of Germany and France combined. The value of these investments was $63.6bn, one-third of the $195.5bn China invested in the EU over that period. Europe has significantly increased its share of overall Chinese foreign investment (see Figure 9). However, these investments into strategic infrastructure and Beijing's shift towards technology have proved controversial, and is changing EU attitudes towards Chinese foreign investment.

Figure 7: China rebalances away from bonds towards equities

Chinese foreign assets*, by type, $tn



Source: International Monetary Fund Balance of Payments, OMFIF analysis
**Includes FDI and Portfolio flows; excludes foreign reserve assets*

Challenges for Chinese FDI

Last year European Commission President Jean-Claude Juncker indicated the commission's intention to launch in 2018 a framework for screening foreign investment into assets considered important for public order and security, particularly in infrastructure and technology. This would complement screening rules already in place in several EU countries, notably Germany, France and Italy, and would bring the EU in line with practices in the US and Japan.

In 2017 the US Committee on Foreign Investment, reflecting Washington's increasingly cautious attitude towards China, put in place additional investment screening rules. This led to a decline in Chinese investment into the US, which was further exacerbated by Beijing's restrictions on outbound investment as part of its efforts to crack down on corruption. These have affected Chinese outbound investment, particularly in the entertainment and tourism industries, as well as real estate. Investment in

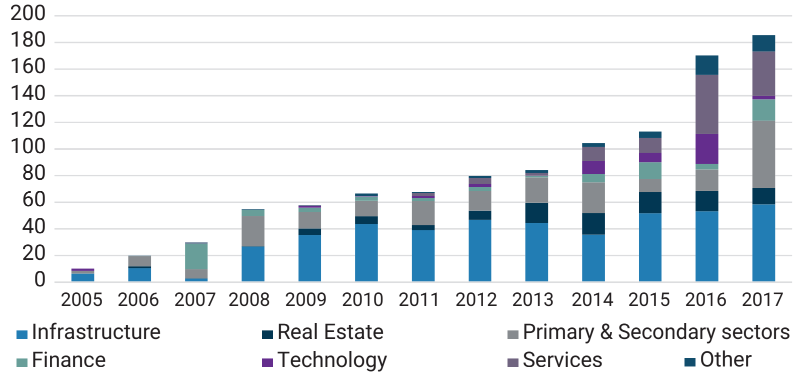
technology and infrastructure has remained stable, though Western governments are scrutinising these sectors more closely.

Governments' concern over China's increased control of sensitive industries is matched by businesses' fear of increased competition. German firms for example are especially alarmed by the transfer of know-how through acquisitions and its potential to accelerate China's transition from the world's factory into a technology hub. In Europe's crisis-hit south, the reality is markedly different. With their economies still not fully recovered and domestic government investment hit by fiscal tightening, Spain, Greece, and Portugal view China as a source of much-needed funds. Free trade proponents such as the Netherlands and other northern European governments also oppose EU proposals for tighter screening rules on foreign investment. The same is true of some central and eastern European countries, where the popularity of the EU has been in gradual decline. However, Britain's exit from the bloc is tilting the balance of power in favour of the cautious, more protectionist camp, given its role as the primary recipient of Chinese investment in Europe and a vocal supporter of China within the bloc. The outlook for Chinese outbound investment is fragile as Beijing, Brussels and Washington all reassess their economic and political relationships.

The author of this report is Danae Kyriakopoulou, Chief Economist and Head of Research at OMFIF.

Figure 8: Infrastructure dominant recipient of Chinese FDI

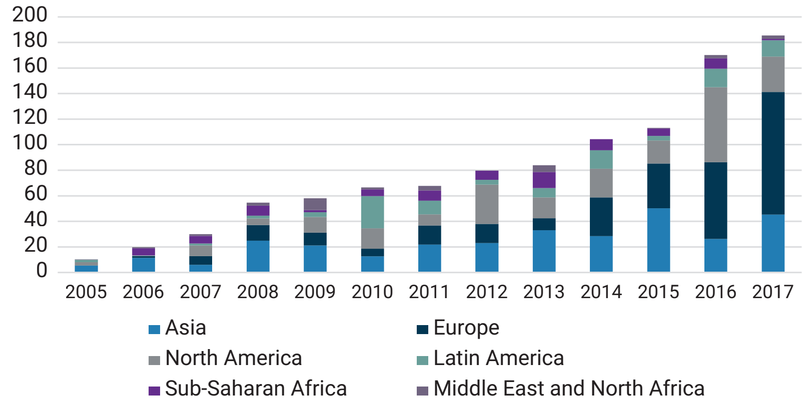
Chinese foreign investment by sector*, $bn



Source: The Heritage Foundation, OMFIF analysis
** Primary & Secondary sectors include Agriculture, Metals and Chemicals; Services include Entertainment, Logistics and Tourism.*

Figure 9: China shifts investment focus to Europe

Chinese foreign investment by region, $bn



Source: The Heritage Foundation, OMFIF analysis

Figure 10: Top six creditor economies hold around a third of all GPI assets

Largest creditor economies

	NIIP ($bn)		NIIP (% of GDP)		GPI Top 750 ranking 2018		
Country	2017	2016	2017	2016	GPI assets ($bn)	% of Top 750	No. of GPIs
Japan	$3,108	$2,989	64%	61%	3,193	8.8%	8
Germany	$2,212	$1,801	61%	52%	317	0.9%	3
China	$1,706	$1,801	14%	16%	4,345	12.0%	3
Hong Kong	$1,311	$1,154	392%	360%	471	1.3%	3
Taiwan	$1,102	$1,102	193%	208%	613	1.7%	8
Switzerland	$854	$771	125%	115%	1,096	3.0%	49

Source: International Monetary Fund Balance of Payments, OMFIF analysis

Figure 11: US stands out among debtors as GPI asset hub

Largest debtor economies

	NIIP ($bn)		NIIP (% of GDP)		GPI Top 750 ranking 2018		
Country	2017	2016	2017	2016	GPI assets ($bn)	% of Top 750	No. of GPIs
US	-$7,769	-$8,318	-40%	-45%	7,180	19.8%	199
Spain	-$1,122	-$989	-86%	-80%	90	0.2%	2
Australia	-$769	-$707	-55%	-56%	739	2.0%	16
Brazil	-$723	-$603	-35%	-34%	606	1.7%	5
France	-$653	-$370	-25%	-15%	780	2.2%	6
Ireland	-$589	-$519	-181%	-171%	27	0.1%	3

Source: International Monetary Fund Balance of Payments, OMFIF analysis

Global capital flows in 2017, top 25 economies by sum of assets and liabilities, $bn

			Assets					Liabilities				
	Total foreign assets ($tn)	Total foreign liabilities ($tn)	FDI	Portfolio -Equity	Portfolio -Debt Securities	Loans & other	Foreign reserves	FDI	Portfolio -Equity	Portfolio -Debt Securities	Loans & other	Total foreign assets & liabilities (% of GDP)
US	27.6	35.5	8,863	9,027	3,416	5,877	450	8,871	7,959	11,546	7,103	339
UK	14.4	14.7	2,078	2,330	1,315	8,512	151	2,110	2,021	2,541	8,066	1,108
Luxembourg	12.5	12.5	5,981	2,234	2,473	1,816	1	5,225	4,610	1,285	1,357	41,651
Netherlands	10.4	9.7	6,579	1,008	1,020	1,712	38	5,499	1,019	1,651	1,576	2,585
Germany	10.0	7.7	2,298	1,291	2,235	3,985	200	1,653	891	1,970	3,182	509
France	7.9	8.5	1,855	962	1,966	2,990	156	1,278	1,078	2,739	3,388	665
Japan	9.1	6.0	1,591	1,669	2,577	2,027	1,261	265	1,907	1,391	2,453	307
Ireland	6.0	6.6	1,560	1,286	1,838	1,341	4	1,540	3,243	542	1,246	4,139
China	6.9	5.1	1,473	308	190	1,720	3,236	2,901	717	327	1,166	107
Hong Kong	5.5	4.1	2,036	1,206	520	1,276	432	2,200	502	69	1,304	2,974
Switzerland	4.9	4.0	1,701	742	668	965	812	1,489	1,079	126	1,326	1,331
Canada	3.8	3.5	1,528	1,290	305	571	87	1,125	545	1,155	638	474
Italy	3.2	3.4	672	1,064	648	694	151	552	300	1,253	1,261	356
Singapore	3.6	2.8	841	636	613	1,250	280	1,285	189	49	1,293	2,167
Spain	2.2	3.4	776	355	380	668	69	823	404	901	1,247	456
Belgium	2.6	2.3	1,159	433	404	549	26	1,035	265	473	505	1,039
Australia	1.8	2.6	506	515	293	441	69	708	457	923	505	350
South Korea	1.5	1.2	356	250	170	288	389	231	565	210	200	188
Norway	1.8	0.9	236	799	447	205	66	194	111	276	281	706
Russia	1.3	1.1	471	5	69	364	433	535	160	71	307	188
Brazil	0.9	1.6	359	30	10	88	374	779	332	221	220	134
Denmark	1.2	1.0	287	300	197	293	75	182	236	288	259	690
Austria	1.0	1.0	348	140	222	298	22	300	86	361	257	526
Mexico	0.6	1.2	245	34	27	149	175	554	152	349	102	171
India	0.6	1.0	155	2	0	40	410	378	156	112	398	73

Source: International Monetary Fund Balance of Payments, OMFIF analysis

Development through technology

Increasing digital connectivity, coupled with access to social media and electronic marketing platforms, offers opportunities for the poorest and smallest Commonwealth countries to participate globally. Full access to broadband internet could add up to $1tn to the combined GDP of the Commonwealth.

Patricia Scotland
Commonwealth Secretariat

With an estimated 144m online shoppers, barely 6% of the Commonwealth's 2.4bn citizens, there is tremendous potential to increase digital trade.

With the global economic recovery gaining momentum, a decade on from the 2008 financial crisis, Commonwealth members are making extraordinary progress in accessing and harnessing new digital and other technologies to boost trade and investment, and transform their prospects for sustainable development. The 2018 Commonwealth Trade Review estimates that full access to broadband internet could add up to $1tn to the combined GDP of the Commonwealth.

Increasing digital connectivity, coupled with access to social media and electronic marketing platforms, offers new opportunities for the poorest and smallest Commonwealth countries to participate globally. They are able to network in new ways to seek employment, identify markets, compete and export. The cost of such technologies is declining rapidly, at a rate of more than 10% annually, making them more accessible to the smallest and poorest countries.

Business to consumer ecommerce sales in Commonwealth countries were estimated at around $350bn in 2015, representing 3.5% of the group's GDP. With an estimated 144m online shoppers, barely 6% of the Commonwealth's 2.4bn citizens, there is tremendous potential to increase digital trade.

But expanding ecommerce in the Commonwealth requires significant investment in digitalisation, vastly improved distribution and delivery systems, and tackling the range of policy and regulatory constraints that stifle the transition from analogue to digital economies. These challenges are most acute in the Commonwealth's smallest and poorest countries.

Fintech solutions

Almost half of the Commonwealth's citizens have no access to basic banking services, including 927m people in Asia and almost 300m in Africa. However, several Commonwealth countries, from Kenya to Rwanda, Australia and the UK, are already world leaders in fintech. They are providing innovative solutions for greater financial inclusion and empowerment in many regions of the Commonwealth.

Fintech, including blockchain and digital currencies, has been flagged as a possible solution to derisking, which continues to affect a range of Commonwealth members, particularly small states in the Caribbean and Pacific. There have been proposals to use a blockchain-based settlement framework to improve the surveillance of transactions and even to bypass the need for correspondent banks.

Technological innovation could be key to tackling unemployment, especially among young people across the Commonwealth. This will require an adaptive workforce, skills upgrading and investment. However, the potential gains in trade, growth and employment are constrained by major gaps in key enabling infrastructure. Access to broadband and financial technologies is limited, internet speeds are generally poor and many people do not have electricity. It is important to find practical measures to close these gaps, including bridging the gender disparity in digital connectivity and access.

Aid for etrade

Commonwealth initiatives can play a catalytic role. At the pan-Commonwealth level, members are already sharing country knowledge and experience of the gains from digital technologies, and how emerging technologies can support sustainable development. Global advocacy could support establishing an aid-for-etrade initiative and encourage multilateral agencies to accelerate technical and financial assistance to help the least developed countries achieve the UN sustainable development goals' target of universal affordable access to the internet by 2020.

It has been suggested that we might develop a Commonwealth Digital Readiness Framework to help identify constraints to the adoption of technologies that foster digital connectivity and ecommerce. Our focus is on economic empowerment and inclusiveness within a more digitally connected Commonwealth, so that all communities and individuals are able to enjoy the fruits of prosperity, with none left behind. ●

The Right Honourable Patricia Scotland QC is Secretary-General of the Commonwealth.

Pursuing global cybersecurity initiatives

It is nearly impossible for institutions to combat cyber threats alone in the interconnected cyberspace. The international finance community should work together towards multinational co-operation on cybersecurity given the globalised nature of financial services.

Tan Yeow Seng
Monetary Authority of Singapore

The sharing of cybersecurity information among trusted parties is useful. One firm's cyber incident can become every firm's defence.

Cyber risk is not new to the financial industry but, fuelled by rapid digitalisation, the magnitude of its impact is escalating. It was reported in early 2016 that cybercriminals made unauthorised transfers of around $81m from a central bank's payment system. This was quickly followed by reports of similar attacks against commercial banks in several countries. Around a year later, a major consumer credit reporting agency in the US was also found to have been infiltrated by hackers, leading to the unintended exposure of personal data belonging to up to 145m consumers in the US, UK and Canada.

The discovery of design flaws in computer chips called Meltdown and Spectre in early 2018 that could expose in-memory sensitive data will embolden hackers to intensify their search for other hardware and firmware vulnerabilities which are inherently more difficult to fix. In the same vein, the risk posed by the Internet of Things, which is mostly not designed to be patched, is poised to heighten. The prognosis is that high-profile cyber breaches will continue to dominate headlines.

Two elements of cyber risk which have emerged from the recent events demands close attention. First, cyber risk has the ability to disperse rapidly across firms and geographical regions and result in widespread disarray due to extensive system connectivity. This was demonstrated in May 2017 by the WannaCry ransomware that swept across the world with unprecedented pace and affected a wide swathe of computer users. Although the financial sector was largely unharmed by this episode, institutions must be prepared to deal with similar events in the future.

Second, with the world becoming increasingly dependent on online news services and social media as main sources of information, cybercriminals could attack and leverage these channels to propagate distorted information. Such attacks can be perpetrated by hacking into news portals, compromising popular social media accounts or using automated programmes to disseminate misinformation. This new form of cyber attack could engender a crisis of confidence in financial institutions, move markets or even disrupt financial stability.

It is nearly impossible for individual institutions to combat threats in the interconnected and borderless cyberspace. Recognising this, the Monetary Authority of Singapore has introduced initiatives to promote co-operation in the financial industry, including the partnership with the global Financial Services Information Sharing and Analysis Centre to establish its Asia Pacific regional analysis centre in Singapore. The centre, which supports member financial institutions across nine regional countries – Australia, India, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan and Thailand – allows the FS-ISAC members to share and receive cyber threat information and other resources tailored to the region.

Effective information-sharing and cross border exercises

The sharing of cybersecurity information among trusted parties is useful since attackers often use replicated methods of attack to compromise multiple targets. Conceivably, one firm's cyber incident can become every firm's defence if timely and actionable threat information is shared. Financial regulators also stand to benefit from such sharing as it can enhance their supervision and policy-making. To overcome the concern about information confidentiality, regulators can share redacted information relating to incidents that they come across in the course of supervision.

Apart from information-sharing, many countries conduct regular domestic cybersecurity exercises for their financial sectors. In view of the increasingly cross-border nature of financial services, the next step is for countries to establish joint cyber threat management plans and conduct multinational exercises to validate the effectiveness of and familiarise themselves with these plans.

The symbiotic relationships in the financial system require all parties to help strengthen collective cybersecurity. Effective information sharing and cross-border exercises are two immediate areas which the global financial community should pursue with vigour. ●

Tan Yeow Seng is Chief Cybersecurity Officer at the Monetary Authority of Singapore.

Regulating finance in the digital era

A controlled approach to experimentation may help financial regulators deal with fintech disruption. Central banks and supervisory authorities can use a range of frameworks to harness innovation to support financial inclusion.

Matthew Saal
International Finance Corporation

Changes to business models can create gaps in supervision. It is not just a matter of regulating new entrants, but also supervising incumbents as markets and business models shift.

The transition to digital, data-driven finance presents challenges to both financial institutions and their regulators, and requires a proactive approach to encourage innovation while managing risks.

Many of the benefits of advances in financial technology – including decentralisation, diversification, efficiency, transparency, and broader access – were not being provided in the same way by in traditional financial services. The risks, on the other hand – such as maturity and liquidity mismatch, cyber attacks, procyclicality and volatility – are largely the same as those that already pertain to financial services generally. What differs is that these risks, which could have systemic implications, may now be created by entities that are outside regulators' sphere of influence. In particular, a number of fintech product combinations and business models are not captured in traditional regulatory frameworks, particularly those focused on regulating specific types of institutions.

The underlying activities, however, are usually recognisable and can be mapped to existing products and services, allowing a principle of 'same activity, same rules'. Crypto assets fit the definition of a security in the US, and can be regulated accordingly, and peer-to-peer platforms provide an investor service that falls under the markets regulation in Malaysia. This approach helps level the playing field between incumbents and fintechs.

Fintech firms should also be subject to existing activity-based consumer protections, ensuring, for example, that fees and interest rates from online lenders are clearly disclosed, and that there is no confusion between peer-to-peer investments and insured deposits.

Principles of responsible finance should apply to fintech firms alongside other lenders. The International Finance Corporation is leading work with like-minded investors to agree and implement 'Guidelines for Investing in Responsible Digital Financial Services' to create industry norms.

While a lack of transparency and product confusion create some hazards for consumers, they do not appear to present systemic risks. Likewise, the possibility of fintech failures leading to systemic disruptions is minimal, as these firms make up a small fraction of the financial services sector in most markets.

Ultimately, consumers of financial services should benefit from competition, lower costs and improved product tailoring, all of which support broader access to finance. The outcome in terms of industry structure and profitability of incumbents, however, is not yet clear. The business-model risk to existing banks, whose most profitable products may be stripped away by fintech competitors, may be the most significant present risk. Changes to business models can create gaps in supervision. It is not just a matter of regulating new entrants, but also of supervising incumbents as markets and business models shift.

Supervisory approaches need to consider changes to the competitive landscape, and the modularisation and recombination of different service providers. Policy-makers must remain aware of who owns the customer relationship, and who is responsible for compliance, servicing, recourse and reporting.

Central banks and supervisory authorities are using a variety of frameworks to harness innovation and support financial inclusion. These include sandboxes, accelerators and innovation hubs, as well as 'test and learn' and 'wait and see' approaches.

The key variables are how much experimentation is permitted, and how closely involved the regulator chooses to be. At one end, innovation may be highly constrained, such as by requiring fintech lenders to partner with regulated banks or other institutions, as was done in India. This approach may be combined with relatively low levels of oversight of the fintech lender, on the assumption that any activities requiring supervision are captured within the regulated partner bank.

At the other extreme, a regulator may let the market experiment and intervene only if necessary, as China did with marketplace lending. A middle ground was struck in Kenya for the introduction of the mPesa mobile money platform, where experimentation outside the extant regulation was permitted on consultation with the regulator and agreement on basic conditions. Another midpoint combination is to contain innovation within a regulatory sandbox that involves a high degree of interaction with, and oversight by, the regulator.

Factors that will influence the choice among these and other options include the maturity of the financial services sector, the stability of the sector and the economy more broadly, the pace of innovation and the regulator's capacity to react. Emerging markets may have the most to gain in terms of deepening intermediation and access to finance by harnessing innovation. However, they may be more exposed to risk in view of less robust initial conditions and weak capacity.

To improve the trade-off of stability v. innovation, regulators can develop a 'BASE for innovation':

• Build capacity. Regulators need to understand new technologies and business models, and develop the cap acity to supervise them;

• Assess risks and rewards relevant to the local market, and regulate accordingly. Innovations with relatively low risk and high reward, such as mobile money in underbanked economies, can deliver net benefits of growth and inclusion alongside stability;

• Share experiences and insights with the private sector and other supervisory bodies. Pooling knowledge and collaborating to interpret outcomes will strengthen both the industry and regulators

• Experiment in a controlled way, recognising that the sandbox, innovation hub or other framework is an experiment that can and should evolve with use.

Regulatory and supervisory frameworks have long sought to support and institutionalise the core area of competence, such as risk management, required for sound banking.

Using technology effectively must be a core competence for financial institutions. In consequence, fostering a well-functioning, stable and inclusive financial system in a digital world fundamentally requires regulatory support for financial innovation. ●

Matthew Saal is Head of Digital Finance in the Financial Institutions Group at the International Finance Corporation.

Emerging markets may have the most to gain in terms of deepening intermediation and access to finance by harnessing innovation.

Financial services in a digital world

Cybersecurity is a shared responsibility. The Financial Conduct Authority has set up cyber co-ordination groups, which convene companies from different sectors to share know-how on cyber resilience, and to form a network, should incidents happen.

Nausicaa Delfas
Financial Conduct Authority

Cyber risks can cause harm when markets are disrupted through unavailability of platforms; sensitive market or customer data are stolen or compromised; or access to core banking services is lost.

We live in an increasingly digital and interconnected world. With these opportunities come new threats, and these threats transcend national boundaries.

When it comes to cyber resilience, we have no way of knowing exactly who our enemies are, so instead we must think what an adversary may want. We need to consider what makes an organisation attractive to attackers, and what our cyber risk profile looks like.

Third-party relationships are key to cyber risk. When businesses rely on third parties – as suppliers or partners – they take on their risk profiles. And this is not just about suppliers one would think of as digital.

US retailer Target was involved in one of the largest data breaches in the last few years. The company was breached via Fazio Mechanical Services, its air-conditioning provider. Target finally agreed to an $18.5m litigation settlement.

Innovations such as open banking, which lets financial services providers share customers' data more easily, bring greater convenience, but also greater risk. These changes increase the opportunity for attacks, as more organisations have access to sensitive financial information, meaning data must be better protected. As these data spread further across more organisations, the perimeter of traditional banking continues to stretch. As we become more connected, we potentially become more vulnerable.

Cyber risk is one of the Financial Conduct Authority's top priorities. The FCA regulates 58,000 financial services companies, from the largest banks, insurers and market infrastructure providers to the smallest advisers. Our objectives are to secure appropriate protection for consumers, protect and enhance the integrity of the UK financial system and promote effective competition in the interest of consumers.

Cyber risks can cause harm when markets are disrupted through unavailability of platforms; sensitive market or customer data are stolen or compromised; or access to core banking services is lost.

Cybersecurity is a shared responsibility. The FCA has set up cyber co-ordination groups, which convene companies from different sectors to share know-how on cyber resilience, and to form a network, should incidents happen.

There are three important areas in terms of cybersecurity: technology, people and processes.

To start with technology, the fundamentals are for financial services companies to understand and identify their most important assets and their perimeter, and ensure these are secure from a technical perspective – limit access and segregate data. Companies should check where their vulnerabilities are, whether they are visible externally, if an intruder can detect them and if parts of the system can be isolated. Proactive threat hunting is required; there is no option to stand still and observe.

Processes relate to the means by which companies approach cyber resilience. This covers the preparation for, response to and recovery from cyber events. Contingency arrangements and vendor relationship/ management plans with third parties are critical to minimising the chance of this happening and maximising the ability to survive it.

People are an integral part of the security chain. Too often staff are talked about as if they were an Achilles heel, when they can be an important part of the solution. With training, they can become an important defence, alerting a company to possible attacks and preventing them. This can be achieved through behavioural nudges. Examples of this include introducing fake phishing scams - educating staff who click on them, rewarding those who avoid/ spot attacks, taking further action on those who persistently do not. This is about gradually shifting cultural norms within an organisation.

All of these considerations apply to third parties as much as to your own business. There are many tools and methods available to address these risks, from auditing every supplier individually (a huge and probably unfeasible task for large companies); to using intermediaries to undertake standardised third-party risk management processes; to using publicly available indicators to calculate an aggregated security score within a risk management programme.

With greater innovation and convenience comes greater risk, and we have a shared responsibility to combat cyber hazards.

Nausicaa Delfas is Executive Director of International at the UK's Financial Conduct Authority.

Challenges from cryptocurrencies

Central banks, which are responsible for maintaining the stability of payments and settlements, should grasp the possible impact of new technologies on a very wide range of their overall operations.

Hiromi Yamaoka
Bank of Japan

In the current low interest rate environment, banks would struggle to pay high enough interest on deposits to make them more attractive than central bank digital currencies.

With the emergence of cryptocurrencies, some argue that central banks should issue digital currencies. They believe these currencies could make payments faster, cheaper and safer by incorporating up-to-date technologies in risk-free central bank money.

Two types of central bank digital currencies are being discussed. The first type is for general use, in which people can use these currencies as substitutes for banknotes. The second type is for wholesale settlements. They apply new technologies, such as blockchain, to central bank reserves to enhance their utility for purposes including cross-border settlements. Since central banks' reserves are already digitised, the implications of wholesale uses for macro-financial stability may not be large.

Most central banks issue banknotes and operate real-time gross settlement systems. While banknotes can be used by anyone all the time, direct participation in payment processing is limited to a small number of entities, such as banks. Issuing central bank digital currencies would be similar to extending real-time gross settlement to anyone on a 24/7 basis.

Many central banks, including the Bank of Japan, remain cautious about such currencies. The BoJ does not have immediate plans to issue a digital currency.

Central bank digital currencies could squeeze bank deposits, and influence the structure of financial intermediation and the allocation of resources. Retail banks, based on deposits, provide both payment and lending services, and central banks act as lenders of last resort in this model. If central bank digital currencies only replace banknotes, they would not affect banks' funding sources.

However, in the current low interest rate environment, banks would struggle to pay high enough interest on deposits to make them more attractive than central bank digital currencies, since central banks' reserves are concentrated in safe assets such as treasury bills. Central bank digital currencies might reduce the provision of risk money to the economy, including loans.

Central bank digital currencies might accelerate the flight to quality or liquidity in times of stress, as funds could be transferred easily between commercial banks and digital currencies, or across borders, through the internet and smartphones.

These currencies raise issues around data protection. Banknotes contain only the information of value; central banks cannot know who possesses each note. Central banks do not monopolise the information related to daily payments but let private entities utilise it. However, central banks do have access to the data attached to large-value settlements, which is useful for maintaining financial stability.

Digital payment instruments convey rich data: who bought what, when and where. If central banks obtained information related to people's daily financial lives, it might cause problems in terms of the banks' independence, since the data could be used for administrative purposes such as taxation, anti-money laundering measures or countering the financing of terrorism. How to make appropriate and efficient use of data attached to transactions could be one of the key issues in designing future payment infrastructure. Central bank digital currencies could also be a target for cyberattackers.

Cryptocurrencies v. sovereign currencies

In the near future, it would be difficult for cryptocurrencies to overwhelm sovereign currencies, since their high price volatility hinders widespread adoption for payment purposes. Moreover, cryptocurrencies have substantial costs, such as the electricity needed for mining. On the other hand, the marginal cost for central banks to issue liabilities is low, since they can use the trust already placed in them. And it may not be necessary to apply blockchain to these currencies, since central banks, as ledger keepers, are considered sufficiently trustworthy already.

Discussions on central bank digital curencies provide central banks with the opportunity to consider the appropriate design of their infrastructure in future. It is not necessary for central banks to rush to issue digital currencies to compete with cryptocurrencies. Rather, central banks, which are responsible for maintaining the stability of payments and settlements, should grasp the possible impact of new technologies on a very wide range of their overall operations. ●

Hiromi Yamaoka is Director-General of the Payment and Settlement Systems Department at the Bank of Japan.

Weighing up higher seigniorage

Several small developing economies have introduced digital currencies as a means of payment, but for unenviable reasons. In the developed world, this innovation seems to be a solution in search of a problem.

Mojmír Hampl
Czech National Bank

A single bitcoin transaction consumes roughly the same amount of energy as the average US home does in a week. Bitcoin uses more electricity per year than Nigeria.

Several countries have been using digital currencies as a means of payment over the last three years. All are small, developing economies (such as Ecuador and Tunisia) and all introduced this innovation for unenviable reasons. Ecuador's economy is totally dollarised, so the central authorities are circulating a foreign currency on which they receive no seigniorage (the difference between the value of money and the cost of producing and distributing it). The country would be better off if the public made more use of the new dinero electrónico instead of banknotes. It would also make it easier for Ecuador to return to its own fully-fledged currency one day.

In developed countries, digital currencies seem to be a solution in search of a problem. The exception is the decline in the use of cash, especially in the Nordic countries, and the resulting loss of the monetary link between the public and the central bank.

Care should be taken not to confuse cryptocurrencies such as bitcoin with central bank digital currencies. Cryptocurrencies are more like commodities than currencies. They are supposed to be an alternative to the current global monetary system. Central bank digital currencies are 'only' a modern alternative to cash.

Bitcoin's inefficiencies

It is possible that a central bank will adopt this innovation, if only for marketing or because it is fashionable. Such an official digital currency would have practically nothing in common with bitcoin. The bitcoin ecosystem was meant to offer cheap and quick transactions, but it is expensive and slow – so much so that internal quarrels about the maximum number of transactions per second in the bitcoin universe led to a split (or, more accurately, fork) of Bitcoin Cash from the original bitcoin. For many, it serves more as an example of how not to design a digital currency.

A single bitcoin transaction consumes roughly the same amount of energy as the average US home does in a week. Bitcoin uses more electricity per year than Nigeria (an oil giant with a population of 190m), and the energy consumption of the system is rocketing.

Bitcoin's price volatility is truly remarkable. This is one of the reasons it hardly represents an alternative to conventional money.

Advantages of digital currencies

But one should not make a judgment about technological advances purely on the basis of a current market price.

In countries experiencing a rapid decline in the use of cash use (such as Sweden and Norway), digital currencies can help boost seigniorage revenue. If digital currency deposits bear no interest, there will be hardly any costs associated with this liability in the central bank's balance sheet, while the relevant asset-side counterpart can be invested. There will also be savings on the issuance of cash.

The higher seigniorage does not come for free, though. The money stored in digital wallets would otherwise have been kept at commercial banks, so bank deposits will be commensurately lower. In normal circumstances, this will merely reduce banks' profits, but in a crisis it can have grave consequences. Even with 100% insurance, no deposit will ever be psychologically safer than one at the central bank. So liquidity may suddenly drain out of commercial banks and financial stability could be jeopardised.

Another argument for a digital currency is that it widens the range of monetary policy options available to central banks in a crisis. Digital 'helicopter money' would make it easy not only to send money straight to households, but also to nudge them to spend it.

Firm judgements about the future are difficult to make. But it is worth asking whether 2018 will see the first trial of a fully-fledged digital currency by a central bank in the developed world. ●

Mojmír Hampl is Vice-Governor of the Czech National Bank.

OMFIF

Special report

Digital currencies

Blockchain shows future of finance

The boom in cryptocurrencies has attracted significant attention from retail investors, financial institutions, central banks and regulators. Bitcoin was the first to introduce blockchain technology to create its own decentralised network, but central bank digital currencies could transform the monetary system.

Blockchain technology offers a new way in which financial services could operate. So far, the private sector has driven the development of blockchain, mainly through companies that are trading cryptocurrencies. These are digital assets with no intrinsic value that are traded on a blockchain, such as ethereum, bitcoin and ripple.

In the context of finance, blockchain can be defined as a digital platform that uses cryptography and a distributed messaging protocol to create a link between two or more parties to transfer asset ownership. The transaction is registered across a network of computers, in a distributed ledger. In capital markets, the technology has the potential to settle currency, equity and fixed income trades almost instantaneously, once current issues with the speed of transactions have been overcome. This would create an opportunity for banks to eliminate intermediaries.

Implementation of blockchain has been limited. Issues of interoperability, which requires all parties to be on the same blockchain system, and scalability, where payments on blockchains are not fast enough to support large-scale operations, are still being addressed. Private ledgers can be tailored to overcome the issue of speed, while groups such as R3, which has 41 banks as members, seek to develop a standardised platform.

Legislators and regulators have not caught up with need for real-time regulation. Blockchain operates continuously, while traditional transaction processing has a two-day settlement period. Monitoring the stability of the banking sector could be easier if financial stability authorities used blockchain. If a regulatory body adopted a node in the system, it could see all the information in the market at once. A blockchain would record every instance of a bank failing to make a payment or transferring assets, meaning the regulator would have the power to act quickly to stop the bank from trading, or inject emergency liquidity if required.

Blockchain could become the backbone of capital markets infrastructure, reducing counterparty risk and settlement times, and increasing regulatory transparency.

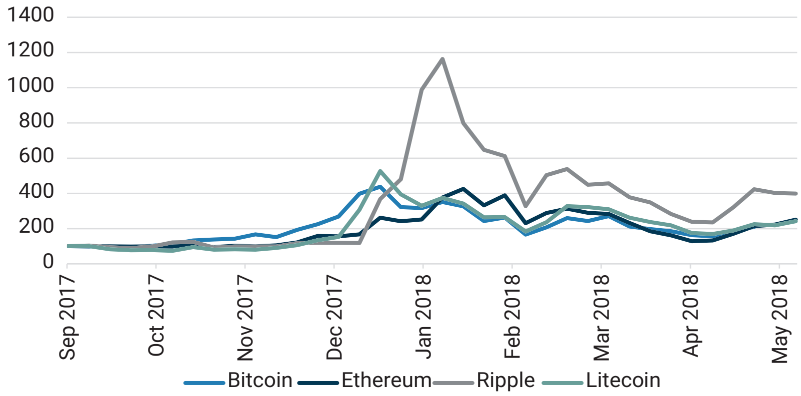
Private digital assets

The boom in cryptocurrencies has attracted significant attention from retail investors, financial institutions, central banks and regulators. Bitcoin was the first to introduce blockchain technology to create its own decentralised network.

The intended use of the bitcoin blockchain was the instant and anonymous decentralised transfer of wealth. But as the currency became more popular and attracted mainstream attention, it turned into a speculative asset and suffered significant price volatility. Because these cryptocurrencies are not underpinned by fundamentals, holders are sensitive to any available information, making these assets susceptible to more frequent gains and losses, as exemplified by the January 2018 irrational cryptocurrency crash (see Figure 1). These markets are small compared with more traditional assets, so value changes are more pronounced as liquidity is squeezed.

Figure 1: Ripple most volatile through January 2018 crypto crash

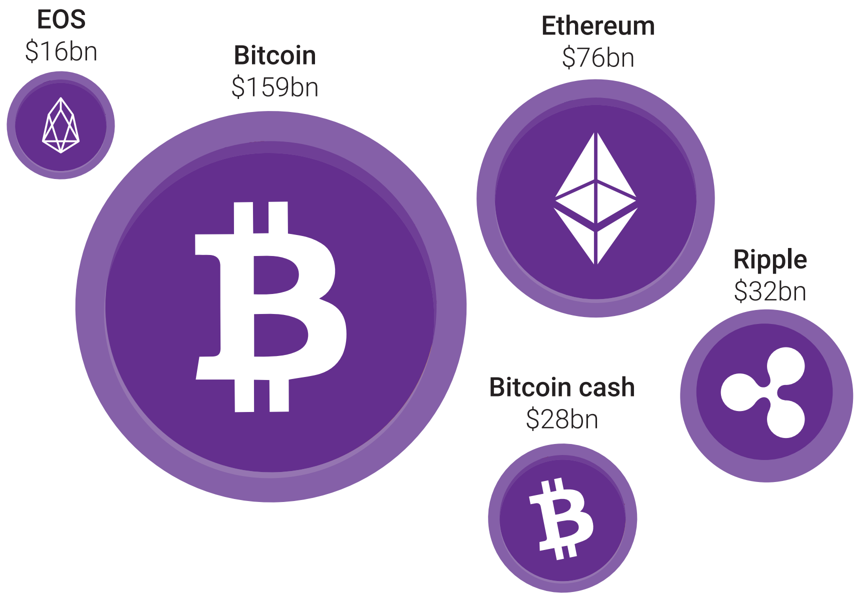
Cryptocurrency to dollar price, indexed Sep 2017 = 100



Source: Thomson Reuters, OMFIF analysis

> "The intended use of the bitcoin blockchain was the instant and anonymous transfer of wealth through a decentralised means. But as the currency became more popular and attracted mainstream attention, it turned into a speculative asset and suffered from significant price volatility."

Figure 2: Bitcoin remains most popular cryptocurrency
Largest cryptocurrencies by market capitalisation, $bn



Source: Coinmarketcap, OMFIF analysis, as of 10 May 2018

> Even established exchanges trading traditional securities have become involved In December 2017, the Chicago Board Options Exchange became the first major exchange to launch and trade a bitcoin futures contract. A week later, the Chicago Mercantile Exchange became the second.

Governments and regulators are concerned about the anonymity of cryptocurrency payments. There is the risk that cryptocurrencies can be used to fund crime or terrorist activities, or to circumvent capital controls. Despite there being no systemic risk, as cryptocurrencies are not traded or financed by the banking sector, the risk to personal finances is growing and could affect financial stability if consumers are leveraging themselves to purchase volatile cryptocurrencies.

Regulatory actions have so far been blunt and have led to market volatility. South Korea's announcement that it would make cryptocurrency trading illegal in early March triggered a big sell-off that caused individuals to lose up to 40% of their portfolios. When Chinese regulators banned cryptocurrency trading in 2017, bitcoin lost 32% of its value.

Cryptos as an asset class

The access to blockchain technology provided by ripple, ethereum and bitcoin among others has allowed companies to create their own digital assets or tokens, which they have offered to the public with the aim of generating funds for their business models.

Initial coin offerings provide an alternative source of venture capital for start-ups and drive innovation in the way these digital tokens can be used. From January 2017 to February 2018, ICOs raised $4.5bn, outweighing venture capital more than threefold in total deal size. Innovation is increasing the number of uses for blockchain, meaning investors are assuming some form of fundamental value associated with certain cryptocurrencies, including cross-border payments and disseminating and securing data records.

During 2017, retail and institutional investors purchased more cryptocurrency assets. Ninety cryptocurrency hedge funds opened in 2017 and the first ever fund of funds was established in October.

Institutional interest has spurred the development of new crypto products and investment vehicles. These have included binary options, contracts of difference and exchange traded funds, and even established exchanges trading traditional securities have become involved. In December 2017, the Chicago Board Options Exchange became the first major exchange to launch and trade a bitcoin futures contract. A week later, the Chicago Mercantile Exchange became the second.

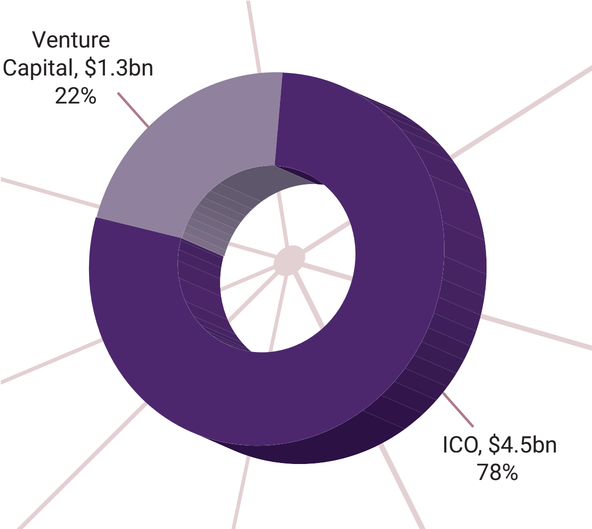
Another important factor behind this boom is that investors, banks, other market participants and regulators have started to define cryptocurrencies in terms of asset classes. Despite the name, cryptocurrencies are rarely classified as currencies.

Christopher Giancarlo, chairman of the US Commodity Futures Trading Commission, said, 'Bitcoin and a lot of its other virtual currency counterparts really have elements of all of the different asset classes, whether they're meeting payment, whether it's a long-term asset.' He later suggested bitcoin could be suitable for a long-term buy-and-hold strategy, but regulators cannot agree which asset class cryptocurrencies should fall under.

The CFTC classifies bitcoin as a commodity, while the Canadian Securities Administrators, New Zealand's finance regulator and

Figure 3: ICOs more important for raising capital for blockchain start-ups than traditional venture capital

Blockchain and blockchain-related start-ups by funding type, %, 2017-Feb 2018



Source: Crunchbase statistics

the Monetary Authority of Singapore classify cryptocurrencies as securities. The greater the acceptance of cryptocurrencies as assets by regulators, the more clarity and certainty will be brought to the market.

Regulatory approaches

Cryptocurrencies have garnered their fair share of criticism. Questions remain about the level of anonymity within different private digital currencies, given the strict know-your-customer and anti-money laundering laws that apply to financial services.

Regulation will need to improve to support the growth of cryptocurrency markets. Until now regulation has been fragmented and has risked regulatory arbitrage due to the lack of a coordinated global approach.

China, once the global hub for trading cryptocurrencies, has become extremely averse to cryptocurrencies. Exchanges for digital assets and ICOs are now banned, online access to overseas trading platforms are blocked and bitcoin miners, which create the asset, have had their electricity cut.

In the US and Canada cryptocurrencies fall into legal grey areas. Digital assets are traded and ICOs are regulated. Both countries apply securities regulation to cryptocurrency trading.

The European Union is yet to formalise its regulatory approach. The European Securities and Markets Authority, which coordinates standards across all member states, is proposing restrictions on derivatives tied to digital currencies for retail investors and is assessing how the EU's Mifid II rules apply to digital assets. Esma is planning to make platforms that exchange cryptocurrencies for fiat currencies to verify the identity of their customers this year.

In Africa there are no explicit rules regulating activity. Cryptocurrencies are evaluated on a case by case basis, with central banks taking on a greater supervisory and investigatory role, such as in South Africa, Kenya and Nigeria.

All regulators, apart from those in Japan and South Africa, have issued warnings about the risks of investing in cryptocurrencies and especially in ICOs, a large proportion of which are fraudulent. Regulation surrounding ICOs are less explicit, as regulators have to balance innovation with regulatory overkill, and they often resort to just warning consumers of the risks.

Greater regulation will have a positive effect on cryptocurrency markets only if it provides certainty about how markets will operate in the future. It has to support innovation without compromising on core financial stability objectives.

Central bank digital currencies

The introduction of central bank digital currencies, either account- or cryptocurrency-based, could transform large parts of the monetary system, improving efficiency and transparency. These currencies would provide an almost costless medium of exchange, a stable unit of account and a secure store of value.

In this context, cryptocurrencies are not money but speculative assets, and regulators and governments are approaching them as such. Even in situations where cryptocurrencies are used like money, they represent a small fraction of the amount of fiat currencies in circulation and will remain the preoccupation of outsiders.

Bitcoin's constantly changing purchasing power is a fundamental issue. It is not a universally accepted means of payment and so it remains unqualified as a medium of exchange. While the usability of a cryptocurrency diminishes as it becomes a speculative vehicle with volatile purchasing powers, central bank digital currencies denominated in an established currency could solve this problem.

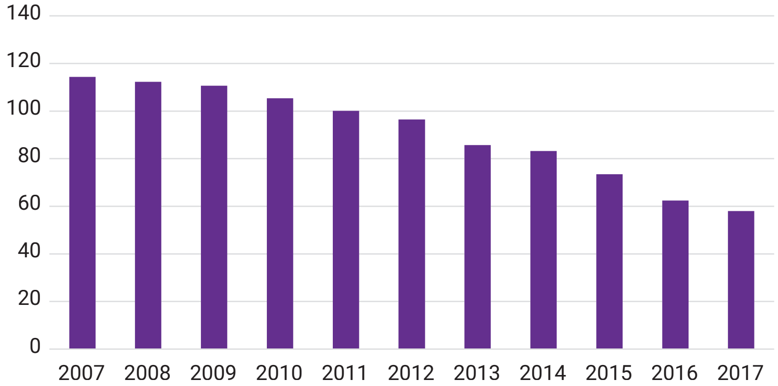
Over the past 18 months, the issue of central bank digital currencies has come to the fore. Initially, central banks questioned the motivation behind and possibility of issuing CBDCs, and there was little distinction between retail and wholesale CBDCs. A retail CBDC would provide private individuals with access to a digital version of a central bank fiat currency, while the wholesale variant limits its use to financial institutions and interbank transactions.

The development of wholesale CBDCs has shifted from questions about feasibility to practical issues. The private sector, mainly consortiums of institutions, has pushed forward variants of interbank and cross-border payment models using different technologies. However, these private institutions still need to create a working relationship with central banks and each other in different jurisdictions to have a fully global payments and settlement system that uses a digital currency.

There are no technical reasons why a central bank cannot issue a retail CBDC. Central banks have different motivations for using digital currencies. In Sweden, the use of cash has declined dramatically – it made up only 1% of all transactions in 2016. Between 2007-17, the value of cash in circulation almost halved.

Figure 4: Circulation of cash declines in Sweden as demand falls

Currency circulation in Sweden, Sek bn



Source: Thomson Reuters, OMFIF analysis

> "The introduction of central bank digital currencies, either account- or cryptocurrency-based, could transform large parts of the monetary system, improving efficiency and transparency. These currencies would provide an almost costless medium of exchange, a stable unit of account and a secure store of value."

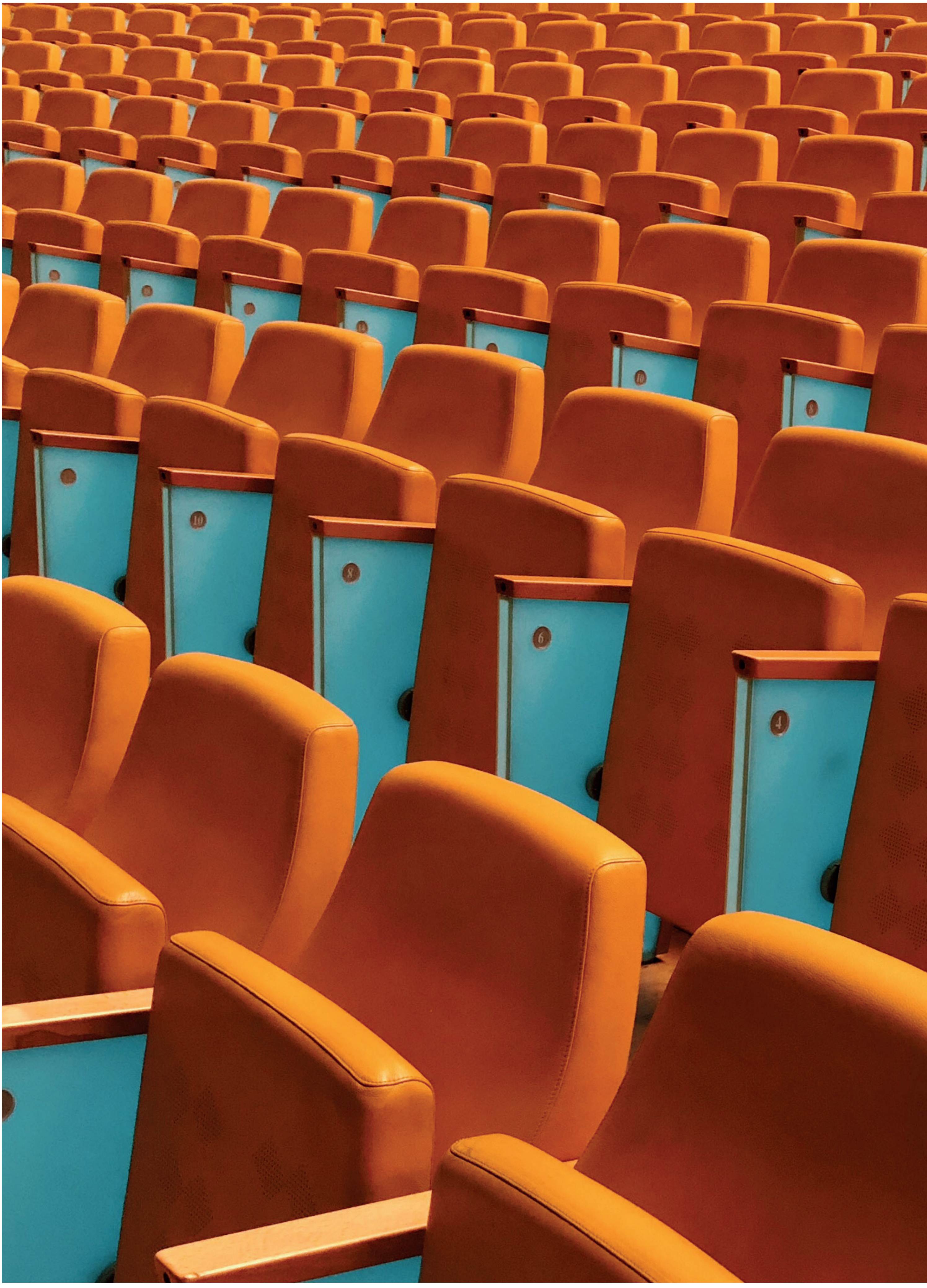
The Riksbank's e-krona project is the first major central bank effort to introduce a digital currency as a complement to cash in retail payments. The project is considering different technical solutions, but the Riksbank aims to finalise it by the end of 2019.

The Monetary Authority of Singapore's Project Ubin and the Bank of Canada's Project Jasper simulate the real-time gross settlement system on distributed ledger technology. The two projects show that central bank money can be transferred to a distributed ledger in real time, in realistic volumes and with a liquidity-saving mechanism during settlement.

The Bank of England is in a research phase. It is exploring the benefits and uses of an account-based digital currency, but has concluded that digital ledger technology is not yet mature enough for adoption. Most central banks are forward-looking as they consider modernising their payment infrastructure, stressing the importance of making new systems interoperable with future digital ledgers.

Several policy concerns, mainly financial stability, and political reasons have meant no major central bank will be implementing a retail CBDC in the near term. Only two emerging market central banks, those of Venezuela and Ecuador, have pursued this option.

The author of this report is Bhavin Patel, Economist at OMFIF.



Section 2

Asset allocation

Shifting business models
Policy and regulation
Stakeholders and governance

Sovereign funds shift into private markets

Sovereign funds play an important role in global capital markets. The average sovereign fund continued its gradual drift towards private markets at the expense of fixed income, while the aggregate numbers indicate an increase in the share of alternatives.

Elliot Hentov
State Street
Global Advisors

In 2014-16, AUM growth in sovereign funds created from oil revenues was particularly slow. At least 35% of governments made withdrawals for fiscal purposes.

Sovereign funds play an important role in global capital markets. From 2000, they have experienced rapid growth in assets under management. State Street Global Advisors estimates that in 2002 the total assets of sovereign funds stood at $790bn. There were only 21 sovereign funds, with the top seven holding 87% of AUM. Only nine funds were invested in private markets. By the end of 2016, the sector had about $7.6tn in assets. Eleven funds had more than $100bn apiece and 30 out of 37 funds had invested in private markets.

Sovereign funds have grown in size, sophistication, fiscal importance to their host countries and macroeconomic importance to the global economy. According to SSGA's calculations, they own 6.3% of global publicly listed equity. Their $1.6tn in private market holdings amount to over 15% of the entire alternatives market.

There are indications that this era of rapid growth is drawing to a close. At least half of all sovereign funds' wealth comes from oil, and that market appears to have been fundamentally reshaped. The growth in foreign exchange reserves, another source of sovereign wealth, also appears to be slowing as many emerging markets move towards consumption-based economic growth and face aging populations. Many funds are adjusting their policies to focus on internal income generation or accommodating their owners' fiscal needs.

In 2014-16, sovereign funds' assets grew by a mere 3% annualised, compared to 15% annualised in 2012-14. AUM growth in sovereign funds created from oil revenues (oil funds) was particularly slow. At least 35% of governments made withdrawals for fiscal purposes.

Medium-sized funds have experienced erosion. Among the funds with AUM between $10bn-$100bn, half suffered a decline in assets, notably those from the former Soviet Union and the less wealthy countries in the Gulf.

Entrants to the group have been few and small, and some countries have consolidated their sovereign vehicles.

The average sovereign fund continued its gradual drift towards private markets at the expense of fixed income, while the aggregate numbers also indicate an increase in the share of alternatives.

In 2014-16, some funds were still accumulating while others were disbursing to governments. In 2014, oil exporters suffered a substantial shock. They lacked clarity about the path of oil prices but knew that any fiscal adjustment could only be gradual.

Many smaller oil funds increased their share of liquid fixed income instruments, while the asset management industry increased their exposure on the back of improving market conditions.

It would be expected that funds with falling AUM would shift out of the riskiest assets and into cash and fixed income. In reality, funds with falling AUM kept fixed income allocations flat while divesting from public equities to invest into alternatives.

Fixed income rebounds

The asset management industry has maintained a relatively flat allocation to alternatives over the past five years, at about 14%. Sovereign funds now have a 27% aggregate allocation to private markets. SSGA believes this is close to the peak.

First, private equity is more crowded now and the adequacy of illiquidity premiums is in question. The asset management industry sometimes struggles to produce institutionalised vehicles for such investments, and sovereign funds have to invest directly or in partnership with other asset owners. This requires corresponding expansion in governance and internal expertise, and many funds may be approaching their limits in this regard.

Second, as some funds face net outflows, liquidity management becomes difficult to conduct with a high share of illiquid investments.

Third, a rising interest rate environment will lessen the appeal of higher-risk assets. Most sovereign funds are anchored in dollars and the US interest rate cycle is central to their fixed income decisions.

Markets expect at least another percentage point rise in the federal funds rate over the next 12-18 months, which should boost the attractiveness of bonds for long-term buyers such as sovereign funds. Even a modest rebound in the appeal of fixed income assets would probably occur at the expense of allocations to alternatives. ●

Elliot Hentov is Head of Policy and Research for the Official Institutions Group at State Street Global Advisors.

Private and public fund strategies diverge

In recent years, there has been aggressive liability-led buying of bonds and diversification of risk out of equities by private sector pension funds, but this behaviour has not been mirrored in the public sector.

Colin Robertson
SW1 Consulting

Buying bonds now will probably mean locking in low returns for many years... diversifying away from equities does seem correct.

Global public investors have historically moved towards the asset allocation typical of Anglo-Saxon private sector pension funds. Where GPI exposure to domestic bonds has been very high, this has been reduced with reinvestment into domestic and global equities and into non-domestic bonds. Where the equity weighting was already substantial, there has been some diversification into a wider range of asset classes, including emerging market debt, private debt and infrastructure.

More recently, private sector pension funds have focused on their bond-like actuarial liabilities. This has led to greater investment in bonds and bond derivatives, in particular interest rate and inflation swaps. Through leverage, these instruments have allowed continued exposure to 'growth' assets. At the same time, there has also been quite an aggressive diversification of risk by private sector funds out of equities and into asset classes perceived as uncorrelated to equities, such as insurance-linked securities. In the UK, diversified growth funds, which seek to produce two-thirds of the return of equities with no more than half the risk, have been especially popular.

This behaviour has not been mirrored in the public sector. Anglo-Saxon public pension funds commonly have equity weightings over 50% and bond exposures of 20% or less. Many of their private sector counterparts have those weightings reversed. A search for yield has led to public sector bond holdings often being of short duration, through high-yield debt or emerging markets credit, rather than long-duration domestic government debt that matches the liabilities. Rarely do public sector funds use derivatives to hedge their liabilities.

Is this divergence justified?

In the private sector, the covenant of the fund sponsor is critical. If this is poor, then fund members will desire a very high level of low-risk, liability-matching assets in case the employer should cease to do business. Strong private sector sponsors may well have a high level of return-seeking assets in the pension fund. Clearly GPIs are in the very strong sponsor category with less need for risk-control assets such as government bonds.

Also, for GPIs, loading up on liability-matching government debt can be considered self-investment. Three of the world's largest GPIs – the US's Military Retirement Fund, Federal Employees Retirement System and Civil Service Retirement System – hold only US Treasury bonds and bills. This is equivalent to funding the pension scheme with debt of the employer, which might be considered more serious than the debt/equity split of the assets.

Where a fund's investment management has been separated from central or local government policy-making, as with local government pension schemes in the UK, public sector funds have still not paid much attention to their liabilities. Although the funds are likely to be at least partially bailed out in time of need, the cost could be doing the bidding of politicians, for instance through forced investment in the government's infrastructure plans.

Public sector pension funds have diversified away from equities but the scale of diversification has varied greatly. Pension scheme resources are an important factor: the very large public sector Canadian funds can afford skilled teams to cover challenging asset classes. In contrast, pension fund committees that meet quarterly with very limited internal resources depend on the availability of suitable externally managed multi-asset funds. Here a willingness to follow the private sector might be considered a practical rather than a philosophical issue.

In the short term there will be criticism of public sector funds when it comes to the increasing divergence in asset allocation. In the UK, the Universities Superannuation Scheme, which is attempting to cut promised benefits, is being pilloried for its past refusal to embrace a more bond-orientated strategy. Buying bonds now will probably mean locking in low returns for many years.

However, following the private sector in diversifying away from equities does seem correct, with the long-term nature and limited need for liquidity of most public sector pension funds facilitating a wide range of investment opportunities. ●

Colin Robertson advises public and private sector pension funds and consults to institutional asset managers.

Quiet years gone for public investors

Volatility and risk have returned to markets and are unavoidable for global public investors with large portfolios. Since the 2008 financial crisis, markets have responded less to the real economy and more to the unorthodox central banking regime deemed necessary to avoid financial collapse.

John Nugée
OMFIF

Whether central banks' role has subtly changed from lenders of last resort to funders of first resort has yet to be established.

After what were, in retrospect, very benign conditions in 2017, volatility and risk have returned to markets. This should neither surprise nor alarm investors, as volatility and risk are unavoidable when investing large portfolios in public markets. But there is an added complexity to the investment challenge at the moment, because there is additional uncertainty over the actions of the world's major central banks and, at the deepest level, about the global economy itself.

Since the 2008 financial crisis, 'normal' or 'natural' market reactions have been heavily influenced by the imposition of extremely low interest rates and very active central bank asset-purchasing programmes. For 10 years, markets have responded less to the real economy and more to the unorthodox central banking regime deemed necessary to avoid financial collapse.

As the world economy returns to healthy growth, major central banks, led by the US Federal Reserve, are beginning to unwind some of their unorthodox policies. They are raising interest rates tentatively and paring back balance sheets. The overall direction that policy normalisation should take is clear, but there are many uncertainties, such as the speed with which to proceed, the desired end point (the level of interest rates and the size of balance sheets in a stable economy) and even the sequence of actions.

Testing relationship for central banks and market

Central banks are likely to respond by moving slowly and deliberately. No central bank wants to be in the position of having to backtrack if events turn against them and the memory of 2013's 'taper tantrum' is still vivid. With elevated valuations in both bond and equity markets, there is considerable nervousness among asset holders, and the risk that minor triggers will cause large downturns is real.

Markets have become used to much greater policy transparency from central banks. Through their forward guidance and other policy statements, central banks increasingly try to pre-warn or direct markets. At another level, central bank actions have at best distorted markets.

Few market participants expect the unsecured interbank money market to revive and return to its former vibrancy. What this means for central banks, and whether their role has subtly changed from lenders of last resort to funders of first resort, has yet to be established. Investors' search for yield has led to a succession of high-risk issues, such as very long maturity bonds issued by countries with a history of serial defaults and sub-investment grade bonds issued at very thin spreads. Many fear this will test central banks' resolve if credit markets were to correct and return to more normal levels.

The Phillips curve has broken down

The global economy has undergone some significant changes in the last 10 years, and markets are awakening from their slumber to a scene in which trade, employment patterns, inflation, wealth inequality and much else has changed.

In most of the developed world, despite a growing economy and a tight labour market with record employment figures, there is no inflation. Standard theories about the trade-off between economic activity, employment levels and inflation, summarised in the Phillips curve, seem to have broken down. The usual central bank recipe for addressing inflation that is deviating from desired levels – altering official interest rates – appears to be ineffective.

That the Phillips curve was different during the height of the crisis will not surprise anyone; the global economy was under extreme stress and many other economic relationships were functioning differently from normal. But the continuing disconnect between monetary policy, economic activity and inflation even after several years of recovery and growth is more worrying and suggests that more fundamental changes have occurred. Central banks and investors alike may need to return to first principles. They must reappraise how the modern, more global economy works, what impact countries such as China has on developed economies, and how the gig economy has changed the labour market.

For public investors, the 'quiet years' of strong asset market growth fuelled by ultra-low interest rates and supported by central bank intervention are giving way to much less certain conditions. Markets, central bank policy-making and the global economy itself are very different and much less understood than 10 years ago.

John Nugée is Senior Adviser to OMFIF and former Chief Manager of Reserves at the Bank of England.

Bank of Japan faces ETF quandary

The Bank of Japan has diversified its asset-purchasing programme through the use of equity ETFs. Although their role in monetary policy is supplementary, they have important implications for equity and ETF markets and divestment will need careful management.

Louis de Montpellier
State Street Global Advisors

In December 2017, the combined net asset value of Japanese equity ETFs listed on the Tokyo Stock Exchange stood at ¥29.8tn. The BoJ held ¥17.2tn, or nearly 58%.

All central bank asset-purchasing programmes follow the same logic: when the price of money gets close to zero, they conduct monetary policy easing by directly increasing the quantity of money. Most post-2008 financial crisis programmes primarily purchased government bonds. Purchasing equities, via exchange-traded funds otherwise remains rare and controversial.

The Bank of Japan's programme, which started in October 2010, included a wider range of assets such as corporate bonds, equities and property funds. The BoJ had to deal with the consequences of the financial crisis as well as persistent deflationary pressures in the Japanese economy. It also had more institutional experience of unconventional monetary policy measures than other central banks.

Between 2002-03, the BoJ bought shares to alleviate the impact on major financial institutions of unwinding their cross-shareholdings in big conglomerates. However, a central bank, because of its size and influence, may distort the market when it trades the shares of individual companies.

ETFs, in contrast, allow investors to capture either the entire market or a specific theme, but do not let them choose individual stocks. State Street Global Advisors believes the 2002 legacy played a role in the BoJ moving to ETFs in 2010.

Initially, the BoJ announced a stock goal of ETFs it intends to hold. In April 2013, after the appointment of Governor Haruhiko Kuroda and the start of quantitative easing, it switched to a flow goal of purchases – ¥1tn ($9.4bn) annually. The amount was tripled in October 2014 and further doubled in September 2016. The bulk of the programme targets ETFs tracking large indices, such as the Topix.

Equities are not a large proportion of the BoJ's balance sheet. As of 31 January 2018, the balance sheet stood at ¥526.7tn, of which the 2002 stocks were ¥1tn and the later ETF purchases ¥17.7tn – a total of 3.6%.

The impact on the stock market has been more significant. As of January 2017, the BoJ owned about 2.5% of the total market capitalisation of the Tokyo Stock Exchange, which was then ¥721tn. Such a share is not necessarily alarming, but the indices purchased by the BoJ tend to include larger companies, and there are some companies where, if the indirect ownership stakes through various ETFs and direct holdings are added up, the BoJ holds over 10%.

In the ETF market, the BoJ's share is much bigger. In December 2017, the combined net asset value of Japanese equity ETFs listed on the Tokyo Stock Exchange stood at ¥29.8tn. The BoJ held ¥17.2tn, or nearly 58%.

BoJ may dominate ETF market

There is a risk that the BoJ may ultimately dominate the market to such an extent as to undermine its proper functioning. To date, such effects appear to be limited. Although the BoJ has been a large buy-to-hold ETF investor, the volumes remain healthy enough to support market liquidity and the BoJ's stated intentions for the programme did not include supporting stock prices.

The BoJ's high share of the ETF market and continued demand have driven financial innovation and increased the use of ETFs across Japanese financial markets. The industry has had to create specialist ETFs to meet the BoJ's demand for vehicles that promote 'human and physical capital', though these have attracted limited interest from private investors.

The BoJ's presence in the stock market, chiefly via ETFs, is significant. The asset purchase programme remains open-ended and there is no explicit cap on ETF ownership.

The BoJ's use of ETFs may be considered unorthodox, but so far it has proved a useful policy tool. The BoJ's reflationary goals may take a long time to achieve, in which case asset purchases could continue over the medium term. Nonetheless, it is likely that the BoJ may want to reduce its balance sheet and divest assets including ETFs at some point.

The bank has said it will sell ETF shares only in a way that limits market volatility and does not constitute too high a loss. However, its big role in the ETF market means any sale would need to be orchestrated carefully. ●

Louis de Montpellier is Deputy Chairman of the OMFIF Advisory Council and Global Head of the Official Institutions Group at State Street Global Advisors.

Emerging markets are logical choice

Advanced economies should diversify their investments into developing markets to manage their investment risks, access better returns and help drive economic growth of the developing countries.

Abel Sithole
Government Employees Pension Fund of South Africa

South Africa's stock market represents less than 1% of the world's total stock market capitalisation. A strong home bias deprives investors of opportunities represented by 99% of the global stock market.

Committing funds with the expectation of deriving a profit always entails risk. This risk is associated with the performance of the underlying vehicle into which such funds are committed and/or the passage of time as it affects the value of the vehicle.

The simplest way to manage investment risk is through diversification. In essence this entails allocating funds to different asset classes or different sectors and stocks/entities within classes, in different locations. This generally reduces the risk without decreasing the associated return commensurately.

It is standard practice for global investors to diversify by and within asset classes. Diversification by region varies greatly. The majority of investors invest predominantly in their domestic market, exhibiting so-called home country bias. For developing economies, this is rooted in regulatory requirements, knowledge of the history and evolution of local markets and investment culture, and support for domestic enterprise. There is a danger of domestic investors deserting their own markets in the name of diversification, while the mantra of international diversification is not practiced by more sophisticated investors from developed markets.

Nonetheless, a well-diversified portfolio for any global investor should include offshore investment to provide exposure to growth opportunities not available domestically and to assets denominated in other currencies, including those in developing economies. In the past decade, the average economic growth of developing countries has outstripped the average growth of advanced countries significantly.

Developing country investors should diversify their portfolio investments to a larger extent than they currently do. Key among the benefits of such a move is accessing opportunities in sectors and companies not available domestically and hedging against currency depreciation. For example, South Africa's stock market represents less than 1% of the world's total stock market capitalisation (including bond and property markets), which means a strong home bias deprives investors of opportunities represented by 99% of the global stock market.

International exposure is not a panacea. Exposure should be pursued after a robust assessment that considers opportunities at home discounted against those available offshore. A fund like the South African Government Employees Pension Fund has benefited significantly from domestic investments that offered high returns in the recent past. However, a lack of diversification puts these gains at risk, should the domestic market underperform. This is compounded by the concentration risk associated with the disproportionate market capitalisation of a handful of stocks on the Johannesburg Stock Exchange.

Investors all over the world, even large and sophisticated ones in developed markets, exhibit strong home country bias.

Developing countries' stock markets represent only around 26% of the world's total listed equity market capitalisation, but emerging markets represent nearly 50% of world GDP measured in nominal terms. Exposure to emerging markets is a logical choice.

Developing markets grow faster

According to Bloomberg data, in October 2016, the US accounted for about 24% of the world's stock market capitalisation, the UK 3%, Canada 2%, France 2% and Germany 2%. China and India now represent about 13% of global stock market capitalisation. The size of developing country stock markets excluding China and India is small relative to that of advanced markets. However, the average growth in developing countries, including China and India, has been far better than that of the advanced markets.

The investments global investors make in developing markets are likely to be very small relative to their assets, but probably constitute substantial investments relative to the small size of developing markets. This makes a very strong case for advanced economies to diversify their investments into developing markets to manage their investment risks, access better returns and help drive economic growth of the developing countries.

One of the main reasons for higher returns in developing markets is that they are growing faster than advanced economies, whose markets are mature, slowing and stable. A higher allocation by developed global investors to international assets and markets, especially those of developing countries, is logical and desirable, especially with the aim of strengthening their productive and competitive capacity. ●

Abel Sithole is the Principal Executive Officer of the Government Employees Pension Fund of South Africa.

Europe must reduce forbearance risks

Regulators have handled well-known threats to financial resilience well, but they rarely mention the consequences of delays and inaction in dealing with the problems of banks, even though this can cause systemic problems.

Ludger Schuknecht and Levin Holle
German Federal Ministry of Finance

Some claim this risk reduction agenda is too far-reaching. But there is an argument to be made that it does not go far enough.

With 2.4% real output growth in 2017, the euro area has finally joined the global growth party. In fact, the European economy is enjoying its strongest upswing since the start of the financial crisis. Supportive fiscal and monetary policy coupled with pent-up demand after a drawn-out low-growth phase make prospects favourable.

Well-known problems like high public debt, non-performing loans and structural rigidities need to be dealt with to ensure financial resilience. However, the risk of forbearance – delays and inaction in dealing with the problems of financial institutions – are rarely mentioned, even though forbearance resulting from regulatory deficiencies or overly 'generous' supervisory action can reach systemic proportions.

Europe has made significant progress on banking union in a very short time. Financial market regulation has been harmonised and regulatory requirements have been reinforced via banks' internal risk management, the Bank Recovery and Resolution Directive and Basel III, the rules for capital requirements. Supervision has been strengthened by upgrading European supervisory committees to supervisory authorities and by creating the single supervisory mechanism, which makes the European Central Bank the central supervisor of financial institutions.

European policy-makers are discussing ways to reduce forbearance incentives. They include tougher risk provisioning for NPLs and a proposal to improve the effectiveness of insolvency regimes. However, current options do not address some fundamental problems sufficiently.

In several European Union member states, NPLs have been falling over the past year, but at a gross value of more than €850bn, they still pose a risk to financial stability.

Insolvency and foreclosure procedures must function effectively and lead to results in a reasonable amount of time. Strengthening banks' loss absorption capacity to at least 8% of the balance sheet is essential. Buffers of clearly subordinated debt that can be bailed in are key.

Moreover, eliminating privileges in the regulatory treatment of government debt is necessary to make banks more resilient and address the link with the state. In this regard there is little progress, if any.

Focus on risk reduction

Some claim this risk reduction agenda is too far-reaching. But there is an argument to be made that it does not go far enough. The inherent tension between the positive and negative consequences of supervisory discretion is an important potential source of forbearance. On the one hand, discretion is necessary, as supervisors must assess a bank's robustness on a case-by-case basis. On the other hand, discretion is vulnerable to political pressure, unequal treatment and regulatory arbitrage. It is important to strike the right balance.

Banking union poses its own problems. The establishment of a single supervisor helped to harmonise the practices of European supervisors as well as the implementation of common rules. However, there are biases in provisioning practices. The requirement of high-quality assets as collateral for central bank liquidity is essential. In conjunction with the prevention of easy and prolonged emergency liquidity assistance from national central banks, it reduces forbearance risk.

Another important point is the way European supervisory institutions work: all members should work in the best European interests while having the necessary expertise at the same time.

The present favourable economic environment should not obscure the importance of implementing this agenda. Households and companies rely on a sound financial sector for growth and stability. Parties come to an end at some point. If we don't want to wake up with a hangover, we must use the good times to implement reforms. ●

Ludger Schuknecht is Chief Economist and Head of the Directorate for General Fiscal Policy and International Financial and Monetary Policy and Levin Holle is Director General for Financial Markets Policy at the German Federal Ministry of Finance. The article reflects their personal views.

South Africa curbing systemic risks

This 'twin peaks' framework is the most significant financial regulatory reform in South Africa in decades. The framework expands the mandate of the central bank to explicitly include financial stability, and enjoins the bank to take all necessary and reasonable steps to prevent systemic events and to mitigate their adverse effects.

Francois Groepe
South African Reserve Bank

Significant risks can build up and threaten the stability of the financial system even as individual financial institutions seem stable and sound.

The severity of the 2008 financial crisis and the magnitude of the social costs imposed on the real economy have resulted in a renewed focus on mitigating risks to the financial system. Significant risks can build up and threaten the stability of the financial system even as individual financial institutions seem stable and sound. In response, the South African Reserve Bank has added a macroprudential perspective to its microprudential supervisory function and has expanded its mandate of price stability to include responsibility for financial stability.

The Financial Sector Regulation Act 9 of 2017, bestows on the bank the responsibility of protecting and enhancing financial stability. The act expands the duties of the bank with the creation of a Prudential Authority responsible for the regulation and supervision of individual financial institutions and conglomerates. A Financial Sector Conduct Authority focusing on consumer protection will be established outside of the bank.

'Twin peaks' framework

This 'twin peaks' framework is the most significant financial regulatory reform in South Africa in decades. The framework expands the mandate of the central bank to explicitly include financial stability, and enjoins the bank to take all necessary and reasonable steps to prevent systemic disruption on banking and capital markets and to mitigate the adverse effects of such events on financial stability. It gives the governor of the bank the power to declare a systemic event after consultation with the minister of finance; it also empowers the governor to give directives to other financial regulators to provide information and take action to mitigate systemic risks.

In pursuing its stability responsibilities, the bank recognises the importance of preventing interruptions in the provision of core financial services. In this regard, the macroprudential framework goes beyond a narrow 'pure resilience' approach. It not only requires reducing the likelihood of systemic crises, but also provides for the monitoring of the build-up of vulnerabilities and mitigating them. The policy-making process involves three steps: conducting a systemic risk assessment, building a case for a macroprudential intervention, and selecting and implementing a macroprudential instrument through a decision by the Financial Stability Committee.

One of the biggest challenges of this expanded mandate is the coordination of macroprudential and other policy objectives. There are both complementarities and conflicts between macroprudential and monetary policies. A common view is that monetary policy should not be the first line of defence against financial vulnerabilities; macroprudential policy should take precedence.

The communication strategies for macroprudential and monetary policies need to be considered carefully. Appropriate levels of transparency and the timing and format of communication may need to differ. Coordination with other policies – such as microprudential, fiscal, capital control, bank insolvency resolution and competition policies – is also important.

Mechanisms and structures that facilitate consultation between authorities must be in place. The establishment of a Financial Stability Oversight Committee, an advisory body chaired by the governor and which includes financial regulators and the treasury, provides the mechanism for coordinating macroprudential policies with fiscal, capital control and consumer credit policies. The objective of the FSOC is to facilitate co-operation among financial regulators and to support the bank when it performs its functions in relation to financial stability. The FSC within the bank is responsible for considering possible vulnerabilities and mitigating them through policy; it has cross-membership with the Monetary Policy Committee – an arrangement that facilitates the coordination of macroprudential and monetary policies further.

In view of the expected implementation of the FSR Act, the bank is operationalising its mandate for financial stability. This includes establishing an institutional structure and developing a toolkit of macroprudential policy instruments to mitigate systemic risk. Moreover, the bank is refining its decision-making processes to achieve optimal coordination with its price stability mandate.

Francois Groepe is Deputy Governor of the South African Reserve Bank.

Repairing banks' regulatory shortcomings

The latest Basel III revisions aim to reduce excessive variability of risk-weighted assets. At the peak of the financial crisis, many stakeholders lost faith in banks' estimates of their assets. The reforms focus on enhancing the robustness, comparability and risk sensitivity of regulatory capital ratios.

Bill Coen
Basel Committee on Banking Supervision

At present, the financial stability risks from crypto-assets are relatively low. But it is important to set out the regulatory treatment of banks' holdings, and to consider the potential risks.

The final Basel III reforms on bank capital requirements, published last December, represent a major milestone in the Basel Committee's response to the 2008 financial crisis. Together with previous standards, they address shortcomings with the regulatory framework.

The latest revisions aim to reduce excessive variability of risk-weighted assets. At the peak of the crisis, many stakeholders lost faith in banks' internal model-based estimates of risk-weighted assets. The reforms focus on enhancing the robustness, comparability and risk sensitivity of regulatory capital ratios, and include three key elements. First, an aggregate output floor, which sets a limit on how much capital benefit a bank can get using its internal models. Second, the standardised approaches have been significantly improved. And third, the option for using models or modelled parameters has in certain cases been restricted or removed.

The other important aspect is that these reforms largely conclude the Committee's policy-making work. We are now increasingly focusing on ensuring that the standards are implemented consistently and in a timely way.

We've also published a further consultative document on market risk. The paper provides targeted revisions to the standard published in January 2016. It proposes ways to better operationalise some parts of the framework, clarify some other aspects and modify the calibration of other elements.

The main source of risk for most banks is credit risk, followed by operational risk. Market risk is usually less than 10% of total risk-weighted assets, though for large trading banks that are heavily involved in hedging and market-making activities, the figure can be significantly greater. It's important that the market risk framework is not overly-engineered and finalised in time for implementation.

We're taking a targeted, sequential approach on crypto-assets. At present, the financial stability risks from such assets are relatively low. But it is important to set out the regulatory treatment of banks' holdings, and to consider the potential risks of crypto-assets to the banking system. What should the capital rules say? What about the liquidity standards? What about risk concentrations?

In the first instance, we are looking at how our 28 member jurisdictions treat these assets. We'll then discuss whether any further work should be done at the Committee level.

Treatment of sovereigns

A few years ago, the Committee reviewed the regulatory treatment of sovereign exposures. The review was gradual, holistic and careful, and included an assessment of the sources and channels of sovereign risk in the banking system, the roles of sovereign exposures in financial markets and the broader macroeconomy.

The resulting discussion paper was published in December and provided a set of potential ideas on how to treat sovereigns from a banking perspective. It covers fundamental issues, such as how to define a sovereign exposure. It also includes potential ideas related to the capital treatment of banks' sovereign exposures. So far the Committee has not reached a consensus to make any changes to the treatment of sovereign exposures. But the responses we receive on the paper will help inform our longer-term thinking on this issue.

From a public policy perspective, transparency is very important. The Committee has taken steps to enhance its transparency over the past few years, which ultimately lends further legitimacy and accountability to our policy decisions. The decision to publish a summary of the discussions is another step in this direction.

The summaries complement existing transparency initiatives. We publish our work programme on our website, which sets out the Committee's strategic priorities. Both the chair of the Committee and I deliver speeches around the world to explain further and discuss our work. And, time permitting, we are always willing to meet with interested stakeholders to discuss the Committee's work. ●

Bill Coen is Secretary General of the Basel Committee on Banking Supervision.

Risks grow as reform resolve disappears

New regulations brought in after the 2008 financial crisis are poorly designed, often inadequate and do not address the conflicts of interest between those who control the financial sector in private and government institutions and society's interest in a safe and healthy system.

Anat Admati
Stanford University

Martin Hellwig
Max Planck Institute

The new rules are poorly designed, often inadequate and sometimes undermine their own objectives by exacerbating distortions.

The 2008 subprime crisis in the US grew into a global financial crisis. After the Lehman Brothers bankruptcy, markets froze and many institutions came close to failure. It took massive interventions by governments and central banks to stop the panic.

At the time, politicians, central bankers and regulators expressed firm resolve to reform regulation so such a crisis could not happen again. By now, this resolve has disappeared.

Even without a crisis, the financial system remains unhealthy and distorted. New regulations brought in after the crisis are poorly designed, often inadequate and sometimes undermine their own objectives by exacerbating distortions. These rules do not address the conflicts of interest between those who control the financial sector in private and government institutions and society's interest in a safe and healthy system.

The crises of the past decade, in the US and in Europe, were caused by reckless lending, by bankers fooling themselves and others about risks, and using derivatives and flawed accounting to hide risks and pass them on with help from credit rating agencies, auditors and even supervisors. Governance failed at all levels, internal and external. Banks were eager to buy assets that were declared safe, but were in fact toxic. Because of extreme leverage, losses on these assets quickly caused concerns about solvency and led to a breakdown of funding. The Lehman bankruptcy triggered a run by customers on money market funds and a run by money market funds on banks. The resulting money market freeze caused banks to scramble for cash.

Most of the mechanisms at work in the crisis are still around today. Leverage is somewhat lower, but most large banks still fund more than 94% of their assets by borrowing. The claim that equity requirements have tripled applies only to equity relative to so-called risk-weighted assets. As Martin Wolf, the Financial Times columnist, remarked , 'tripling almost nothing does not give one very much'.

Important risks, such as those from sovereign bonds, are not taken into account properly. Large banks still depend on wholesale money markets. New requirements are supposed to protect banks from another breakdown of liquidity, but these rules treat assets such as mortgage-backed securities, whose markets froze in August 2007, as liquid. Moreover, the rules do not prevent runs when institutions are insolvent.

Equity requirements

The key to proper regulatory reform would have been a much more substantial increase in equity requirements. Financial institutions persist with dangerously low equity levels and opaque risk exposures because their creditors are passive, supported by deposit insurance, the use of collateral for non-deposit borrowing, and expectations of support from central banks and governments. With more equity, some other regulations that are costlier would be unnecessary.

Although there have been some improvements in bank resolution, a liquidation procedure that is an alternative to bankruptcy, it is still not possible to subject global institutions to such procedures without causing damage to the overall system. These institutions have systemically important operations in multiple jurisdictions, which are likely to suffer when different countries' authorities intervene. Single point of entry, where only the authorities in charge of the parent company intervene, is politically improbable. In Europe there is also no workable arrangement for providing liquidity to a bank in resolution.

Instead of serious analysis of what had actually happened, what ails the system, and what measures would be most effective in improving it, regulatory reform has been led astray by opportunistic attempts to promote other agendas. Many institutions, especially in Europe, have not yet cleaned up their balance sheets, and new systemic risks are building up.

In 2008 and since, massive public support for the financial system and the overall economy succeeded in preventing a recurrence of the great depression. Along with this success, however, the industry and its sycophants retained their hold over public discourse. Society continues to bear large and unnecessary risks and costs. ●

Anat Admati is Professor of Finance and Economics at Stanford University and Martin Hellwig is Director Emeritus of the Max Planck Institute for Research on Collective Goods in Bonn.

Effective policy through transparency

Central bank credibility plays an integral role in the pursuit of monetary policy objectives. In the Philippines, the central bank fosters credibility through greater transparency and accountability.

Nestor Espenilla
Bangko Sentral ng Pilipinas

Disclosure mechanisms enable the public to gauge the central bank's effectiveness, imposing greater discipline.

The inflation targeting framework the Bangko Sentral ng Pilipinas adopted in January 2002 emphasises central bank transparency and accountability. The framework promotes transparency in monetary policy as it involves the announcement of an explicit inflation target and the instruments the BSP will deploy to attain it.

The open but careful communication of central bank intentions under the framework helps to anchor inflation expectations, thereby contributing to the effectiveness of monetary policy.

The framework also strengthens monetary authorities' accountability to price stability. The inflation target serves as a performance metric, against which the public can assess the appropriateness of central bank policy.

Between 2009-14 and in 2017, the BSP achieved its inflation targets. When inflation fails to settle within the target, the BSP maintains transparency and accountability by issuing an open letter to the president. The letter outlines the reasons why the target was missed, along with the measures that will be used to bring inflation back in line.

Disclosure mechanisms

The central bank's ability to influence inflation expectations enhances the way monetary policy affects real economic activity. Effective central bank communication is even more important during periods of inflationary pressure linked to supply shocks or tax changes. In the Philippines, the implementation of the Tax Reform for Acceleration and Inclusion Law in January was accompanied by communication on the expected inflation path, and reassurance to the public that the BSP remains committed to its price stability mandate.

Central bank credibility in anchoring inflation expectations is built on monetary authorities' sound decision-making, which is guided by forecasting based on comprehensive information gathering.

The BSP issues a press statement after each monetary board policy meeting and the highlights of such meetings after a four-week lag. The reports are used to explain monetary policy decisions and to convey the BSP's commitment to price stability. The BSP also publishes a quarterly inflation report.

The BSP submits an annual report to the president and the Congress, discussing significant developments in the economy and the BSP's main activities. Every semester, the BSP also publishes a comprehensive assessment of large developments in the Philippine financial system.

These disclosure mechanisms enable the public to gauge the central bank's effectiveness, imposing greater discipline on the BSP.

Commitment to forward guidance

Forward guidance is a useful tool in modern central banking. It is broadly defined as central bank communications about future monetary policy intentions. It involves an assessment of the central bank's view of the future and information on how it may set policy in response to the outlook. The effectiveness of forward guidance in influencing market expectations depends on the public perceiving it as a commitment, and it being clearly communicated and interpreted as the bank intended.

In lieu of quantitative forward guidance, such as information on the prospective interest rate path, the BSP has sought instead to provide qualitative guidance that aims to convey the overall intention of monetary policy. This approach ensures that monetary authorities will have flexibility in responding to evolving conditions by avoiding pre-commitment to a specific course of action.

The BSP's overall decision-making process is always data-dependent. As such, the BSP can adjust its policy decisions when macroeconomic conditions change. The BSP's agenda emphasises accountability to its primary objective of promoting financial stability.

Greater transparency and credibility in central bank communication practices contribute to the effectiveness of monetary policy. While there is no clear consensus on the optimal extent of central bank transparency or how often central banks should communicate with the public, the process of developing the public's understanding of the central bank's objectives helps shape expectations of forward guidance.

In addition, for the BSP, a strong commitment to transparency also contributes to better discipline, thus ensuring that monetary policy decisions are well-founded and consistent over time.

Nestor Espenilla is Governor of the Bangko Sentral ng Pilipinas.

Female talent is underutilised resource

Shattering corporate glass ceilings is smart business. Gender equality is a significant part of IFC's diversity and inclusion agenda. It promotes gender-friendly workplace policies, development of female-orientated investment products and increasing the number of women on boards and in senior leadership positions.

Jingdong Hua
International Finance Corporation

Making even small inroads in closing the global gender gap could quickly yield strong results, with the potential to increase global GDP by $5.3tn over the next seven years.

In early March, some of the world's most successful leaders in finance, investing, business and banking – all women – walked into stock exchanges on six continents to ring the bell to start the day's trading. The campaign marked a new day for women's empowerment and representation in the traditional men's club of finance.

As a man who entered the corporate workforce in the 1980s with scarcely a woman in leadership, I support women who say #TimesUp for sexism and gender inequality in international finance. At International Finance Corporation, a member of the World Bank Group focused on the private sector, we seek diversity in corporate structures. We do this by implementing gender-friendly workplace policies, developing female-orientated investment products, reporting diversity objectives and practices to shareholders and increasing the number of women on boards and in senior leadership positions.

Shattering corporate glass ceilings is smart business. A Catalyst analysis of Fortune 500 companies in the US found that those with gender-diverse boards outperform those with male-only boards by as much as 53%, as measured by returns on equity. As Stephanie von Friedeburg, chief operating officer at IFC, says: 'We must drive economic development through gender equality. With over $18tn in purchasing power, women have the power to transform the global economy.'

To inspire change, visionary officials created the sustainable stock exchanges initiative in 2008, an investment movement based on environmental, social (including women's rights) and corporate governance issues. It now includes 28 partners, from the New York Stock Exchange to the Egyptian Exchange.

Two years later, the women's empowerment principles were launched, of which the first is establishing high-level corporate leadership for gender equality. The chief executive statement of support declares, 'Equal treatment of women and men is not just the right thing to do – it is also good for business.' Today, over 1,000 companies are signatories.

Powerful groups are blazing trails for women, such as the United Nations global compact, which pursues the sustainable developmental goals established in 2015, including number five: gender equality.

But there is still much more to be done. In its Gender Balance Index, tracking the presence of women and men at central banks, pension funds and sovereign funds, OMFIF found that public financial institutions are too often men's clubs. Hitting 100% in the index would mean perfect gender parity. In 2017, the institutions surveyed achieved 30.6%.

Studies show that, globally, female talent is among the least utilised economic and business resources. Making even small inroads in closing the gender gap could quickly yield strong results, with the potential to increase GDP by $5.3tn over the next seven years, according to a 2017 World Economic Forum report. For listed companies, failure to capitalise on these resources – for example, by not adding more women to their boards and senior leadership ranks – represents a substantial opportunity cost.

Two years ago, the World Bank Group became the first international financial institution to get Edge certification, the leading accreditation scheme for workplace gender equality. At IFC, we have achieved a greater gender mix among managers with operational responsibility, better gender balance in top executive ranks, and flexible working policies and practices that promote equal pay for equal work.

Gender-smart solutions

As business leaders, entrepreneurs, employees and consumers, women are fundamental to inclusive growth. IFC supports gender-smart business solutions, and we work with companies in developing countries to generate opportunities for women that benefit societies generally.

By leveraging our relationships with more than 1,000 financial institutions and private equity funds we are expanding access to finance for female entrepreneurs. We also promote good corporate governance, such as board diversity. IFC has 30% female representation among nominee directors on the boards of its investee companies. We aim to increase that to 50%.

As co-chair of the World Bank Group Council on Diversity and Inclusion, I can report that gender equality is a significant part of our agenda, and we hold ourselves accountable to achieving further progress by formulating a two-year action plan to help us realise our goal – ringing in progress for our world. ●

Jingdong Hua is Co-Chair of the World Bank Group Council on Diversity and Inclusion and Vice-President and Treasurer at IFC.

GENDER BALANCE INDEX 2018

OMFIF

Special report

Gender balance

Brake on institutional performance

Gender balance in central bank leadership worsens, while sovereign and pension funds show that the imbalance persists across institution types. Central banks' score on the GBI fell to 19% this year from 31% last year, indicating there are even fewer women in senior roles. The imbalance is not new, but why it matters is of enduring relevance.

Global public investors, like many financial institutions, are often male-dominated and have very few women in leadership roles. The OMFIF Gender Balance Index strives to draw attention to this disparity and encourage institutional investors to consider internal policies that support the hiring, retention and progression of women within their organisations. Gender balance is not a lofty ideal, but a tool that can benefit investment outcomes.

On its fourth year, the GBI research has been expanded to include separate indices for sovereign funds and European public pension funds, helping shape a broader picture of gender diversity in public investment institutions.

Central banks' score on the GBI fell to 19% this year from 31% last year, indicating that there are even fewer women in senior roles. The imbalance persists across institution types. Sovereign funds show an even bleaker picture, with a GBI value of 11%, while pension funds offer some hope with a score of 40%.

Institutional GBI scores are calculated by tracking the presence of men and women in the highest ranks, weighted by level of seniority. The regional and global GBI scores are a weighted average of individual institutions' scores, based on the corresponding countries' share of the global economy. For sovereign funds and pension funds, institutional scores are weighted by assets under management.

Gender matters

The imbalance is not new, but why it matters is of enduring relevance. Gender diversity in leadership is especially important given the implications for how institutional decisions are made.

Balanced teams are likely to be informed by a more varied set of views, avoiding the myopia to which homogenous groups may be susceptible. This is particularly important in the financial sector, making gender diversity a relevant concern for regulators in charge of safeguarding financial stability. A more comprehensive approach to risk assessment can be expected from an investment committee that benefits from different perspectives. Gender is one aspect that can add diversity, with academic studies in behavioural economics highlighting men and women's different attitudes to risk, and economic principles more generally.

Having more women participate in management and investment decisions does not guarantee an organisation's success. Instead, better gender balance expands the range of available views, enhancing the decision-making process.

While considerable progress has been made to improve gender diversity in the private financial services sector, it is yet to be seen among the leadership of most global public investment institutions.

Increased female inclusion helps to dispel outdated notions about women's abilities. The longer women are absent from high-level roles, the more difficult it is to change perceptions about what they are able to achieve. In a sector where few females are visible, there is a need to assess why the gender imbalance is so stark and what can be done to change this.

Role models

Improving gender balance at the top can influence the composition of the investment industry as a whole. Men have no problem finding role models and mentors in the financial industry, and as a result there has never been a shortage of males pursuing careers in this field.

The story is different for women. Before Janet Yellen at the US Federal Reserve and Christine Lagarde at the International Monetary Fund headed two of the most prominent financial institutions in the world, there were few examples that made women believe that an upward career in this field was possible.

Women in visible, high-level positions change this perception. They provide reassurance to junior staff that long, successful careers are possible for women in finance. Their presence can encourage more women to consider working in the sector and widens the pool of talent from which organisations can hire.

Men as partners

Gender balance is not only a female concern. The failure to hire, retain and promote competent women affects institutional performance, which impacts everyone in the company or institution. More men need to acknowledge that increased female participation is not a threat to their own success but could be a boost to their entire organisation.

More importantly, male colleagues play an important role in fostering a work environment that respects and supports women, especially in traditionally male-dominated fields. When women feel that their work is valued just as much as that of their male peers, they are more likely to stay, build fruitful careers and contribute their skills towards the organisation's goals.

The past year has drawn unprecedented attention to the harassment and abuse that women endure when working with powerful men. Public investors and other institutions can play a vital part in visibly improving the culture and practice of men and women interacting positively in a professional setting. ●

The authors of this report are Kat Usita, Economist, and Danae Kyriakopoulou, Chief Economist and Head of Research at OMFIF.

European Central Bank executive board (as of May 2018)

European Central Bank general council (including central bank governors from all 28 EU members) as of May 2018. The governors of Bulgaria, the Czech Republic, Slovakia, Romania, Sweden, Poland, Hungary and Croatia (all men) are not present.

> “Balanced teams are likely to be informed by a more varied set of views, avoiding the myopia to which homogenous groups may be susceptible.”

Bank of England monetary policy committee (as of May 2018)

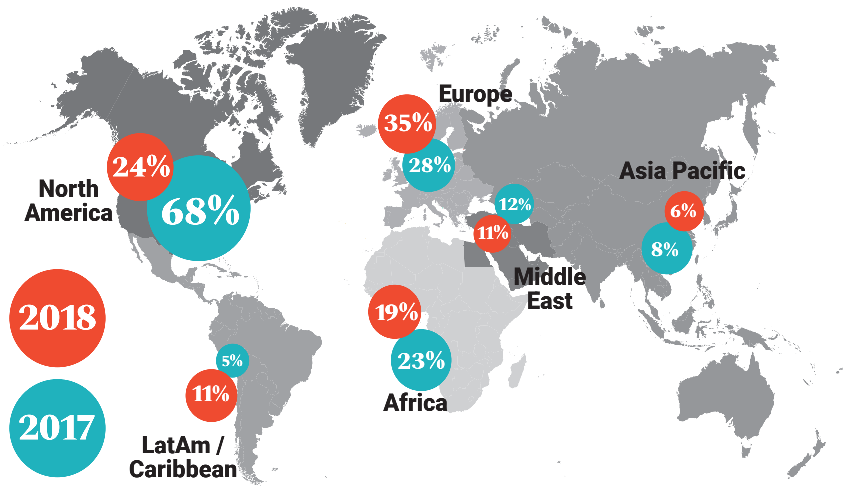
Central banks

As guardians of price and financial stability, central banks perform an important social role, influencing their countries' economic development in areas that affect women and men in different ways. Gender diversity is important in ensuring the workforce of central banks reflects the societies in which they operate. There can be other benefits, too. At the launch of our GBI in March 2018, senior representatives from the Bank of England spoke of the importance of diversity in opinion and attitude to risk to prevent 'groupthink' and to promote balance between overly cautious and overly risky decisions.

Diversity is about making use of female potential in an environment of tightening labour markets and search for talent, especially as female decision-makers can act as role models to inspire the next generation of central bankers. Unfortunately, the results of this year's GBI research show that the world of central banking is becoming less gender-diverse.

Figure 1: Latin America and Europe buck global trend

General Balance Index score, central banks, by region, 2017 v 2018, %



Source: OMFIF analysis

The value of the overall index for central banks – which aggregates the performance of individual institutions weighted by their share of the global economy – fell to 19.4% this year from 30.6% in 2017. The absolute number of central banks headed by women has fallen to 11 out of the 173 institutions included in the survey – a share of just 6%. The number of institutions with female presence extending to deputy governor level rose marginally to 53 from 52, covering 30.6% of central banks worldwide.

The decline in this year's overall score compared to last year can be explained largely by the stepping down of women in large-economy central banks that carry a greater weight in the construction of this index. The biggest single factor was the departure of Janet Yellen, US Federal Reserve chair, in February 2018. This change also explains the large drop in North America's regional score, to 24.5% from 68.6%. Still, North America is the second-best performing region in terms of gender balance, trailing Europe's 34.8% (see Figure 1 and note on methodology, p.87).

The performance of small non-euro area economies boosts Europe's score, particularly in the Balkans and wider eastern Europe (see Figure 2). Western Europe scores poorly. The euro area earns an average score of 27.1%, derived from a score of 10.3% for the European Central Bank and a euro area aggregate score (weighted by GDP) of 33.6%. The ECB is under significant political pressure to improve its gender balance. Presently just two of the 25 policy-makers on the bank's governing council are women. This includes the only woman on its six-member executive board, Sabine Lautenschläger, and the only woman to head a euro area central bank, Cyprus's Chrystalla Georghadji. Georghadji's term expires in April 2019, while Lautenschläger's term is not due to end until January 2022. However, this would not apply if consensus expectations for Bundesbank President Jens Weidmann to take over from Mario Draghi as ECB president are proven right.

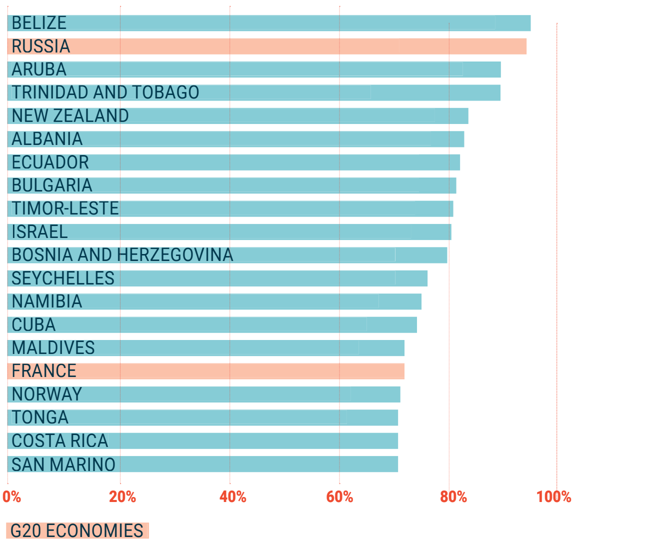
The ECB's rules prevent any two individuals of the same nationality from serving on the executive board at the same time, meaning that the appointment of another German would require Lautenschläger to resign. Weidmann's appointment would follow that of Spanish Finance Minister Luis de Guindos to the position of ECB vice-president to replace Vítor Constâncio, who steps down in May. De Guindos was one of only two (male) candidates nominated for the position, alongside Philip Lane, Ireland's central bank governor. This prompted members of the European Parliament's green parties to write a letter advocating greater gender diversity and encouraging member states to nominate female candidates.

In addition to Draghi and Constâncio, ECB Chief Economist Peter Praet and Benoît Cœuré, a fourth member of the executive board, are due to step down by the end of 2019, creating more openings for the ECB to improve its gender diversity.

Elsewhere in western Europe, the UK saw a drop in its score to 20.4% from 29%. Two female senior representatives from the Bank of England, Deputy Governor Minouche Shafik and Monetary Policy Committee Member Kristin Forbes, saw their terms end over the last year. While Charlotte Hogg, Shafik's original

Figure 2: G20 fares poorly on gender balance

Gender Balance Index score, top 20 central banks, 2018, %



Source: OMFIF analysis

replacement, was also a woman, her appointment was short-lived – she resigned in March after it was found that she omitted to declare her brother's employment at Barclays as a potential conflict of interest. Sir Dave Ramsden was subsequently appointed deputy governor. Meanwhile, Forbes was replaced by Silvana Tenreyro, making her the only woman on the MPC. In a future development, the terms of Dido Harding and Dorothy Thompson, both members of the Bank's court of directors, are due to expire in July, creating further challenges for the BoE's diversity agenda.

Overall, however, Europe was one of only two regions to see their regional score improve compared with 2017. The other was Latin America Caribbean, which welcomes two new women to the club of central bank heads: Verónica Artola Jarrín, who was appointed general manager of the Central Bank of Ecuador in May 2017, and Irma Margarita Martínez Castrillón, who was appointed head of the Central Bank of Cuba in June 2017.

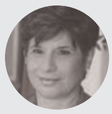
Elsewhere, the top-20 league in terms of gender balance remains dominated by small countries. Collectively, the countries in the top 20 comprise only 6.6% of the world economy, with negligible impact on the aggregate index value. This includes four island states in the Caribbean, two in Asia Pacific and one in Africa, and further small economies in the Balkans and former Soviet Union, in Latin America, as well as Norway, Israel and San Marino. Yellen's departure leaves Russia and France as the only G20 economies in the top 20. Russia continues to be led by Elvira Nabiullina, while in France Sylvie Goulard was appointed as second deputy governor in January 2018, taking over from Anne le Lorier.

Figure 3: The 11 women in charge of central banks around the world

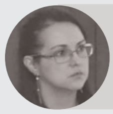
Jeanette Semeleer, governor of the Central Bank of **Aruba** (since September 2008)

Joy Grant, governor of the Central Bank of **Belize** (since October 2016)

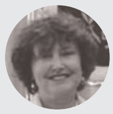
Irma Margarita Martínez Castrillón, president of the Central Bank of **Cuba** (since June 2017)



Chrystalla Georghadji, governor of the Central Bank of **Cyprus** (since April 2014)

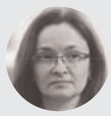


Verónica Artola Jarrín, general manager of the Central Bank of **Ecuador** (since May 2017)

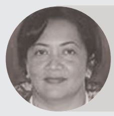


Karnit Flug, governor of the Central Bank of **Israel** (since November 2013)

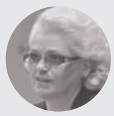
Retselisitsoe Matlanyane, governor of the Central Bank of **Lesotho** (since January 2012)



Elvira Nabiullina, governor of the Central Bank of **Russia** (since June 2013)



Maiava Ainuu-Enari, governor of Central Bank of **Samoa** (since August 2011)



Jorgovanka Tabaković, governor of the National Bank of **Serbia** (since August 2012)

Caroline Abel, governor of the Central Bank of **Seychelles** (since March 2012)

Sovereign funds

Sovereign funds bear long-term fiscal and economic responsibility, whether they were created to provide for future generations or insulate countries from volatility. Like large private investment institutions, their actions can have global influence. As public investors, they have an additional role in safeguarding public resources.

With a GBI value of 12%, sovereign funds are missing the benefit of gender-diverse perspectives in decision-making. Nearly one-third of the 70 sovereign funds covered by the research had no women among senior staff, the worst result for the three types of institutions. Only nine funds are headed by women, and three of them hold the post in an ex officio capacity.

Africa leads the regional scores, with six funds in the top 20. South Africa's score and the fact that it accounts for more than half of the assets under management in the region boosted the continent's standing. In contrast, the Middle East's five biggest funds researched had no women among their executive management teams or boards of directors. Together they make up 80% of the region's AUM, pulling down its index score to just 1%.

As long-term investors of national wealth, sovereign funds have increasingly acknowledged their role in maintaining global financial stability. The drafting of the Santiago Principles in 2008 sought to establish international standards on transparency, independence and accountability for sovereign funds. As they improve operations to adhere to these tenets, it is worth evaluating whether gender balance in management should be among sovereign funds' long-term goals.

Among global public investors that OMFIF tracks, sovereign funds have the highest concentration of AUM, with $7.4tn distributed across just 92 institutions. With the magnitude of public resources at stake, the quality of decision-making at sovereign funds should be informed by as diverse a set of views as possible. It is unsurprising that some funds, notably those in the Middle East, draw on foreign asset managers, either by hiring them directly or outsourcing investment operations to them. This reflects the value of sourcing expertise from different places. With women beginning to build a more prominent presence in the world of finance, sovereign funds should start thinking of gender diversity as an additional tool to enhance their investment processes.

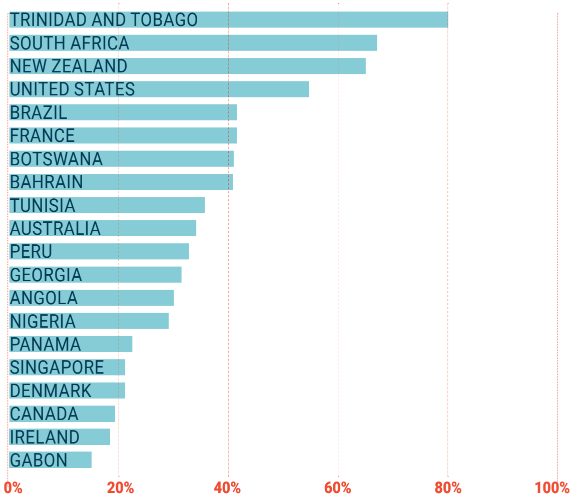
The Middle East's five biggest funds with 80% of the region's AUM have no women in senior positions

One-third of 70 sovereign funds covered by the research had no women among their senior staff

Six of top 20 best-performing sovereign funds for gender balance are in Africa

Figure 4: Six of top 20 in Africa

Gender Balance Index score, top 20 global sovereign funds, 2018, %



Source: OMFIF analysis

Pension funds

While central banks and sovereign funds make financial decisions that have a macroeconomic impact, investments made by pension funds affect individuals directly. Most people rely on pension incomes to sustain themselves after retirement, and the performance of pension funds has substantial consequences. A survey by the UK's Financial Conduct Authority found that 31% of respondents will rely entirely on state pensions after they leave the workforce. This underlines the importance of pension planning, even though, in the UK case, the volume of state pensions is largely independent of fund managers' investment decisions.

As in other types of public institutions, diversity of views is important in public pension investment decision-making.

The results of the GBI for European public pension funds are encouraging. At 40%, it has the highest overall score for the three type of institutions covered by the study. This may be because the research covers only Europe this year, a region that advocates gender balance.

In 2012 the European Commission proposed compulsory gender quotas for supervisory boards of large companies in European Union member states. The proposal was deferred, although the Commission actively encouraged targeting 40% as the share of women on corporate boards. As a result, the share of women rose to 23% in 2016 from 12% in 2010, with some taking the prescription more seriously than others.

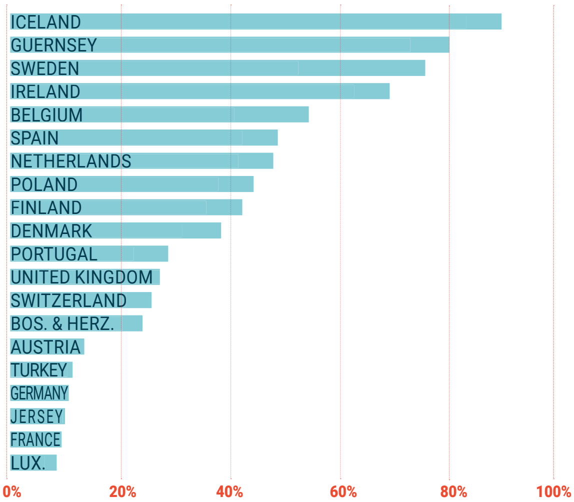
Iceland followed the Commission's guidance and enforced a 40% gender quota. This year it became the first country in the world to make it illegal to pay men more than women in the same position. It also topped this year's GBI for pension funds, with a score of 90%.

In contrast, the UK set a lower initial target for companies of 25% and encourages industry self-regulation rather than imposing quotas. The target was exceeded in 2016, but the success of private companies has yet to translate to pension funds.

The GBI for pension funds has added relevance when considering how they differ from other investment institutions. The returns they generate are unevenly distributed between men and women. There is great disparity between the pension incomes

Figure 5: Non-euro territories dominate top 20

Gender Balance Index score, top 20 European public pension funds, 2018, %



Source: OMFIF analysis

of men and women, rooted in persistent gender pay gaps and workforce sexism that mitigates against women from earning as much as men.

By themselves, pension funds cannot do much to correct the roots of the problem. There are many things outside of their control that affect women's ability to build up pension contributions, such as labour market attitudes towards women and career interruptions prompted by traditional gender roles.

But if pension funds are aware of the constraints that affect women, they can establish policies that help narrow the gender gap in administering pensions. This adds to the impetus for female representation, as pension funds are more likely to consider the gender gap when women are included in high-level conversations. ●

Note on methodology

The OMFIF **Gender Balance Index** tracks the presence of men and women among senior staff of global public investors (central banks, sovereign funds and public pension funds), weighted by level of seniority. Governors, chief executives and those in equivalent positions are given the highest weights. Members of executive teams receive higher weights than those in non-executive roles, such as those on monetary policy committees. Individuals who fall into more than one category are given the weight corresponding to the highest-weighting category that applies.

The GBI for each institution is calculated by taking the ratio of the female and male (weighted) components. A score of 100% would be awarded to a perfectly gender-balanced institution. The global and regional GBI values for central banks are calculated by taking an average of the relevant institutional scores, weighted by corresponding countries' gross domestic product. The country, regional and global GBI values for pension funds and sovereign funds are calculated by taking an average of the relevant institutional scores, weighted by the value of these institutions' assets under management.

For questions please contact research@omfif.org

Section 3

Asset classes

Traditional assets
Infrastructure and real estate
Sustainable investment
Gold
Islamic finance

Equities dominate global market portfolio

When making asset allocation decisions, the theoretical global multi-asset market portfolio, which encompasses all investible capital assets, can help investors. The portfolio is worth an estimated $124.1tn. Equities represent the largest asset class, with a market value of $51.6tn.

Bill Street
State Street
Global Advisors

In 2008, there was a sharp decline in the global market portfolio's equity weight. Now, nine years into an equity bull market, this has reversed to over 42%, the highest since the financial crisis.

To assemble the global market portfolio, State Street Global Advisors uses a framework similar to an academic one published in 2014. The GMP looks at how the proportion invested in each asset class corresponds to its market value divided by the sum of the market values of all assets. It can be seen as a proxy for investable opportunities globally.

SSgA uses indices to obtain invested market capitalisations for different asset classes. Cash and commodity futures are excluded, with the exception of gold, which meets the store-of-value criterion for most investors.

As of December 2017, the GMP is worth an estimated $124.1tn, up from $107tn in December 2016 and $57tn after the 2008 financial crisis. Equities represent the largest asset class, with a market value of $51.6tn, which equates to 42% of the GMP. Government bonds follow, with a value of $30.3tn (24% of the GMP). Investment grade credit is the third-largest asset class, worth $20.9tn (17%). The other six asset classes add up to 17% of the total portfolio.

In 2008, there was a sharp decline in the GMP's equity weight, benefiting government bonds and investment grade credit. Now, nine years into an equity bull market, this has reversed to over 42%, the highest it has been since the crisis, though below pre-crisis levels of 50%. This lower level may be due to a longer-term switch to multi-asset solutions, and to the growing popularity of higher-yielding assets with alternative risk profiles.

The weights of high-yield bonds and emerging market debt rose to 2% and 3% respectively in 2017 from 0.8% and 1.8% in 2008. This reflects a big increase in assets in these areas. High-yield bonds have quadrupled from $477bn in 2008 to $1.9tn in 2017. Emerging market debt has more than tripled from $1.0tn to $3.6tn over the same period.

The weight of private equity has fallen slightly from 2.5% in 2008 to 2.3% in 2017. This is surprising, given the credit squeeze during the crisis and the increasing amount of money chasing opportunities in that sector.

Gold is also slightly lower as a percentage of the overall GMP compared to 2008 at 2.3%, despite the total value rising from $1.5tn to $2.9tn. It is considerably lower than in 2011-12 (3.7%), when central banks started printing money to buy assets in the form of quantitative easing. As the Federal Reserve has begun tightening and other central banks seek to reduce their QE programmes, gold has become a smaller part of the GMP. However, its weighting remains relatively stable at just above 2%, suggesting it retains its store-of-value status.

Property remains an important part of the GMP, at 5.8% in 2017, up from 3.5% in 2008.

Balancing risk and return

Looking ahead, SSgA's tactical asset allocation model expects the GMP to deliver a 3.1% return over the coming year (gross of fees and costs). To exceed that, investors would need to make a more aggressive allocation to riskier assets. But taking on more risk needs to be done carefully. Calculating the risk contribution makes it possible to evaluate how much risk comes from each asset class as a percentage of total variance of the GMP.

Global equity risk dominates. With a 42% weighting, equities account for 71% of the total risk of the GMP, up from 67% in 2015 when the equity weighting was 39%. This may concern some investors, but given the prevailing low-rate environment, SSgA would caution against significant derisking of higher-yielding assets.

Instead, it is worth considering broader portfolio diversification or a number of volatility management approaches to mitigate risk – either at the equity level or applied to the total portfolio. These include investing in managed volatility equity strategies, target volatility triggers or option overlays that are either strategically or dynamically adjusted.

The GMP is an important place to start from for strategic asset allocation. At some stage, all investors should compare their own benchmark to it and explicitly articulate that they are comfortable with any differences between their own benchmarks and the weights implied by the GMP. They can then consider which options might allow them to improve the risk and return profile of their portfolios to target a better outcome. ●

Bill Street is Head of Investments for Europe, the Middle East and Africa at State Street Global Advisors.

Making the most of African equities

Research into African equity indices shows that most are biased either in sector representation and/or liquidity issues. This may be a concern for passive investors. Investors in Africa who want to reduce risk and earn incremental returns should follow multifactor smart beta strategies, including with exchange traded funds.

Fernando Barbi and Mthuli Ncube
Quantum Global Research Lab

Exchange traded funds offer a good opportunity to invest in Africa. The intraday liquidity of ETFs grants investors and traders significant flexibility in comparison to the fixed-dealing window of mutual funds.

Africa's equity markets are an investment frontier with unique opportunities and challenges. While they offer exceptional growth potential, some warrant concern around asset liquidity and weak sector diversification.

The continent's equity markets provide both strong performance and risk diversification for global public investors. Quantum Global's Africa Top 50 index (AE50) tracks the 50 largest sub-Saharan African companies. South Africa was excluded from the index as the market is so big compared to the rest of African stock markets. The country with the largest exposure is Morocco, followed by Nigeria, then Kenya, Egypt and Mauritius.

Telecommunications and finance are two sectors that offer huge potential in the light of growing incomes and population growth. These factors signal improving economic growth prospects as more people have access to financial products, such as credit and insurance, and to better information, through internet news services and social media.

The AE50's performance has been impressive over the last 10 years. Over that period the index has returned 175% cumulatively, compared to around 130% for the S&P500 (excluding dividend reinvestment). The standard deviation of returns is around 16.6% and 10.8% for the S&P500 and AE50 respectively.

All the companies included in the AE50 are traded in local exchanges in sub-Saharan Africa. This aligns international investors closer to the preferences of domestic investors, who have a better understanding of and significant stake in the local market.

Research into African equity indices shows that most are biased either in sector representation and/or liquidity issues. This may be a concern for passive investors. If the market portfolio is not well diversified, investors are implicitly holding portfolios with unhedged risks.

Passive investment funds choose the market index that they follow and usually prefer capped indicators. A capped index – some funds, for instance, follow the 5/10/40 rule, where no single stock can make up more than 10% of the index and the sum of all stocks larger than 5% can't represent more than 40% of a fund – typically limits exposure to a specific share, sector and country. This is an efficient way to restrict large weights to single shares and improve diversification.

Investors in Africa who want to reduce risk and earn incremental returns should follow multifactor smart beta strategies. Smart beta funds use rules-based indices but outperform traditional benchmarks by targeting exposure to one or more factors.

Exchange traded funds offer a good opportunity to invest in Africa. The intraday liquidity of ETFs grants investors and traders significant flexibility in comparison to the fixed-dealing window of mutual funds. At the same time, each ETF has a secondary market price that is close to its net asset value.

The rise of smart beta ETFs further blurs the distinction between passive and active fund management. Rather than simply tracking traditional market value-weighted indices, smart beta ETFs implement factor-weighting index strategies that are considered active in nature.

Smart beta delivers investment performance at a substantially reduced cost as trading is executed through cost-effective and tax-efficient ETFs. Since such trading follows index patterns, it is critical to have benchmark indices closely aligned with investment targets. ●

Fernando Barbi is Senior Economist and Mthuli Ncube is Head of the Quantum Global Research Lab.

Renminbi answer to China's dollar trap

Beijing has been a supporter of the dollar's reserve status. China's economic strength and increasing share of world GDP, trade and investment have enhanced the role of its currency. Renminbi internationalisation has become an inseparable part of the reform agenda.

Gao Haihong
Chinese Academy of Social Sciences

The renminbi joining the IMF's SDR basket in 2016 was a milestone. It now accounts for 1.07% of overall allocated reserves, an insignificant share compared with that of other key currencies.

The famous remark by US Secretary of the Treasury John Connally in 1971 that 'the dollar is our currency, but it's your problem' expresses the real status of the dollar. The Treasury and the Federal Reserve have no obligation to stabilise the value of the dollar, but it can still enjoy the privilege of an international currency.

There is a logical reason behind this state of affairs. As the world economy grows, the demand for foreign reserves increases. Under the Bretton Woods system of monetary management, gold, the dollar, the special drawing right (the International Monetary Fund's composite currency unit) and some smaller currencies performed the role of reserves. In the 1960s, the postwar recovery and the subsequent rise in the demand for foreign exchange reserves outpaced supply, resulting in a shortage of reserve assets. Robert Triffin, a professor of economics at Yale University, pointed out an intrinsic problem: the fixed gold-dollar standard would cause persistent instability. The US had to keep supplying dollars for reasons of liquidity, but it struggled to pay gold on demand in exchange for dollars as foreign reserves grew, undermining confidence in the system.

Since the collapse of the Bretton Woods system in the 1970s, gold no longer qualifies as a formal reserve currency. The SDR's function remains limited. The euro, yen, pound and some other currencies' total share of allocated foreign reserves is still less than 30%, according to the IMF's currency composition of official foreign exchange reserves database.

The supply of world reserve assets still relies heavily on the dollar, and the Fed continues to act as lender of last resort. This is especially true in times of crisis, when global capital seeks havens and a sudden surge of excessive demand chases limited supply.

The renminbi as reserve currency

China would certainly like the renminbi to fill the gap. The country has been a supporter of the dollar's international status, helped by its economy's past export-driven growth and large accumulation of dollar assets. China is the biggest holder of US Treasuries globally. This does not just finance the US deficit but also strengthens the dollar's role as a reserve currency.

China realised that it faced a 'dollar trap' due to the lack of reserve currency alternatives. The capital loss on its investments if the dollar were to crash would be intolerable. In reaction to this possibility, in 2009 Zhou Xiaochuan, the governor of the People's Bank of China at the time, proposed a 'super-sovereign reserve currency'.

China's rising economic strength and its increasing share of world GDP, trade and investment have enhanced the role of its currency. The renminbi joining the IMF's SDR basket in 2016 was a milestone. It now accounts for 1.07% of overall allocated reserves, an insignificant share compared with that of other key currencies. However, its function in trade, bond issuance and investment has been growing quickly since 2009. The renminbi now accounts for 28% of China's trade settlement and 10% of the country's cross-border investment. Globally, 23 renminbi clearing centres constitute a virtual network of offshore markets for the currency.

In global foreign exchange transactions, the renminbi is among the top eight currencies, according to the Bank for International Settlements. As a payment currency, it ranks at number six, according to Swift's renminbi tracker. From March 2018, the renminbi is being used as a pricing currency in crude oil futures contracts, an area where the dollar traditionally dominates.

Unlike the dollar, the renminbi has had no international institutional set-up. The global financial crisis provided momentum, but China decided unilaterally to let its currency go global. In fact, renminbi internationalisation has become an inseparable part of China's domestic reform agenda. The argument that the renminbi serves as a force for domestic reform proved to be true, because currency internationalisation led to gradual openness and financial liberalisation.

In November 2017, China decided to open its financial sector and allow foreign banks, securities firms, fund managers and life-insurance companies to own domestic assets.

Financial openness is central to the renminbi's ambition. Accessibility is a precondition for renminbi transactions in both domestic and overseas financial markets. The only exception was in the early phase of the offshore renminbi market in Hong Kong, when cross-border trade transactions grew quickly but the currency's convertibility was restricted on the mainland. China has passed that phase, as the increased demand for renminbi transactions requires higher convertibility, more participants and a wider range of renminbi financial products that are tradable in domestic and offshore markets.

Central bank reforms

The PBoC has committed to several reforms on financial openness in the near future. They are: to accelerate the opening up of financial markets, to raise further and even remove the investment quota for foreigners when conditions permit, to amend the regulations on foreign exchange and to incorporate capital account convertibility into the legal framework. The bank also plans to adopt accounting standards, laws and regulations in line with international financial markets to enhance the internationalisation of the Chinese financial market. A more flexible exchange rate would allow more openness while serving as a buffer against external shocks. It would also mitigate the risks of unwanted capital movement. The PBoC utilises a custom formula to fine-tune the renminbi's pricing at the moment, but, in the long run, open capital accounts and flexible exchange rates are inevitable if the central bank wants more independence to concentrate on domestic policy.

Domestically, the development level of the financial market determines whether the renminbi can become a successful currency. Bank loans still dominate China's financial structure. Direct financing, including bonds and equities, are less than 10% of total social financing. Such a structure represents low market liquidity and high transaction costs, which limit the renminbi's transactional function. China has recognised the importance of financial infrastructure and the cross-border interbank payment system, the new clearing scheme, is expected to facilitate renminbi transactions tremendously.

The size of China's economy and its degree of openness will continue to support renminbi internationalisation. However, other factors are equally essential. China has to establish a well-functioning legal system, governance based on rule of law and improve the credibility of the central bank. The traditional benefits of an international currency's seigniorage, the difference between the value of money and the cost of producing and distributing it, is perhaps less relevant for China than the wider gains from renminbi internationalisation. ●

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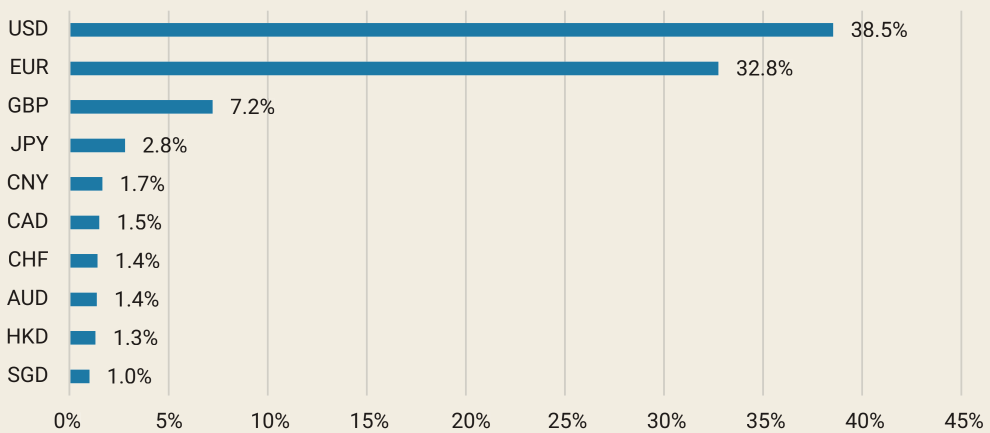
The PBoC utilises a custom formula to fine-tune the renminbi's pricing at the moment, but, in the long run, open capital accounts and flexible exchange rates are inevitable if the central bank wants more independence to concentrate on domestic policy.

Renminbi is the fifth most used payments currency globally

Top 10 currencies' share in domestic and international payments, January 2018



Source: SWIFT, OMFIF analysis

Allure of Africa's commodities

Africa has some of the world's largest untapped natural resources, including oil and gas fields, mineral deposits and arable land. This makes commodities an attractive investment class. But investors face numerous risks, and demand higher yields in return, raising the cost of capital.

Jeremy Wakeford and Mthuli Ncube
Quantum Global

About 60% of the world's uncultivated arable land is in Africa. However, the agriculture sector suffers from low productivity as a result of rudimentary technology, meagre capital inputs and infrastructure bottlenecks.

To many investors, Africa is more or less synonymous with commodities. While its natural bounty has been tapped for well over a century, the commodity price boom of the early 2000s highlighted Africa's potential. Many countries were able to lift their growth rates significantly, and some have successfully reinvested the revenues generated by commodity exports into infrastructure and social development. Yet some of Africa's resources remain underutilised relative to other regions, which means there are plenty of investment opportunities.

Resource potential

Africa is home to 8% of the world's oil and gas reserves, and recent years have seen substantial new offshore discoveries in east and west Africa. The continent also boasts large global shares of several important metals and minerals, including platinum-group metals (96%), gold (12%), manganese (34%), chromium (40%), uranium (18%), diamonds (50%) and phosphate rock (81%). Furthermore, Africa has the world's largest deposits of some strategically significant minerals. Cobalt and coltan, for example, are critical inputs in emerging technologies such as renewable energy, batteries and smartphones.

Investors in Africa's energy and minerals sectors face numerous risks and challenges. Political risks include the rising tide of resource nationalism, which can lead to sudden changes in royalty and tax codes, as well as security issues and regime changes. The pervasive lack of adequate energy and transport infrastructure represents significant technical challenges.

The impact of hydrocarbon drilling and mining on local environments and livelihoods can draw fierce opposition to new projects from communities. Elevated risk implies that investors demand higher returns, raising the cost of capital.

According to a report by the McKinsey Global Institute, about 60% of the world's uncultivated arable land is in Africa. However, Africa's agriculture sector suffers from low productivity compared with other regions, as a result of structural factors such as rudimentary technology, meagre capital inputs and infrastructure bottlenecks. About 80% of Africa's agriculture is rain-fed and is vulnerable to climate change shocks. There is enormous potential for boosting agricultural yields through greater use of fertilisers, mechanisation, irrigation and modern commercial farming practices.

The major financial challenge for resource investors is the volatility of commodity prices. Global prices of many commodities trebled during the super-cycle boom of 2004-08, but collapsed following the 2008 financial crisis. Stimulatory monetary policies and China's infrastructure boom led to a rapid recovery in most commodities, but many prices declined again from 2011 as China's economy cooled.

Broadly speaking, the prices of most energy and mineral commodities tend to follow similar trends, as they share common drivers, especially on the demand side. Agricultural commodities are influenced by similar demand and financial market forces, but the supply side plays a relatively greater role in price determination over shorter time frames, largely because weather conditions can have a big impact on production volumes.

The volatility of commodity prices is reflected in erratic foreign direct investment flows into Africa. In 2014, 57% of greenfield FDI inflows to Africa were in the mining and petroleum sectors, representing more than $50bn worth of investment. FDI into these sectors plummeted to less than $4bn following the collapse in energy and mineral prices in 2014, but has been picking up again since prices began recovering in 2016.

This instability in prices and investment flows underscores the importance for investors of keeping track of commodity price movements, which affect the performance of resource-related investments in Africa. With this in mind, Quantum Global has produced an African Commodity Index composed of the prices of the continent's major commodities in terms of their annual production values. The individual commodities included in the ACI are: oil, gas, coal, gold, platinum, iron ore, copper, cocoa, coffee, tea, maize, wheat, rice, sugar and timber. The ACI provides a useful benchmark for evaluating the returns on commodity investments. ●

Jeremy Wakeford is Senior Macroeconomist and Mthuli Ncube is Head of Research at Quantum Global Research Lab.

Infrastructure boosts competitiveness

Adequate infrastructure is essential for growth, but in the EU the public sector has scaled back investment since the financial crisis. The large accumulation of savings in retirement systems has created strong demand for long-term investments, with some pension funds allocating more than 20% of assets to infrastructure.

Werner Hoyer,
European Investment Bank

Infrastructure has many characteristics that appeal to pension funds, yet the average allocation to this type of investment is 1.1% of total assets under management.

An adequate infrastructure supply is an essential ingredient for economic growth and well-being. In the European Union, infrastructure investment is 20% below pre-financial crisis levels and below pre-crisis long-term averages. While the fall in investment seems to have levelled off in recent years, at 1.8% of GDP, investment is at its lowest level in more than 20 years.

Some economists and policy-makers argue that the decline in infrastructure investment reflects a saturation effect: Europe has already built its key transport axes and upgraded its communication systems and social infrastructure.

However, a survey the European Investment Bank carried out in nearly 600 cities in Europe in late 2017 pointed to a sizeable infrastructure gap. One in three cities reported an inadequate level of infrastructure investment in recent years, notably in urban transport, information and communication technology and social housing. Moreover, the fall in investment was the most pronounced in regions with the lowest infrastructure quality.

Upgrading infrastructure is key to preserving Europe's competitiveness.

Lack of finance and technical competences

The public sector's broad-based withdrawal has been at the core of weak infrastructure investment in Europe after the financial crisis. While some governments aim to reverse this trend, others are plagued by weak technical competencies signalling a continuation of the downward trend.

According to the EIB Municipality Survey 2017, 75% of the municipalities perceive the lack of finance due to fiscal constraints as the main obstacle to infrastructure investment.

With fewer than 40% of the surveyed cities assessing the quality of infrastructure projects prior to implementation, poor skills in appraising and approving an investment project exacerbate the drag on investment by the lack of finance.

Non-public infrastructure investment, including by utilities or special purpose vehicles, fared slightly better than public infrastructure investment in recent years. However, it could not compensate for the fall in public investment.

This is surprising, as the accumulation of savings in financial channels like retirement systems has never been larger. Pension funds and public pension reserve funds hold €24.3tn in assets, well above pre-crisis levels. Retirement assets in the Organisation for Economic Co-operation and Development countries stand at 62% of GDP, up from 52% of GDP in 2001, revealing the growing role of pension institutions as financial intermediaries.

Infrastructure investments have many characteristics that appeal to these investors. They have a long duration, facilitate matching of long-term liabilities with cash flows and provide opportunities for inflation protection and portfolio diversification gains via a low correlation with other assets. Nevertheless, core assets like money market instruments, government bonds and large-cap equities continue to dominate the portfolio of pension funds, with the average allocation to infrastructure investment in the form of unlisted equity and debt at 1.1% of total assets under management.

Practical issues remain important. They include insufficient margins to offset the costs and risks of operational complexities, such as sourcing, managing and pricing of infrastructure investments and inadequate projects. Nevertheless, there is strong demand in the pipeline, evident in some pension funds' targeted asset allocation for infrastructure investment of more than 20% of total assets.

Planning and execution have to improve

Effective use of public funds has to be assured, accompanied by strong planning and implementation procedures. These procedures are key to attracting private investors who – just like taxpayers – want to be sure that the projects they invest in are sound.

In 2017, the EIB provided €18bn to support infrastructure projects worth €55.5bn, drawing in public as well as private investors. The European Public-Private Partnership Expertise Centre and the European Investment Advisory Hub are two initiatives that helped raise the technical capacity of many of these projects and – together with EIB financing – made them bankable.

Werner Hoyer is President of the European Investment Bank.

Turning analysis into growth

Smart investment is not only about expanding the capital stock needed to increase the productivity of labour, it also makes growth sustainable and inclusive.

Sergei Guriev
European Bank for Reconstruction and Development

As infrastructure is a long-term investment, the use of non-green technology in today's projects will result in 'stranded assets', where assets become non-performing or even loss-making sooner than expected.

Infrastructure investment is a priority for the European Bank for Reconstruction and Development, as it is a key driver of growth. Infrastructure investment is not only about expanding the capital stock needed to increase the productivity of labour. If carried out in a smart way, it also makes growth sustainable and inclusive. It links historically disadvantaged regions to markets, resulting in job creation where jobs are scarce. It connects markets, promoting trade and strengthening incentives for innovation and efficiency. Sustainable infrastructure investment reduces pollution, preserving the planet for future generations.

Around €1.9tn is needed to upgrade infrastructure to the level of advanced economies in countries where the EBRD runs projects. This is roughly equal to 9% of GDP in EBRD countries of operation, in eastern Europe, central Asia and the southern and eastern Mediterranean. Of this amount, €900bn is needed just to keep up with the requirements resulting from projected population and per capita income growth.

While not astronomical, these amounts are out of reach for EBRD countries' budgets. Their fiscal capacity is limited, especially given the debt inherited from the global financial crisis. These countries need to find a way to include the private sector as well as cross-border state-sponsored programmes such as China's Belt and Road initiative.

It is imperative that infrastructure investment is environmentally sustainable. As infrastructure is a long-term investment, the use of non-green technology in today's projects will result in 'stranded assets', where assets become non-performing or even loss-making sooner than expected. The need to undertake expensive investments could recur in just a few years. EBRD analysis shows that stock market investors around the world are happy to pay a premium rather than a discount for a greener business model. Thus, cooperation with the private sector in environmentally friendly projects is not just feasible but mutually beneficial.

The EBRD studies the impact of infrastructure investment on market integration and inclusion. There is always a debate about the extent to which building roads to underdeveloped regions pays off. Greater market connectivity can develop trade links and create jobs in poor regions, as this is where labour costs are lower. However, sceptics argue these roads will be used only once – by residents leaving for better opportunities in richer destinations.

Improving connectivity

In the quest for empirical evidence, the EBRD used a case study of road upgrade projects in Turkey, which was the organisation's largest investment destination in recent years. Between 2002 and 2015, Turkey increased the share of highways with two lanes in each direction to 35% from 10% of roads connecting provinces. These dual carriageways now account for about 80% of total traffic.

The main beneficiaries of this upgrade were the eastern regions of Turkey, which were initially less developed and less connected to markets. On average, the travel time between two Turkish cities was reduced by 1.5 hours (from the 2005 average of 6.5 hours). In cities that are more than 1,500km apart, the travel time reduction was about five hours. This reduction caused an increase in trade and job creation in remote regions and had no impact on spurring emigration, contrary to previous fears.

The numbers are substantial: each dollar invested in roads generates an extra $0.18 in annual domestic trade. Each one-hour reduction in travel time increases employment by 0.6%. The effect is especially strong for provinces that used to be poorly connected before the upgrade. For these provinces, the total effect of the upgrade on employment reaches 40%. This effect is additional to other benefits related to exporting, a reduction in traffic-related fatalities and a higher consumer surplus due to reduced travel time.

EBRD analysis confirms that infrastructure investment in emerging markets is a major opportunity to promote sustainable and inclusive growth. The onus is now on member countries to work with private and public sector institutions to turn this analysis into action. ●

Sergei Guriev is Chief Economist of the European Bank for Reconstruction and Development.

Developing sustainable asset class

Current infrastructure investment is not enough to support the expected rates of growth of both developed and emerging economies. The G20 is promoting conditions that will help develop infrastructure as an asset class. This involves the creation of homogenous projects that are standardised and easily analysed by investors.

Laura Jaitman
Ministry of the Treasury of Argentina
Andy Neumeyer
Central Bank of Argentina

Institutional investors hold $80tn in assets under management, little of which is allocated to infrastructure projects.

Infrastructure is a key driver of growth and prosperity. The quality, accessibility and affordability of infrastructure – physical and digital – influence growth, equality and access to opportunities. The G20 recognises the importance of infrastructure for development, together with the need to tackle investment shortfalls as a way of lifting growth, job creation and productivity.

However, despite G20 efforts, current infrastructure investment is not enough to support the expected rates of growth of both developed and emerging economies. The Global Infrastructure Hub estimates a cumulative gap of $15tn between now and 2040. The McKinsey Global Institute estimates an infrastructure gap of $350bn per year, cumulatively $5.5tn between now and 2035.

Although traditional channels for financing infrastructure remain relevant, innovative mechanisms need to be explored to draw in private capital. How to finance this gap is an important question, as the public sector and multilateral development banks have limited financial capabilities.

The private sector should be involved to fund this gap. Institutional investors hold $80tn in assets under management, little of which is allocated to infrastructure projects. Institutional investors are constantly searching for stable opportunities that match their long-term liabilities. In that context, infrastructure assets can be particularly attractive due to their time horizons, synthetic inflation hedge and relatively high expected yields that are uncorrelated with business cycles, thereby providing opportunities for portfolio diversification. According to the 2017 Global Infrastructure Investor Survey, more than 90% of institutional investors intend to increase their asset allocation in the infrastructure sector.

Although institutional investors have money and the intention to invest in infrastructure, they are not doing it at the required rate. To solve this, the G20 is promoting conditions that will help develop infrastructure as an asset class.

In broad terms, this involves the creation of homogenous projects that are standardised and easily analysed by investors. This is not an easy task because infrastructure projects are, by their nature, complex, heterogeneous and require years before they start generating returns. Private investors might be reluctant to invest in greenfield projects, as they do not generate predictable cash flows in the same way more mature brownfield projects do. Infrastructure is an intricate sector, with little data on market performance and insufficient instruments to address its particular risks by securitisation.

However, the right conditions are in place to change the story.

Argentina's infrastructure roadmap

In order to develop infrastructure into an asset class, Argentina, which holds the G20 presidency in 2018, has developed a roadmap that was endorsed by the G20 in its first meeting of finance ministers and central bank governors this year. The roadmap sets out objectives for 2018, and offers predictability and benchmarks that future G20 presidencies can build on.

In 2018, the focus will be on enhancing project preparation, moving towards greater standardisation of contracts and infrastructure financing instruments, addressing data gaps and improving risk mitigation, taking into account country-specific conditions.

Argentina is confident about the G20's potential to meet the challenges in developing infrastructure as an asset class over the next few years. This will be a significant step towards achieving strong, sustainable, balanced and inclusive growth. ●

Laura Jaitman is Finance Deputy for the Argentina G20 Presidency and Andy Neumeyer is Chief Economist at the Central Bank of Argentina.

Overcoming infrastructure misconceptions

Investors continue to view infrastructure as risky, despite the long tradition of regulated utilities yielding low-risk cash flows. Scrutinising gaps in regulatory frameworks is essential to promote infrastructure's growth into a fully-fledged asset class.

Joaquim Levy
World Bank

There are many reasons why investment in this asset class is subdued, including the limited supply of fully operational projects issuing debt. A lack of understanding is among the most important impediments.

Mobilising private investment in infrastructure is critical to increase growth in developing markets. Well-planned infrastructure can raise potential output growth and help reduce the carbon footprint of progress. Directing excess savings from advanced economies towards emerging countries can complement the mobilisation of domestic savings in those markets and help address the low returns of institutional investors in advanced economies.

Infrastructure is a natural match for insurers' long-term liabilities. Long-term fixed income instruments fit well with the liabilities of insurance companies, especially for those offering life insurance and annuity products. Projects tend to yield stable and predictable cash flows over the long run, with low correlation to other assets. In addition, they benefit from high default recovery rates, buttressing their long-term performance even in adverse circumstances.

This match is recognised in some jurisdictions, which allow insurers to discount liabilities backed by infrastructure-linked instruments using the rates of return of such instruments. These rates tend to be higher than the market-implied discount rates, thus reducing the present value of those liabilities. However, investment in infrastructure remains relatively limited, in part because of insufficient understanding of its risk profile.

There are many reasons why investment in this asset class is subdued, including the limited supply of fully operational projects issuing debt. A lack of understanding is among the most important impediments. Investors continue to view infrastructure as risky, despite the long tradition of regulated utilities yielding low-risk cash flows. This perception is reflected in most insurance solvency regimes, which require insurers to allocate sizeable amounts of capital to cover long-term debt investments. Scrutinising gaps in regulatory frameworks is essential to promote infrastructure's growth into a fully-fledged asset class.

European regulators have recently acknowledged infrastructure's risk properties, reducing the capital charge on this type of finance. Following the advice of the European Insurance and Occupational Pension Authority, the European Commission in September 2016 revised down the standard formula for capital charges on qualifying infrastructure investments under the Solvency II Directive. This resulted in a significant relief of qualifying infrastructure debt relative to equivalent corporate bonds and loans. However, this favourable treatment remains restricted to investments in countries that are members of either the European Economic Area or the Organisation for Economic Co-operation and Development. Projects in many emerging markets do not benefit from it.

Revising regulation

New data on infrastructure debt in emerging markets offer an opportunity to examine the current regulatory treatment of these assets in the light of their actual risk profile. In 2017 Moody's Investors Service published an analysis of the historical credit performance of project finance bank loans, which accounted for 80% of the funding of project finance transactions between 1983-2015. The study reviewed data from more than 6,000 projects, of which close to 1,000 are in emerging markets.

The study shows that the credit performance of project bank loans in emerging market debt is not very different from that of comparable debt in advanced economies. In both markets the risk profile of project loans improves over time, with steadily declining marginal default rates.

By the time of the financial closing, the likelihood that project loans in emerging markets will default within a year exceeds the level observed for investment-grade corporate exposures; but this likelihood converges to that of investment-grade instruments as projects become fully operational and mature. Therefore, after five years the marginal default rate of project loans is consistent with that of Aa/AA-rated corporate debt.

The behaviour of project loans, whose cumulative default rate probability stabilises after a few years, contrasts markedly with that of corporate debt, whose cumulative probability continues to rise until maturity. Also, recovery rates for emerging market project loans that default average around 80%, a rate similar to those for senior secured corporate bank loans.

Lowering capital charges

Applying these data to two insurance solvency regimes shows sufficient scope for reduced capital charges for investments in infrastructure debt.

World Bank staff have recovered the credit risk parameters from these data and applied them to the relevant elements of the Solvency II Directive and to the International Capital Standard for internationally active insurers. These will be implemented by the International Association of Insurance Supervisors after the end of 2019.

The objective was to explore whether the empirical risk profile of infrastructure debt vis-à-vis the standard risk assumptions on long-term debt would warrant more differentiated regulatory treatment. Staff found that while the specific capital charges are not fully comparable across regulatory regimes, they would decline substantially in both.

For investments with a maturity of 10 years, the capital charge for the spread risk of project loans when recognising their actual risk profile would decrease to 12.9% from 23.5% globally and to 15% in emerging markets under Solvency II. This reflects the fact that annual expected loss of project finance loans (0.9%) is half of the expected loss implied by Ba/BB-rated non-financial corporates.

Under the International Capital Standard, the credit risk capital charge would drop to between 5.5%-11.1% from 12.7% depending on whether the high recovery rates of infrastructure debt (close to 80%) are recognised or the standard rate (45%) is used.

Additional analysis of rated emerging market infrastructure debt securities indicated that the charge for Baa/BBB-rated securities backed by infrastructure projects would fall to around 15% from 20% under Solvency II and to around 3% from 5.6% under the International Capital Standard.

Unlocking long-term capital

Lower capital charges can help maximise finance for development, unlocking an important source of long-term capital for global growth.

Although regulatory disincentives for infrastructure investment in emerging markets may be just one of the impediments to the development of this asset class, even a modest reduction in capital requirements can significantly boost return on equity.

Take the example of a European insurer holding a 10-year infrastructure loan yielding 4.6% annually. Reducing the capital charge to around 15% (under a differentiated approach) from 23.5% (under the standard formula applied to corporate exposures under Solvency II) would raise the return on equity to more than 16% from 10%. The return would be almost 60% above the average return on equity of European life insurers in 2016.

This could help insurers and other institutional investors accelerate the rebalancing of their assets in ways that will direct funds towards climate-smart infrastructure projects in emerging and developing economies. The outcome would enhance these countries' economic resilience and support sustainable growth. ●

Joaquim Levy is Managing Director and Chief Financial Officer of the World Bank Group.

Although regulatory disincentives for infrastructure investment in emerging markets may be just one of the impediments to the development of this asset class, even a modest reduction in capital requirements can significantly boost return on equity.

Public-private partnerships boost for Asia

New infrastructure is powering the development of Asia's economy, but many Asians still lack access to essential services, such as electricity, safe drinking water and basic sanitation. Public-private partnerships can make infrastructure investments profitable.

Yasuyuki Sawada
Asian Development Bank

Asia needs to invest $1.7tn annually in infrastructure through 2030 to maintain its growth momentum, eradicate poverty and respond to climate change.

New infrastructure is powering the development of Asia's economy, but many Asians still lack access to essential services, such as electricity, safe drinking water and basic sanitation. As the region confronts rapid urbanisation and contributes to deepening value chains, it must build ever more complex, high-quality infrastructure networks.

Asia needs to invest $1.7tn annually in infrastructure through 2030 to maintain its growth momentum, eradicate poverty and respond to climate change.

Public sector funding has long been the primary financing source for infrastructure investments. But demand for new infrastructure is outstripping the capacity of both national budgets and multilateral agencies – like the Asian Development Bank – to meet these financing needs.

Mobilising private sector funds to fill the financing gap is essential. About $100tn alone is managed by pension funds, insurance companies and other institutional investors. Yet institutional investors largely focus on existing infrastructure. While new infrastructure in developing Asia has the potential to generate high returns, investors tend to avoid the risks associated with such projects.

Public-private partnerships can make infrastructure investments profitable. They have structural features that make them bankable, particularly optimal risk allocation. Aside from providing additional funds, PPPs can be designed to tap the private sector's operational efficiency and ensure asset and service quality.

A study by the ADB shows that higher PPP investments are associated with more accessible and better quality infrastructure. Accordingly, PPPs can be a viable alternative to traditional procurement mechanisms for delivering public services on time, within budget and to specification.

Indonesia's 2004 Cinta Mekar micro-hydropower project is a good example of a 'pro-poor' PPP. The plant provides subsidised electricity to poor households and generates revenue for village development, such as in the provision of health care.

Between 1991-2015, more than 3,000 PPP infrastructure projects, with a value of $660bn in committed investments, were transacted across Asia. Most were in the energy and transportation sectors. PPP projects in the social sector, particularly for health and education, are also emerging. India has been the most successful, completing several PPPs in healthcare.

Yet, there are problems with successfully implementing PPPs in Asia. The ADB's Asian Development Outlook 2017 Update reported that, between 1991-2015, PPP projects amounting to $41.6bn, or 6.3% of all PPP investment commitments, were cancelled. Legal gaps, incoherent policies and policy changes, redundant processes and weaknesses in laws and regulations were behind the pull-outs

Sovereign risk continues to be a strong barrier to PPP development. As of December 2017, about 57% of developing Asia's economies remained unrated, while another 28% were below investment grade. That leaves just 15% at or above investment grade.

Multilateral development banks like the ADB play an important role in channeling private finance into infrastructure projects. The ADB offers transaction advisory services to public sector clients, guiding them through the entire PPP process, from concept to structuring and tendering, to the selection of a private partner. Currently, the ADB advises public sector clients on 16 PPP transactions across the region.

At the beginning of 2017, the ADB strengthened its financing capacity to boost annual loan and grant approvals to more than $20bn by 2020 from $14bn in 2014, a growing proportion of which will be allocated to private sector operations.

Different as their motives or needs may be, all stakeholders in a PPP can expect to benefit. The state can expand capacity through a flexible development mechanism, the private sector can reap a profitable investment and end users can enjoy quality infrastructure and services.

To maximise the benefits, a good mix of project, partner and process is needed. Only suitable projects should be pursued, partnerships should leverage private sector expertise and efficiency, and they should be transparent and well-governed. That is the best way to ensure that PPPs contribute to the efficient and effective delivery of infrastructure and services to millions across Asia and the Pacific. ●

Yasuyuki Sawada is Chief Economist at the Asian Development Bank.

Priming US infrastructure investment

If the Republicans return to Congress with a majority after this year's midterm elections, they are likely to take up Trump's proposals. Look to 2019 for implementation of an ambitious infrastructure plan.

Meghnad Desai
London School of Economics and Political Science

The Trump plan offers $200bn of 'pump priming' investment, which is intended to incentivise states and municipalities to raise additional funds. This would add up to a $1.5tn spending programme.

There has been no serious investment in US infrastructure since the 1950s, when President Dwight Eisenhower laid the foundations of the country's system of motorways, turnpikes and airports. Eisenhower managed to invest 5% of GDP through the Federal Budget during his administration between 1953-61 and delivered balanced budgets more than once.

Donald Trump's call during his presidential campaign for increased spending was much needed. He was unorthodox in his advocacy of incurring extra public debt to repair infrastructure. This was sound economics, which allows that there be public borrowing to finance investment but not for current expenditure. It was normal when Eisenhower did it, but by 2016 economists had become much more fiscally conservative.

It has taken some time before Trump has been able to address this issue. Upon taking office, his priorities were Obamacare and tax cuts, and the separation of powers means the president can merely propose a spending programme. It is Congress which must implement such parts of the president's agenda as it likes by passing appropriations.

Trump's tax bill has been signed into law, a victory for the president. But the trajectory of public debt has already disquieted Congress, especially conservative Republicans. However, the tax cut is, and will remain, popular with Republicans in general, whatever their fiscal stance. All concerns about rising debt are quelled when the issue is a regressive tax cut.

The debt trajectory has forced Trump to send a nuanced message to Congress. It is based on the realisation that the federal government has limited ownership of infrastructure facilities, but that individual states and municipalities are the primary owners. The Trump plan therefore offers $200bn of 'pump priming' investment, which is intended to incentivise states and municipalities to raise additional funds. This would add up to a $1.5tn spending programme.

The issue is whether the states and municipalities will be able to respond by raising the extra money. There are plenty of private equity funds, as well as sovereign funds and pension funds, which may be interested in such a long-run proposition.

There are already reports that more than $300bn of private money could be available. Blackstone, the world's largest private equity firm, has $40bn ready to be staked to infrastructure projects. Half of these funds will come from the Public Investment Fund of Saudi Arabia, the kingdom's sovereign fund.

Congress will make the crucial decision. The Republicans control only slim majorities in the House of Representatives and in the Senate. They may not be prepared to struggle for the president's proposal this year.

The issue is whether the midterm elections in 2018 will renew the Republican majority. US political wisdom tells us that the party which has the White House as well as a majority in Congress tends to lose seats in the midterm election. But, as the 2016 race showed, political wisdom may have lost most of its value in Washington. If the Republicans return with a majority, they are likely to take up Trump's proposals. Look to 2019 for implementation of an ambitious infrastructure plan. ●

Lord (Meghnad) Desai is Emeritus Professor of Economics at the London School of Economics and Political Science, and Chair of the OMFIF Advisers Council.

Real estate and green covered bonds

Without taking buildings into account, sustainable development would be inconceivable. Real estate investors are increasingly aware of sustainability issues when making purchases, and banks play a fundamental role by financing energy-efficient construction projects and refurbishments.

Frank Scheidig
DZ BANK

The main challenge for Europe's energy efficiency policies for buildings is to improve and upgrade existing building stock. Only 1% of new builds are deemed to be highly energy efficient.

Sustainability has become a competitive factor in the real estate sector. The sustainability of buildings is increasingly measured, certified and transparent. More and more investors take this into account when making purchases.

According to the European Mortgage Association, buildings in the European Union are responsible for 40% of energy and 36% of carbon consumption. Around 35% of buildings in the EU are more than 50 years old, and 75%-90% of existing building stock is likely to remain in place up to 2050.

Reducing buildings' energy requirements is essential in the light of the finite nature of fossil fuel resources as well as the impact of climate change. Without taking buildings into account, sustainable development would be inconceivable.

Banks play a fundamental role by financing energy-efficient construction projects and refurbishments. For instance, Berlin Hyp's green finance portfolio accounted for 11% of the bank's total mortgage loan portfolio in April 2017. It intends to raise the share of green building finance in its loan portfolio to 20% by 2020.

Energy efficient mortgages

The Energy efficient Mortgages Action Plan (EeMAP) is a market-led initiative that aims to create a standardised 'energy efficient mortgage'. This will be based on a private bank financing mechanism with preferential interest rates for energy efficient homes and additional funds for retrofitting homes at the time of purchase. The plan was launched in June 2017 and the final 'EeMAP Pilot Phase Implementation Guidelines' will be presented on 14 June 2018.

The EeMAP rests on two key assumptions. The first is that improving the energy efficiency of a property has a positive impact on property value. This reduces banks' asset risks. The second assumption is that energy efficient borrowers have a lower probability of default because households hold more disposable income due to lower energy bills. This reduces banks' credit risks.

In February 2018 the EeMAP consortium began a one-month market consultation on guidelines for a pan-European 'energy efficient mortgage' pilot scheme. The objective of the scheme is to test the blueprint for energy efficient mortgage products at a national level with banks, property valuers, green building councils and energy providers. The scheme is also important for collecting and analysing loan data to substantiate the correlation between energy efficiency and reduced risk.

Bridging the renovation gap

Around €100bn must be invested every year in EU building stock up to 2050 to meet Europe's commitments on energy savings.

The main challenge for Europe's energy efficiency policies for buildings is to improve and upgrade existing stock. Demolition rates (0.1% per year) and renovation rates (1.2% per year) are markedly low, and only 1% of new builds are deemed to be highly energy efficient.

With around 40% of EU mortgages funded through European capital markets, the mortgage and covered bond industries can help to bridge the renovation gap with private financing to improve buildings' energy efficiency.

The EeMAP Initiative has great potential to deliver a new asset class and better connect mortgage lending and funding value chains. This will pave the way for the broader take-up of green covered bonds. ●

Frank Scheidig is Deputy Chairman of the OMFIF Advisory Council and Global Head of Senior Executive Banking at DZ BANK.

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Special report

Infrastructure and real estate

Infrastructure turns to private capital

The high cost of infrastructure means it can be badly affected by expenditure cuts, especially when construction periods are longer than election cycles and governments are unable to reap the political reward. Public-private partnerships are one way to provide infrastructure projects with private capital.

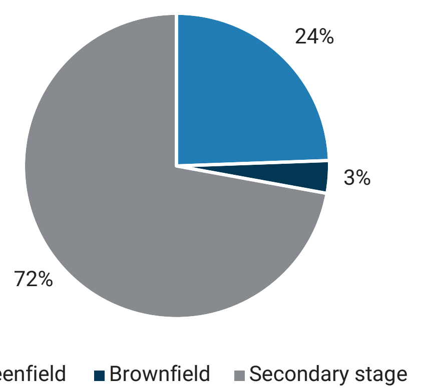
Substantial infrastructure demand offers an opportunity for institutional investors to diversify their portfolios through alternative assets. However, regulatory barriers and challenges to risk assessment impede meaningful advancements.

Caps on illiquid assets, for example, keep public asset owners from investing directly in real estate and infrastructure as much as they would like. Risks that are unique to infrastructure projects pose another challenge. Longer timeframes expose them to construction, commercial and political risks, and the cost of quantifying these may not be worthwhile for investors with limited expertise in real assets. The physical immovability of infrastructure may also be unattractive to those who require geographic flexibility.

Most of the infrastructure deals in 2017 were for secondary stage assets rather than investments in new projects. Only one-quarter of last year's deals were for greenfield or brownfield projects, indicating that investors still prefer the lower risk that comes with infrastructure that is already operational and likely to have a steady revenue stream.

Figure 1: New construction projects still too risky for large investments

Share of infrastructure deals by project stage, 2017



Source: Preqin, OMFIF analysis

> Those critical of the Belt and Road have flagged economic and political problems. There have been concerns about China taking advantage of under-resourced governments to increase its geopolitical influence.

The 10 largest infrastructure deals announced in 2017 were all in the energy and natural resources sector. With a total value of $88.9bn, these transactions made up more than 25% of 2,378 infrastructure deals announced during the year. Topping the list was Sempra Energy's $18.8bn acquisition of Oncor, the leading power utility company in Texas and one of the largest electricity distributors in the US.

Two public asset managers, the British Columbia Investment Management Corporation and Qatar Investment Authority, participated in one of the largest infrastructure deals of the year when they bought a majority stake in Australia's Endeavour Energy as part of a Macquarie-led consortium.

Because institutional investors have longer investment horizons, they are ideally suited for absorbing the risks of real assets. If public investors are not granted greater flexibility through their fund mandates, myriad opportunities would be missed.

Energy and transport propel infrastructure demand

All over the world, the largest infrastructure needs are in the transport sector. Nearly $40tn will be required to build roads, railways, airports and ports between now and 2040, according to estimates from the Global Infrastructure Hub. This massive investment also represents the largest potential return: connectivity facilitates economic activity, and the absence of adequate transport links can significantly compromise productivity.

Roads are the most substantial component of transport requirements. Two-thirds of the investment needed in this sector are for building new roads and maintaining existing ones. Rail likewise requires substantial investment, particularly in emerging economies and Europe. Developing rail projects can take a long time and upfront costs are high, but strategically situated and well maintained lines provide a steady flow of revenue, making them suited for private capital.

Energy has the greatest need for investment after transport. Rural areas in many emerging economies, especially in Africa, still lack basic infrastructure for electricity generation and distribution. However, the largest requirement for energy investment in absolute figures comes from Asia Pacific. The region needs $14tn in investment in energy by 2040. The number of households and businesses that need a reliable power supply creates substantial demand, much higher than in any other region.

Public-private partnerships

Historically, financial crises are followed by periods of fiscal restraint, particularly in emerging economies. The high cost of infrastructure means it can be badly affected by expenditure cuts, especially when construction periods are longer than election

> Public pension funds and sovereign funds have come under pressure to divest from fossil fuel companies. As long-term investors, they have a mandate to safeguard resources that are in the public interest.

cycles and governments are unable to reap the political reward. Underspending on public infrastructure was evident after the 1997 Asian financial crisis and Latin America's 1980s debt crisis.

Even during periods of economic expansion, there may be little political incentive for public infrastructure spending. The long timeframe for developing and constructing projects makes infrastructure unattractive to governments focused on the shorter term. Tapping the private sector for projects gives governments more fiscal flexibility.

Public-private partnerships are a way to provide infrastructure projects with private capital. The model has been adopted widely in Asia, Africa and the Middle East. The US has shown some interest, despite President Donald Trump's apprehensions. The UK has a long history of using this model, with mixed results.

The UK government introduced PPPs in the 1990s when it began developing infrastructure projects under its Project Finance Initiative. Aside from utilising private capital, PFI projects sought to take advantage of superior private sector expertise in construction, operation and maintenance of physical assets.

The long duration of PFI contracts, usually 25-30 years, means taxpayers bear the burden of paying off an

Figure 2: Top infrastructure deals concentrated in energy and natural resources

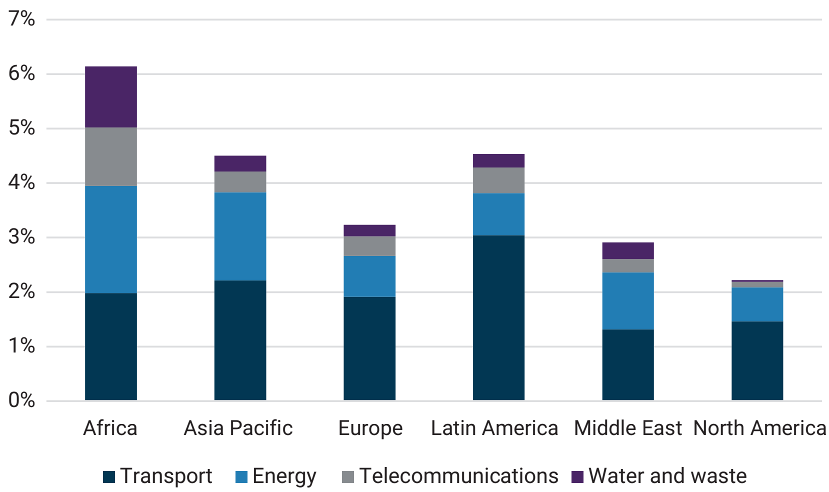
10 biggest infrastructure deals announced, 2017

Asset	Location	Investor	Size, $bn
Oncor	US	Sempra Energy	18.8
Essar Oil	India	Rosneft, Trafigura, United Capital Partners	12.9
Rosneft	Russia	CEFC China Energy Company	9.1
Canadian Oil Sands Portfolio	Canada	Canadian Natural	8.8
Veresen	Canada	Pembina Pipeline Corporation	7.7
Maersk Oil	Denmark	Total SA	7.5
WGL Holdings	US	AltaGas	6.4
Taiwan Strait Wind Assets	Taiwan	Copenhagen Infrastructure Partners	6.0
Endeavour Energy	Australia	AMP Capital Investors, British Columbia Investment Management Corporation, Macquarie Infrastructure and Real Assets, Qatar Investment Authority	5.9
Bass Family Oil Companies Portfolio	US	ExxonMobil	5.6
Total			**88.9**

Source: Preqin, OMFIF analysis

Figure 3: Demand for connectivity and power consistently high across regions

Investment needs by sector as a share of GDP, 2018-40, %



Source: Global Infrastructure Hub, OMFIF analysis infrastructure facility's construction and operation costs decades after it was built. Early PFI projects that were selected despite showing little commercial potential, like hospitals and schools, proved too costly in the long term. The collapse of Carillion, the British construction company that held numerous government contracts, showed that there were not enough contractual safeguards to ensure a private company's financial health when engaged in PFI.

Elsewhere in the world, PPPs are sometimes seen as the only viable option for infrastructure development, especially in countries with substantial infrastructure needs but limited fiscal capacity. Emerging economies that are adopting the scheme have the advantage of learning from the shortcomings of earlier deals, such as those in the UK.

Projects financed through PPPs need to be bankable and should be carefully selected. While social infrastructure for health and education may have weaker revenue streams, public utilities like energy, transport and water have greater commercial potential. Growing populations and rapid urbanisation create demand for services and can guarantee reasonable returns on investment.

Other factors can boost the commercial attractiveness of infrastructure projects. Efficient energy distribution and good transport links form ideal networks for real estate development. Tying property income into PPP deals can make them more financially rewarding. Creativity in increasing the potential value of infrastructure projects minimises the long-term burden on public coffers.

PPPs are the ideal model for undertakings that are too complex and expansive to be handled by a single stakeholder. Building smart cities is one example. The private sector may be financially and technically equipped to integrate modern technology into urban development, but the degree to which it will affect communities requires government participation.

Belt and Road initiative

Beijing recognised the global demand for infrastructure and responded by unveiling its ambitious Belt and Road initiative, which seeks to link China with the rest of Asia, Africa, Europe and the Middle East. Many countries covered by the plan have infrastructure needs that they are struggling to meet, either because of a lack of capital, technical expertise or both.

The Silk Road Fund was established to facilitate financing support specifically for Belt and Road projects. The fund estimates $80bn of projects have benefited from its support. Among these are the Karot hydropower station in Pakistan, the Mombasa-Nairobi railway in Kenya and the Hassyan clean coal power plant in Dubai.

China also initiated the Asian Infrastructure Investment Bank. Its membership has grown to 86 countries from 57 founders in just three years from inception. Despite announcing its interest in projects all over Asia, whether part of the Belt and Road or not, the AIIB is widely believed to have been created to support the initiative.

Through the Belt and Road, China has been able to leverage its experience of developing infrastructure and improving connectivity within its own borders. Aside from providing financing, China has been using its own contractors, experienced in quick and low-cost construction, to implement projects.

> "The high cost of infrastructure means it can be badly affected by expenditure cuts, especially when construction periods are longer than election cycles and governments are unable to reap the political reward"

Those critical of the Belt and Road have flagged economic and political problems. There have been concerns about China taking advantage of under-resourced governments to increase its geopolitical influence. While new infrastructure can boost growth in emerging economies, there is the risk of governments being buried in Chinese debt for decades to come, especially if uptake for completed projects does not match expected demand. Using Chinese contractors has also been problematic, with local workers protesting their exclusion from job opportunities.

Sustainable infrastructure

Large-scale infrastructure and real estate development over the coming decades will have a considerable environmental impact. To be sustainable, investors must be aware of environmental risks and minimise the carbon footprint. By investing in green infrastructure and real estate, institutional investors can diversify their portfolios while fulfilling their sustainability and corporate responsibility goals.

Public pension funds and sovereign funds have come under pressure to divest from fossil fuel companies. As long-term investors, they have a mandate to safeguard resources that are in the public interest. Investments that compromise sustainability goals, such as those in oil companies, conflict with this role. Divestment can be difficult and costly, especially when fossil fuel investments comprise a significant share of portfolios.

Projects in renewable energy, mass transit and water and waste management are all aligned with environmental goals, providing opportunities for climate-conscious investments. Institutional investors that wish to increase their sustainable investments can prompt governments to offer green infrastructure projects. Japan's Government Pension Investment Fund, for example, has been vocal in both its strong interest in green initiatives and desire to venture into infrastructure investments.

The move away from fossil fuels presents an opportunity to explore alternative asset classes. Real estate and infrastructure offer a chance to fulfil two separate goals at once. By investing in green infrastructure and real estate, institutional investors can diversify their portfolios while fulfilling crucial sustainability goals.

The author of this report is Kat Usita, Economist at OMFIF.

Key infrastructure and real estate deals involving public institutions 2017-18

Institution	Description	Size ($bn)	Date
Public Investment Fund and Pennsylvania Public School Employees' Retirement System	Saudi Arabia's PIF and Pennsylvania PSERS joined Blackstone Group's planned infrastructure mega-fund.	20 (PIF) 0.5 (Pennsylvania PSERS)	May 2017 January 2018
China Investment Corporation	CIC bought Blackstone Group's pan-European logistics company Logicor in one of the largest real estate transactions on record.	13.8	June 2017
Abu Dhabi Investment Authority	ADIA became a founding investor in India's National Investment and Infrastructure Fund, established for energy, transportation and other infrastructure projects.	1	October 2017
GIC	Singapore's sovereign wealth fund acquired the Sheraton Grande Tokyo Bay Hotel through a joint venture with Invincible Investment Corporation, with GIC having a 51% majority stake.	0.91	September 2017
Public Sector Pension Investment Board	Canada's PSP Investments plans acquired Downsview Airport property from Bombardier Inc.	0.64	May 2018
London, Greater Manchester, Lancashire, Merseyside and West Yorkshire local council pension funds	GLIL Infrastructure, a fund backed by UK local pension funds, bought a 15% share in Anglian Water Group.	0.40	December 2017
Canada Pension Plan Investment Board	CPPIB announced its plan to invest in the first private infrastructure investment trust in India, IndInfravit Trust.	0.16	May 2018
Government Pension Investment Fund	Japan's GPIF targets to expand the 5% it allocates to real estate assets. It hired Mitsubishi UFJ Trust and Banking Corporation as its domestic real estate investment manager.	-	December 2017
Mubadala Investment Company	Mubadala's property arm, Mubadala Real Estate and Infrastructure, announced that it is preparing to launch a local real estate investment trust by 2020.	-	April 2018

Financing sustainable development

A growing number of countries are introducing strategic initiatives to harness their financial systems for sustainable development. In part, this is driven by climate risks. More important is the sense of the strategic opportunity that sustainable finance presents.

Nick Robins
United Nations Environment Programme

The green bond market is an important test case, growing from $7bn in issuance in 2012 to $155.5bn in 2017.

Five years ago, a sustainable financial system simply referred to one that was stable and avoided the kind of turbulence exhibited in the global financial crisis. Now a more positive meaning is emerging, one that focuses on how the financial system can serve the transition to sustainable development.

Many factors explain this shift. The first is the post-crisis realisation that the underlying goal of the financial system is to serve the real economy – and that the real economy is going through profound change. Technological disruption is one reason behind this change, but another is the need to build a zero-carbon economy. The 2015 Paris agreement on climate change commits all countries to make 'financial flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development'.

This environmentally focused shift has been placed within the broader context of the United Nations' sustainable development goals, also agreed by governments in 2015. The SDGs aim to deliver economic prosperity, social inclusion and environmental regeneration as an integrated whole.

New perceptions of the risk of climate change have been a spur to action. According to Citi, the financial system could be left with $100tn in 'stranded' fossil fuel assets by 2050 if investors ignore climate change.

According to an assessment by the Economist Intelligence Unit, a worst-case scenario of six degrees Celsius global warming could lead to a present-value loss of $13.8tn of manageable financial assets, roughly 10% of the global total. In December 2017, China, France, Germany, Mexico, the Netherlands, Singapore, Sweden and the UK established the Network of Central Banks and Supervisors for Greening the Financial System.

Fear of loss has been matched by a sense of that sustainable finance presents a strategic opportunity. More than $70tn in assets under management are now aligned with the UN-backed principles for responsible investment, which commit signatories to integrating environmental, social and governance factors into their investment decisions. This is leading to real change in asset allocation. The green bond market is an important test case, growing to $155.5bn in 2017 from $7bn in 2012.

The UN Environment Programme's inquiry into the design of a sustainable financial system has found nearly 300 sustainable finance policy and regulatory measures in place as of October 2017, in over 60 countries. The growth in measures has averaged around 20% year on year since 2010, with an increase of almost 30% since July 2016. These measures cover all sectors – banking, capital markets, insurance as well as investment – and address a range of critical issues such as improving climate disclosure, managing climate risks and stimulating green investment.

National roadmaps

There has been a strong rise in countries introducing system-wide roadmaps. China's guidelines for establishing a green financial system, released in September 2016, is one of the most far-reaching sets of commitments. In March 2018, the European Commission released its first action plan on sustainable finance, building on the results of the high-level expert group (HLEG). The plan has three goals: reorienting capital, managing financial risks and, crucially, fostering long-termism and transparency. This was followed by the UK's Green Finance Task Force issuing its own recommendations. And then in April, Canada established an expert group on sustainable finance to help it tap into the trillion-dollar clean growth investment opportunity.

This momentum in financial policy and practice is unprecedented and something that would have been inconceivable only a couple of years ago. There is a new level of awareness of the need for change. But sustainability is still far from being mainstream. The implications of fintech for sustainable development are only starting to be investigated.

We are also just beginning to explore how the financial system can support a 'just transition' to sustainable development, one that delivers a zero-carbon economy in ways that also reduce inequality, particularly in the 'left behind' regions of the world. It seems we have reached the end of the beginning in terms of sustainable finance. The next five years are set to be equally transformational. ●

Nick Robins is Co-Director of the Inquiry into the Design of a Sustainable Financial System at the United Nations Environment Programme. He is also Professor in Practice for Sustainable Finance at the London School of Economics.

Multilateral responses to climate change

In stark contrast to the state of world politics today, climate change is predictable. We know what will happen if we do not act. The role of multilateral financial institutions has never been more relevant.

Jonathan Taylor
European Investment Bank

Less multilateralism will hurt societies, increase instability and put the climate at greater risk. The role of multilateral financial institutions has never been more relevant.

For decades the search for an international agreement on climate change could be summed up like this: impose limits, enforce strictly. It did not work. Some countries refused to accept responsibility for polluting in the past, and other countries felt that pollution was an inevitable consequence of future economic growth, which they did not intend to forgo.

In response, the international community came up with a radical idea – a voluntary agreement. In 2015, countries signed up to the Paris climate agreement, agreeing to cut their carbon emissions by an amount that they would set. If they did not meet their targets, there was no penalty. The world bet its future on peer pressure, rather than enforcement. It is already working, with ever wider circles of government, institutions and private companies putting climate at the centre of their decisions. The key to widening those circles still further is greater transparency and harmony of standards for green investment.

The successes since 2015 are in part because of economics. Businesses are investing in renewable energy, thereby driving costs down. In 2016 two-thirds of new electricity-generating capacity worldwide was from renewable sources and prices were comparable to or lower than gas- or coal-fired power plants.

If policy-makers and industry bolster this trend, the fight against climate change will succeed. That was the message in July 2017 when the G20's action plan for sustainable development embedded the Paris agreement in G20 policies. The plan highlighted the importance of supporting innovation and private investment in renewable energy markets through more effective use of financing from multilateral development institutions.

In stark contrast to the state of world politics today, climate change is predictable. We know what will happen if we do not act. The international community must strengthen partnerships. Less multilateralism will hurt societies, increase instability and put the climate at greater risk. The role of multilateral financial institutions has never been more relevant.

These organisations catalyse both investment and the implementation of policy. The European Investment Bank has been working with China's Green Finance Committee to establish new links between China and international markets. The EIB and GFC agreed to work towards a shared framework for green bonds, laying out the kinds of projects that might qualify. In China the potential for climate action is tremendous. In 2016 the country issued €30bn in green bonds, compared to virtually nothing the year before.

Collaborations such as these are significant. But a global threat can never be overcome by a single nation, just as no single nation can dismantle international moves towards defeating climate change, so long as multilateral institutions stand united.

Need for multilateral approach

The EIB spent the autumn of 2017 working closely with other multilateral institutions to formulate ways in which they might reconfirm their commitment to the Paris agreement and provide a stable environment for private finance. These groups pledged to fortify international efforts to increase transparency in climate-finance tracking. The aim is to set out guidelines within one year that will bring better reporting of financial agreements and their impact on carbon emissions.

Those procedures will help institutions promote all the other aims to which they have reaffirmed their support. These include improving the international community's ability to mobilise private sector investment by mitigating the risk of climate finance and by supporting policy reforms, such as appropriate carbon pricing and regulation.

These initiatives will help to increase public and private investment in climate projects. Institutions must bring climate action into their mainstream activities and support the Paris agreement by making it part of all their investment and advisory work. These bodies must co-operate with cities and regions, supporting initiatives that help the most vulnerable regions and mobilise finance for developing countries.

The environmental risks of climate change pose a grave threat to economic growth and to the lives of people across the globe. Some politicians and commentators are seeking to obscure the significance of climate change. In fact we need the opposite: as much transparency as possible is the clear answer to a clear problem. ●

Jonathan Taylor is Vice-President responsible for environment and climate action at the European Investment Bank.

Smarter finance for low-carbon transition

Climate change is having increasingly significant effects, but the transition to a carbon neutral world represents a significant economic challenge. France has been at the forefront of integrating green policies throughout the economy.

Jean Boissinot
French Treasury

The key is to foster the adoption of climate change policies and emphasise personal responsibility in devising the right course of action. Smart regulation can help the advent of smarter finance.

In the 2015 Paris agreement, the shared realisation that climate change is having increasingly significant effects led the international community to affirm its long-term objective: to keep the rise in global average temperature below 2 degrees Celsius. If the transition to a carbon neutral world seems achievable from a technological perspective, its scale should not be underestimated.

The low carbon transition represents a significant economic challenge, requiring the complementary actions of public authorities, economic actors and financial institutions.

On the public side, policies are needed to put a price on carbon, such as cap and trade or a carbon tax, as well as an overall framework that fosters long-term decisions. Public authorities have an imperative to align their policies with the Paris agreement, from phasing out implicit fossil fuel subsidies to prioritising transition-related issues in research and development programmes.

Transition-conscious companies must develop or seek out technologies and deploy new solutions and products. They must adapt productive capital to economy-wide carbon neutrality. This is only marginally about more investment; it is fundamentally about different investment. Every company needs to embed a climate change perspective into its decision-making, or risk contributing to the build-up of 'stranded' assets that will become uneconomical as more countries pursue low-carbon policies.

While it cannot achieve much on its own, a financial system that takes account of climate change-related issues not only could contribute directly to financing the low carbon transition and to managing risks; it would also amplify the policy signal. Developing smarter finance matters for the transition beyond mere financing.

'Green' or 'sustainable finance' agendas are being designed and implemented in a growing number of jurisdictions. France has been at the forefront by introducing policies that promote better integration of sustainability throughout the economy. To enable the financial sector to price climate change-related risks and grasp opportunities, corporate disclosure has been strengthened.

To nudge appropriation, accelerate innovation and disseminate best practice, institutional investors and asset managers are required to report on how they integrate environmental, social and governance issues into their investment strategies. To improve climate change-related risk management, the prudential supervisor is engaging with supervisees.

To contribute to deepening the green bond market, France's debt management office is issuing green bonds. To ensure that retail investors can find robust 'green' or 'sustainable' products, dedicated labels have been developed.

Integrated regulation

These policies are proving effective. The reporting requirements have contributed to the management of more than 90% of the domestic insurance sector assets to incorporate climate change concerns.

The integration of climate change issues in the dialogue between regulators and companies has been one of the factors behind French banks' leadership in this field among their European peers. The involvement of the debt management office in the green bond market contributed to a renewed interest for these bonds among issuers and enabled them to formalise their commitment to this market.

The key to such developments may be to foster the adoption of climate change policies and emphasise each economic participant's personal responsibility in devising the right course of action. Smart regulation can help the advent of smarter finance, and policy can contribute to developing markets and strengthening their integrity. But eventually, ensuring that finance is contributing to a 'good society' rests on a culture of doing what's right. This requires everyone in the financial sector, whether in private firms or public authorities, understanding the role they are expected to fulfil. ●

Jean Boissinot is Director, Financial Stability at the French Treasury.

Green finance for a sustainable economy

How countries can achieve strong and inclusive growth while gearing their economies towards low-emission, climate-resilient development consistent with the 2015 Paris agreement is becoming an urgent matter. Environmental, social and governance factors need to be integrated into investment decisions.

Masamichi Kono
Organisation for Economic Co-operation and Development

Institutional investors manage about $54tn of assets in OECD countries. However, less than 1% of large OECD pension funds' assets is allocated to direct investment in green infrastructure.

How to enable an orderly transition to a sustainable, low-carbon global economy is becoming an urgent matter. There is a real danger that the planet will no longer be suitable for humanity before the end of this century. 'Investing in Climate, Investing in Growth', an Organisation for Economic Co-operation and Development report presented to the G20 last year, emphasises how countries can achieve strong and inclusive growth while gearing their economies towards low-emission, climate-resilient development consistent with the 2015 Paris agreement. Fiscal and structural reforms, combined with coherent climate policy, have the potential to increase average long-run output by up to 2.8% across G20 countries in 2050, relative to a continuation of current policies. If mitigated climate impacts are taken into account, the net effect on GDP in 2050 rises to nearly 5%.

Low-carbon, climate-resilient infrastructure investment needs to be scaled up significantly in the next decade to avoid humanitarian and environmental disaster. This shift needs to be underpinned by a financial system that can provide adequate finance for such investments. Policies to combat climate change and eliminate misaligned incentives, such as carbon pricing, need to be formulated. Removing fossil fuel subsidies and creating a conducive environment for mobilising private capital are particularly important.

The OECD launched the Centre on Green Finance and Investment in October 2016 to help support the transition to a green, low-emission and climate-resilient economy. The centre is the latest example of the whole-of-government approach the OECD promotes to deal with critical global issues.

The money is there to tap: institutional investors manage about $54tn of assets in OECD countries. However, only a fraction of these assets – less than 1% of large OECD pension funds' assets – are allocated to direct investment in green infrastructure. The market for green bonds has been expanding rapidly, but is still only a fraction of the global bond market.

The potential benefits of green bonds are numerous. For issuers, they provide a more diversified investor base, enhanced credibility of the issuing companies' environmental strategy, and the possibility of more advantageous fund-raising opportunities. For investors, green bonds provide environment-friendly investments without sacrificing return, more transparency about the issuer, and the ability to hedge climate risk in the low-carbon transition.

Some stakeholders are calling for the introduction of more internationally harmonised standards for green bonds, but having overly stringent standards could hinder the development of markets by increasing the costs of issuance and transactions. A balance would need to be struck between the need for globally converged standards and flexiblity to deal with varied circumstances in different jurisdictions.

Environmental, social and governance factors

The European Union's High-Level Expert Group on Sustainable Finance released its final report and recommendations in January. It stressed that moving towards sustainable finance involves two imperatives: improving the contribution of finance to sustainable and inclusive growth, as well as the mitigation of climate change; and strengthening financial stability by incorporating environmental, social and governance factors into investment decision-making. Building on the HLEG's recommendations, the European Commission launched in March a broad action plan on financing sustainable growth, to set out an EU strategy for sustainable finance.

The OECD, through its Centre on Green Finance and Investment, is seeking to help governments and other stakeholders develop strategies to scale up green finance and investment, and is looking for partners and sponsors. The quest for sustainable finance cannot succeed without the involvement of all stakeholders. The OECD welcomes the interest of all those involved or interested in enhancing finance for sustainable growth and development in this global endeavour. ●

Masamichi Kono is Deputy Secretary-General of the Organisation for Economic Co-operation and Development.

Central banks and climate change

Reigniting growth through investment in low-carbon technologies could be more sustainable from a macroeconomic and environmental perspective than any previous consumption-led and household debt-based recoveries.

Luiz Awazu Pereira da Silva
Bank for International Settlements

There is a role for public institutions, including central banks, to lead by example. The financial sector can raise awareness, including through its own pricing of risk.

The risk climate change represents for current and future generations' well-being is not a trivial issue. Market prices are not reflecting such an externality and its social costs are not incorporated into practical decision-making in a way that is economically and socio-politically efficient and sustainable.

Some countries claim they did not make as much use as they might have of their 'carbon space' and that they should be compensated to skip the fossil fuel development phase. Other countries are reneging on their commitments to control emissions. This illustrates the complexity of the first-best solution to climate change: addressing global warming through adequate pricing of carbon via a coordinated global mechanism of auctions and taxes.

As a result, second-best solutions are being discussed; and since climate change has obvious financial stability implications, the financial sector has become involved. There have been calls for a special role for central banks and financial regulators, suggesting using regulatory incentives, and even 'green' asset purchase programmes. But then, might this not inadvertently create other types of distortions?

Amending the mandates of central banks and financial regulators is a very tricky business. There is a danger of stretching them to areas where there is not yet a social consensus. But there is a role for public institutions, including central banks, to lead by example. The financial sector can raise awareness, including through its own pricing of risk.

Collective action for a global problem

Central banks, supervisors and regulators are discussing how they help combat climate change. The Network for Greening the Financial System is a group of central banks and supervisors that is exchanging experiences and best practices. For example, central banks can come up with market-orientated ways for the issuing community to increase the availability and number of 'green' instruments that meet private asset holders' investment requirements and combat climate change.

There is also a need to identify and map climate change-related risks and opportunities for the financial sector. This could be done by incentivising financial institutions to disclose their exposure to specific asset classes voluntarily. This would allow better assessment of the impact of events related to climate change, such as flooding, on insurance liabilities and the value of financial assets. There are also potential benefits from adjusting to an economy with a smaller carbon footprint, where new policies and technology could bring about a re-evaluation of a range of asset classes.

As green energy producers evolve into rapidly growing sectors, there would be plenty of business opportunities stemming from the rising income and employment they would bring. If some technologies prove efficient and commercially viable, this could lead to positive valuations for associated asset classes.

However, for the moment it is important to avoid 'green-washing' of traditional financing. Green bonds must be aligned with the International Capital Market Association's core components for this type of product. Proceeds must be applied exclusively to finance eligible green projects and address climate change, natural resource depletion, biodiversity conservation and/or pollution.

Last, climate change requires increased international co-operation, as it is a global problem. Calls for collective action and statements of intent abound at conferences and in international commitments but, unfortunately, there has been a backlash against multilateralism and international co-operation.

Central banks need to show how simplistic it is to treat globalisation as a scapegoat for all problems, ranging from within-country income inequality to job losses and global financial crises. They can also play a role in disseminating positive and practical messages. A keener perception of fairness and how to share the burden of costs to combat climate change, will help propagate support. Reigniting growth through investment in low-carbon technologies could be more sustainable from a macroeconomic and environmental perspective than any previous consumption-led and household debt-based recoveries. ●

Luiz Awazu Pereira da Silva is Deputy General Manager at the Bank for International Settlements. The opinions expressed here are the author's own and do not necessarily reflect those of the BIS.

Building a green finance market

In 2017 green bond issuance exceeded €100bn, and the market has garnered enormous global interest. The development of a taxonomy for sustainable finance, starting with the definition of climate mitigation projects, is central to the future of the market.

Frank Czichowski
KfW Development Bank

Green finance has traditionally relied on conventional loan models, but it is clear that capital markets must become more involved.

'We are the first generation to feel the effect of climate change and the last generation who can do something about it.'

These words from former US President Barack Obama illustrate the need for timely action in the fight against climate change. Major political achievements like the 2015 Paris agreement and the United Nations' sustainable development goals give hope. To date, 174 countries have ratified the Paris agreement, pledging to keep the global temperature rise below two degrees Celsius and putting forward nationally determined contributions.

It has become clear to policy-makers that the volume of investment needed to combat climate change dramatically exceeds public funds. Green finance has traditionally relied on conventional loan models, but capital markets must become more involved. The green bond market has been at the forefront of that development. In 2017 green bond issuance exceeded €100bn, and the market has garnered enormous global interest.

The final recommendations of the European Commission's high-level expert group on sustainable finance, published at the end of January 2018, reflect the growing influence of the green bond market. They propose measures to redirect funds towards sustainable investments and to increase the stability of the financial system by incorporating environmental, social and governance factors into investment decisions.

The development of a taxonomy for sustainable finance, starting with the definition of climate mitigation projects, is central to the recommendations. The group recommends the enactment of EU sustainability standards, starting with an official EU green bond standard that adopts and codifies the essential elements of the green bond principles. These recommendations are in principle taken over in the Commission's action plan published in March 2018, which prioritises the development of a classification of sustainable projects and a EU green bond standard based on best practice.

The green bond principles have helped catalyse the market. They are referred to in numerous green bond frameworks, investment criteria, external green bond verifications and in national regulations. The reason for the principles' success is their transparent, comprehensive and co-operative approach. This market initiative, which connects issuers, investors, underwriters, rating agencies, scientists, regulators and other parties, is novel in the extent of co-operation it fosters and allows best practice to spread quickly around the world.

Entering the green market

Improving economic, ecological and social living conditions and contributing to sustainable development are critical parts of KfW's mission statement. In the 1960s the German government-owned development bank launched a loan programme to finance air pollution prevention measures in the country.

What in those early days was a niche product has become a core focus for KfW. The development bank has provided more than €280bn for environmental and climate protection measures over the last 10 years, making it one of the largest contributors to green finance worldwide.

In 2014 KfW entered the green bond market as an issuer and since then has issued more than €13.5bn in several currencies, engaging with investors across the globe. The development bank also runs a dedicated portfolio for green bond investments with a target volume of €2bn, which is backed by a specific mandate from Germany's environment ministry.

KfW is active as a member of the green bond principles' executive committee in addition to related working groups, and in 2015 took part in the publication of the original harmonised framework for impact reporting. This provides guidance on reporting for projects related to renewable energy and energy efficiency and has subsequently been extended to other sectors.

KfW will continue to promote the sound development of the green bond market to provide financing for the safeguarding of the environment and the transition to a low-carbon society. Green bonds are the nucleus of the green finance market and can be a leading example to policy-makers and investors in their pursuit of sustainability. ●

Frank Czichowski is Head of Treasury at KfW Development Bank.

Green finance through securitisation

Despite a continued increase in volume over the last five years, green bonds of all types remain a small fraction of the more than $100tn global bond market. Securitisation is one key mechanism which can move sustainable loans from banks to capital markets and accelerate green finance.

Michael Sheren
Bank of England

Green securitisation is not a cure-all, but it is an important tool to manage the global balance sheet by matching long-term investors with long-term sustainable assets.

The message following the ratification of the Paris agreement on climate change was clear – the world must urgently move away from a high carbon, polluting and resource intensive economic model. Advancing this transition should help mitigate the worst effects of climate change and facilitate economic growth.

Sustainable infrastructure, among numerous other initiatives, will support this growth and create future-facing jobs. However, financing these opportunities at the necessary scale and pace will be more difficult without reviving and then accelerating the issuance of green securitised bonds on debt capital markets.

The recovery of the global securitisation market since the 2008 financial crisis has been slow. But it is time to re-examine, restructure and accelerate securitisation so that it can play a part in mitigating risks from climate change.

Sustainable infrastructure will demand more than $90tn in financing over the next 15 years. This task is too big to be achieved solely by commercial bank loans. Furthermore, many sustainable investments require long and often fixed-rate tenors (the time that must elapse before the bond is due for payment). These do not match the short-term floating tenors of wholesale borrowing and on-demand deposits that make up most bank balance sheets. Hence, highly liquid debt capital markets must become a major part of the sustainable solution.

Repackaging loans

To release balance sheet capacity for new sustainable companies and assets, illiquid bank loans must be repackaged into a liquid format that appeals to long-term investors.

Globally, insurance companies, pension funds, sovereign funds and other institutional investors hold almost $100tn under management. However, less than 1% of their holdings are in green investments. Most institutional investors can purchase only public, rated and freely tradable investment products such as bonds. Bank loans largely do not meet the investment criteria of institutional investors. However, repackaged loans into bond format could qualify, potentially opening trillions of dollars of new liquidity to fund the transition to a green economy. Securitisation is the mechanism which can move sustainable loans from banks to capital markets.

Despite a continued increase in volume over the last five years, green bonds of all types remain a small fraction of the more than $100tn global bond market. In 2016, $95.1bn of green bonds were issued, but only $5bn of this was in asset-backed securities. This rose to a share of around $35bn in 2017 of the $155.5bn green bond market.

Accelerating green finance through securitisation would see banks identifying and tagging eligible loans on their balance sheets. These loans would be eligible for green securitisation. Once pooled, these securities would be structured to meet the needs and investment preferences of global institutional investors.

There has been significant advancement on the regulatory side in reviving securitisation. In the European Union, efforts to reform what the Commission calls 'simple, transparent and standardised' securitisation has taken much of leverage and risk out of the structures. Further, regulators are debating the investment characteristics associated with 'brown' investments that may bare higher risks and thus potentially higher capital charges compared to those with green characteristics. However, EU insurance companies remain mostly locked out of securitisations by arduous capital requirements under the Solvency II directive. In the US, lack of clarity on the accounting treatment of risk retention rules, which define what qualifies as a true sale, have surfaced, causing confusion in the market.

Green securitisation is not a cure-all, but it is an important tool to manage the global balance sheet by matching long-term investors with long-term sustainable assets.

Furthermore, there is mounting evidence that sustainable investments perform better and default less than others. Hence, financing the transition to a sustainable world is not just essential for the planet, it's smart investing. Banks remain on the front line of financing sustainable projects, and infrastructure represents the biggest need for green growth. Support for the accelerated development of green securitisation should be part of the solution. ●

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OMFIF

Special report

Sustainable investment

ESG concerns shape allocation decisions

Climate-related risks are expected to intensify and public investors are adapting their investment strategies to reflect their commitment to responsible ownership. Several public investors have joined the UN Environment Programme's portfolio decarbonisation coalition, a platform for investor leadership on climate change.

As long-term investors responsible for securing the financial future of their members and citizens, public investors such as public pension funds and many sovereign funds are naturally concerned about environmental, social and governance issues in the companies and projects they invest in.

The adoption of the United Nations 2030 agenda for sustainable development and the associated sustainable development goals by 193 UN member states in September 2015, the ratification of the Paris agreement on climate change in 2016 and the release of the final recommendations of the Financial Stability Board's task force on climate-related financial disclosures in June 2017 have highlighted policy awareness of the environmental threats to the planet. This has added impetus to the green finance agenda to combat these threats.

Environmental degradation can affect asset values directly. Equities and bonds, as well as real estate and infrastructure, can be subject to risks such as droughts and floods, or gradual changes such as reduced snowfall and rising sea levels in tourist areas. Environmental regulations can have indirect effects on markets and asset valuations, by introducing legal risk and changes to business models, so-called transition risk. Climate-related risks are expected to intensify over time, demanding more attention from financial market participants.

Divestments and decarbonisation strategies

Public investors are adapting their investment strategies to reflect their commitment to responsible ownership and their understanding of environmental risks to economic and financial returns. Often this has taken the form of divestments from companies and industries that contradict funds' commitments to ESG principles, such as tobacco or carbon-exposed companies.

European and North American pension funds are leading the way. In December 2017, the European Parliament passed a resolution calling on all public and private institutions to divest from fossil fuels. In January 2018, New York City followed similar decisions in California and Washington and announced it would divest the $5bn fossil fuel investments held by its five public pension funds over the next five years.

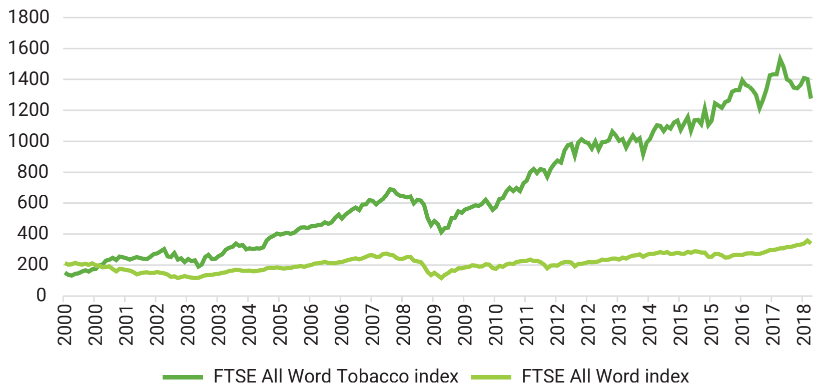
Bans on tobacco investments have existed for much longer. Two of the US's largest pension funds, the California Public Employees' Retirement System and the California State Teachers' Retirement System, have banned tobacco investments for over a decade in the light of financial risks facing the sector and ethical concerns about profiting from it.

Norway's Norges Bank Investment Management, which manages the Government Pension Fund Global, the world's largest sovereign fund, and Dutch ABP, Europe's largest pension fund, also operate such bans, as do many other such institutions.

These strategies have proved financially costly. While the tobacco industry has faced financial threats over the past decade from intensified governmental health regulations, lawsuits and changing attitudes to smoking among younger generations, it remains highly profitable. The FTSE All World Tobacco Index, which tracks the performance of the world's biggest cigarette companies, has returned 831% since 2000, significantly outpacing the 70% return for the FTSE All World Index (see Figure 1). A study

Figure 1: Divestment policies miss out on returns

FTSE Tobacco vs All World Indices



Source: TR Datastream, OMFIF analysis

"Bans on tobacco investments have proved financially costly. While the tobacco industry has faced financial threats over the past decade from intensified governmental health regulations, lawsuits and changing attitudes to smoking among younger generations, it remains highly profitable."

Figure 2: Public investors divest from carbon and tobacco

Selected ESG-driven divestments

Institution	Country	Type	Description	Date
Australian Super	Australia	Pension fund	33 Australian super funds have divested from tobacco since 2012.	2012 to present
Calpers	US	Pension fund	The Californian pension fund voted to maintain and broaden its restrictions on tobacco investments, which date back to 2000, following a recommendation by its staff to review this policy.	December 2016
Southwark Council Pension Fund	UK	Pension fund	The UK local pension fund announced its decision to divest the £1.2bn fund from fossil fuels.	December 2016
NBIM	Norway	Sovereign fund	The world's largest SF has, over three tranches, divested holdings in coal or coal-based energy companies in what is estimated to be the largest decarbonisation strategy to date among SFs.	April 2016-March 2017
New York City Pension Funds	US	Pension fund	New York public pension funds announced that they will divest $5bn they hold in fossil fuel investments over the next five years.	January 2018
ABP	Netherlands	Pension fund	Europe's largest pension fund, Dutch civil service scheme ABP, announced that it will divest its entire holdings in tobacco and nuclear weapons – worth an estimated €3.3bn.	January 2018

Source: OMFIF analysis

commissioned by Calpers in 2015 found that it had potentially forfeited $3bn in returns because of its divestment policy, prompting the fund to reconsider its decision.

While the board of Calpers decided to maintain the ban following a vote in December 2016, the study exposed the contradictions for public investors striving to be ethical and profitable at the same time, highlighting the need for creative responses. In August 2017, the New Zealand Superannuation Fund designed a new global equity benchmark that excludes companies with a high carbon impact but provides the same returns as the general global benchmark. This demonstrates it is possible to hedge against environmental risks without having to sacrifice returns.

Norway's NBIM is one of the main drivers of ESG-driven divestments and exclusion. Since 2006 it has divested from 16 nuclear weapons producers, and since 2010 from 20 tobacco producers. It has enacted conduct-based exclusions linked to environmental damage, human rights violations and corruption. In 2016 it initiated a campaign to reduce the carbon footprint of its portfolio. Following three tranches of exclusions over 2016 and 2017, it divested from 69 companies involved in the production of coal or coal-based energy, with a further 13 placed under observation because of the coal criterion (see Figure 2). In February 2018, the Norwegian ministry of finance appointed an expert group to review whether the country's sovereign fund, known as the oil fund, should invest in other energy stocks.

In a more formal commitment, several public investors have joined the UN Environment Programme's portfolio decarbonisation coalition, a platform for investor leadership on climate change. The PDC, founded in 2014, seeks to mobilise and convene institutional investors committed to gradually restructuring their portfolios to support the transition to a low-carbon economy. Compared with pension funds, sovereign funds lag behind in terms of

Figure 3: Pension funds lead on decarbonisation commitments

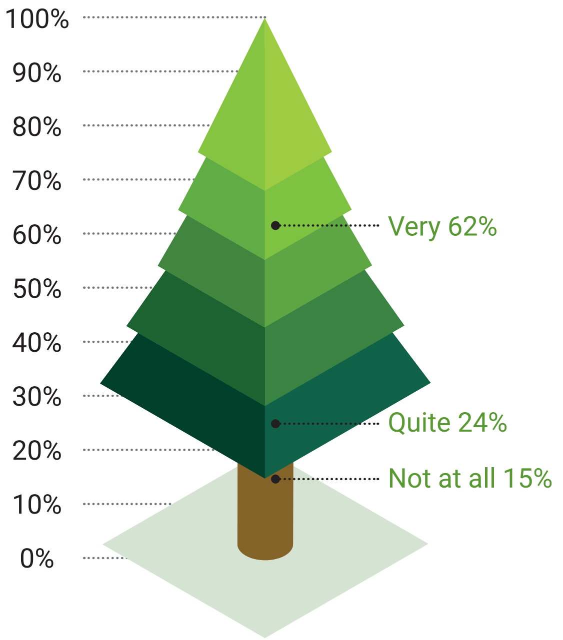
Pension funds and sovereign funds signatories to the UNEP portfolio decarbonisation coalition

Institution	Country	Type	AUM	Date joined
AP4	Sweden	Pension fund	$43.4bn	September 2014 (launch partner)
FRR	France	Pension fund	$41.1bn	
Environment Agency Pension Fund	United Kingdom	Pension fund	$4.5bn	May 2015
ERAFP	France	Pension fund	$24.5bn	May 2015
Local Government Super	Australia	Pension fund	$8.1bn	May 2015
Caisse des Dépôts et Consignations	France	Sovereign fund	$473.7bn	November 2015
ABP	Netherlands	Pension fund	$462.2bn	December 2015
New York State Common Retirement Fund	US	Pension fund	$203.4bn	January 2017
Caisse de Dépôt et Placement du Québec	Canada	Pension fund	$243.3bn	December 2017

Source: United Nations Portfolio Decarbonisation Coalition, OMFIF analysis

Figure 4: Environmental sustainability concerns important requirement for external managers

'Do you require your external managers to consider environmental and sustainable issues in their investments? How important is this requirement?', share of responses



Source: OMFIF GPI Survey 2018, OMFIF analysis

decarbonisation, with only a few having established strategies for reducing their exposure to fossil fuels and carbon emissions.

Only one sovereign fund, France's Caisse des Dépôts et Consignations, has joined the PDC, compared with eight pension funds and 23 other asset owners and asset managers. The coalition's 32 investors jointly own more than $800bn in assets.

Active ownership strategies

At times, there may be obvious contradictions between the best ways to achieve financial returns and the collective ESG values of the citizens and members that sovereign funds and public pension funds represent. An example was that of Australia's Future Fund holding tobacco shares while the Australian government was promoting itself as a global leader in the fight against Big Tobacco. The fund divested from tobacco stocks in 2013. In such cases, the arguments for divestment can be persuasive. But contradictions are often more nuanced. When attacked for its investments in mining giants with questionable human rights records in West Papua, a province of Indonesia, the New Zealand Superfund's response was that engagement can be more effective in changing behaviour than divestment or exclusion.

As large investors, sovereign funds and pension funds can exert considerable influence over investee companies by exercising shareholder rights to encourage them to increase their ESG responsibilities. The growing availability of proxy advisory services, which help institutional investors to decide how to vote in shareholder meetings, has bolstered the trend of activist ownership. In March 2018, Sweden's AP7, along with the Church of England Pensions Board, joined Australia's Local Government Super in preparing a shareholder resolution calling on Rio Tinto, the mining group, to rethink its membership of coal lobby groups. Such active ownership strategies can help improve reporting and transparency standards, and enhance the sustainability of public investors' portfolio companies.

Out of the subset of asset owners whose portfolios are partially managed externally, 76% of respondents to an asset allocation survey of global public investors by OMFIF in 2018 said they require external managers to consider environmental and sustainable issues in their investments. This includes NBIM. Even though only Nkr451bn ($56bn) of its investments are under external management (equivalent to around 5.3% of its capital), five mandates are for environment-related investments.

At the same time, 73% of public investors said green issues have an important role in informing their real asset investments specifically, while the remaining 27% deemed them 'somewhat important'. No investors thought they were 'not important'.

Given the important financial and institutional role of many public investors, their promotion of these standards may promote similar trends in their domestic economies.

Investing in sustainable assets

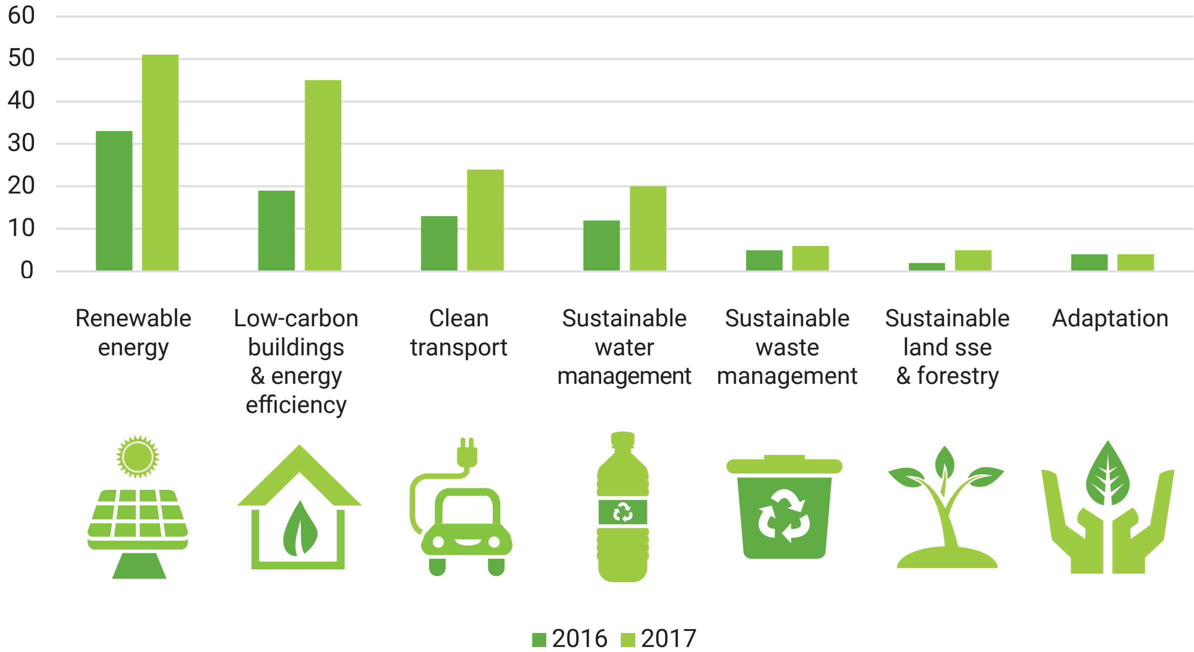
A further channel through which sovereign funds and public pension funds can address ESG considerations is actively investing in sustainable assets. An emerging area is green assets. The majority of these investments are in real assets such as green infrastructure, energy-efficient real estate, renewable energy production, clean transportation, and water and waste projects.

The most popular use for proceeds from green bonds (itself the most common green asset among public investors) is renewable energy projects. At $51bn, in 2017 they represented a third of the total, closely followed by low-carbon buildings and energy efficiency at $45bn. Clean transport and sustainable water management jointly added another $45bn, with smaller shares going to sustainable waste management ($6bn), sustainable land use and forestry ($5bn) and adaptation strategies ($4bn).

> "As large investors, sovereign funds and pension funds can exert considerable influence over the companies they invest in by exercising their shareholder rights to encourage them to increase their environmental, social and governance responsibilities."

Figure 5: Renewables and real estate dominate use of green bond proceeds

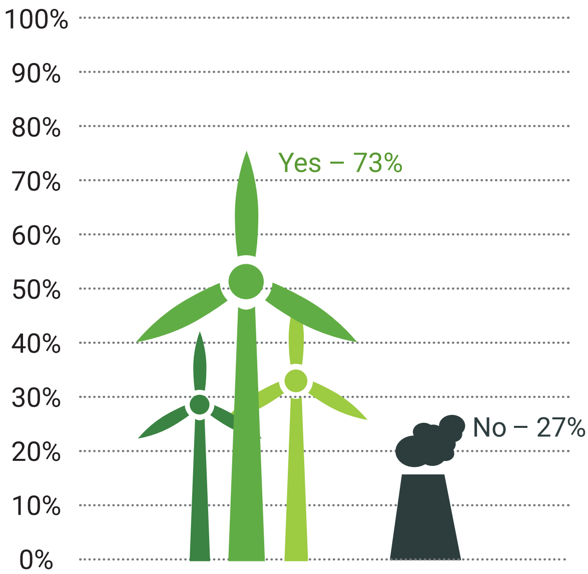
Use of green bond proceeds, by project type, $bn



Source: Climate Bonds Initiative, OMFIF analysis

Figure 6: Three-quarters of respondents invest in green assets

'Do you invest in green or sustainable assets?', share of responses



Source: OMFIF GPI Survey 2018, OMFIF analysis

The emergence of green finance options has allowed public investors to increase their allocations to real assets and seen them become significant participants in this market over the last few years. Several public pension funds have committed to increasing their green investments, including Japan's Government Pension Investment Fund, Calstrs, the New York State Common Retirement Fund, Sweden's AP funds, ABP, France's Ircantec and Australia Local Government Super.

Sovereign funds have come under pressure to diversify into green finance because of weak oil prices over recent years. African sovereign funds from Senegal, Nigeria and Morocco are supporting green infrastructure initiatives such as solar panel farms and clean energy and water projects. In the Middle East, Mubadala and the Abu Dhabi Investment Authority are some of the biggest investors in renewable energy and green infrastructure among sovereign funds globally. In Europe, NBIM has a mandate to invest Nkr30bn-Nkr60bn in 'environment-related investments', while Asian public investors such as China's State Administration of Foreign Exchange and the Hong Kong Monetary Authority's Exchange Fund are leading in terms of green debt funding.

While NBIM is an exception and few institutions have formally set targets, OMFIF's survey findings show that ESG is an important concern for many. A majority of respondents (73%) said they invest in green or sustainable assets.

Accessing green assets

Green bonds are defined by the Organisation for Economic Co-operation and Development as debt instruments used to finance green projects that deliver environmental benefits. They are differentiated from regular bonds by their commitment to use the funds raised to finance or refinance green projects, assets or business activities.

Among the public investors covered in OMFIF's survey, 62% of those who invest in sustainable assets invest in green bonds, compared with 46% for green equities and 23% for sustainable mutual funds. A smaller share of respondents also invests in sustainable exchange traded funds and climate-aligned bonds.

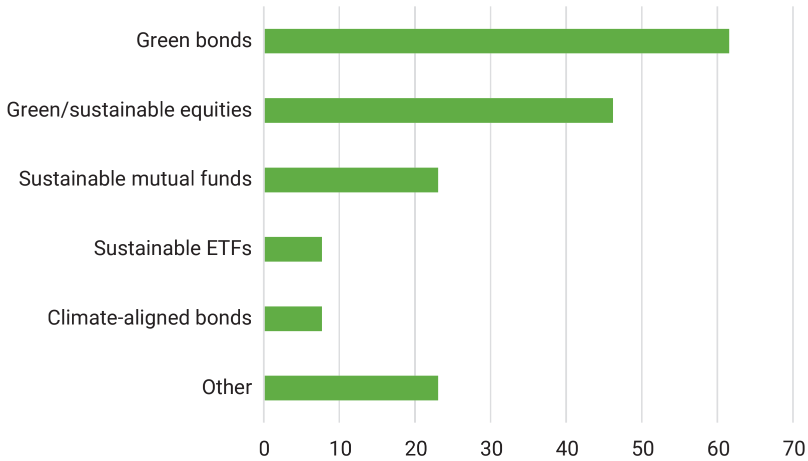
Since the European Investment Bank first issued a €600m Climate Awareness Bond focused on renewable energy and energy efficiency in 2007, the market for green bonds has evolved rapidly. The World Bank followed the next year with the first labelled green bond, for Sek3.35bn ($440m), with subsequent issuances by the International Finance Corporation in 2010 and the African Development Bank in 2013. The market has picked up momentum over the past three years. The value of green bonds issued doubled for two consecutive years, from $41bn in 2015 to $82bn in 2016 and $155.5bn in 2017 – the highest level of annual issuance on record.

Sovereigns have also played an important role in the development of the market. Poland was the first nation to issue green-labelled debt, raising €750m in five-year paper (see Figure 8). Proceeds were used to finance and refinance projects such as renewable energy generation, clean transportation and sustainable agricultural operations.

It was followed by France, which issued €7bn of green bonds in January 2017, with proceeds used to finance and refinance expenditure in six sectors: energy efficient buildings, energy efficient transportation, renewable energy, living resources and biodiversity, adaptation and pollution control.

Figure 7: Green bonds and equities most popular sustainable assets

'Which sustainable assets do you invest in?', % of total responses



Source: OMFIF GPI Survey 2018, OMFIF analysis

Figure 8: Europe leads sovereign green bond issuance

Sovereign issuance of green bonds

Institution	Country	Type
Poland	December 2016	€750m ($791m)
France	January 2017	€7bn ($7.6bn)
Fiji	October 2017	Fjd100m ($50m)
Nigeria	December 2017	Ngn10.69bn ($29.7m)
Poland	February 2018	€1bn ($1.2bn)
Indonesia	February 2018	$1.25bn
Belgium	February 2018	$4.5bn

Source: OMFIF analysis

Fiji, at the time the chair of COP23, the UN climate change conference, was the third country and the first emerging market economy to launch a green bond in October 2017, with a €50m deal.

Poland's second issue, and new issuances by Nigeria, Indonesia and Belgium have since followed. Indonesia's bond was also the first sovereign green sukuk.

Sovereign funds and pension funds have played an important role in providing demand for these issues. ABP was one of the main subscribers to the Belgian bond, with a €360m purchase.

Despite these developments and such rapid growth, the green finance market remains a minuscule part of the overall asset universe. Total outstanding green bond issuance stood at $221bn worldwide at the end of 2017, according to the Climate Bonds Initiative, amid the broader category of climate-aligned bonds valued at $895bn. This compares to more than $100tn for the total fixed income sector.

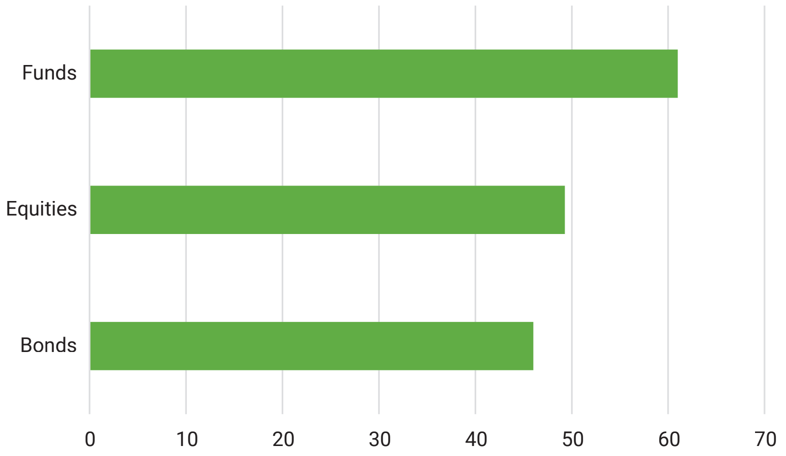
But sustainable investments are gaining prominence in global public investors' portfolios. Sovereign funds and public pension funds surveyed by OMFIF said that 61% of their overall fund investments are allocated to sustainable funds, with the equivalent figure at 49% for equities and 46% for bonds. Very few respondents said 'all investments are sustainable' and made 'according to ESG principles'. However, some admitted that 'the definition of sustainable investments is ambiguous'.

It should not be inferred from the results that respondents who said 100% of their bonds are allocated to sustainable investments only invest in green bonds, for example. Different funds interpret sustainability in different ways.

"There is still a long way to go to a fully developed market for green investments. International standardisation of what constitutes a green bond is lacking. Another drawback is the lack of a global monitoring mechanism to ensure compliance."

Figure 9: Investors allocate heavily to sustainable investments

'What % of your total bond, equity, fund and other portfolios are allocated to sustainable investments?', average of responses



Source: OMFIF GPI Survey 2018, OMFIF analysis

Future plans and barriers to accessing green assets

With a total of $21.5bn in assets under management, a commitment by sovereign funds and pension funds to increase their allocation to green investments even marginally would represent a substantial increase in the market. *Global Public Investor 2017* showed public investors (sovereign funds, public pension funds and central banks) favoured increases in green investments. Almost 40% of institutions surveyed were planning to increase investments in green bonds over the next 12 months, while 35% were planning to increase investments in renewables. The most enthusiastic investors in these assets were central banks and pension funds from North America and Europe.

This year's survey reveals similar trends: 18% of sovereign funds and public pension funds surveyed responded that they were planning to 'significantly increase' (by more than 3%) their green bond investments over the next 12-24 months, compared with 6% last year, with a further 18% expecting to increase (by up to 3%) their investment (compared with 32% last year).

A further 18% of respondents said they plan to increase their allocation to green and sustainable equities, while no change in allocation was expected for the remaining asset classes on which institutions were surveyed, including sustainable mutual funds, sustainable ETFs and climate-aligned bonds. No institutions planned to reduce their exposure to green assets.

The increasing demand for green assets by these investors is gradually raising supply as efforts concentrate on the legal and regulatory requirements of these assets.

However, there is still a long way to go to a fully developed market for green investments. International standardisation on what constitutes a green bond is lacking. This is a major obstacle to the expansion of sustainable finance initiatives. Another drawback is the lack of a global monitoring mechanism to ensure compliance with the parameters set by frameworks such as the green bonds principles or climate bonds standards.

Some progress is being made: in March 2018, a group of investors worth almost $3tn, including NBIM and the Caisse de Dépôt et Placement du Québec, announced that they will work with the UN environment finance initiative and the Financial Stability Board's task force on climate-related financial disclosures to create a first set of climate-related investor disclosures.

The results from OMFIF's survey show how the picture is changing. When asked about the reasons for not investing in green and sustainable assets, the public investors that do not currently do so were reluctant to respond.

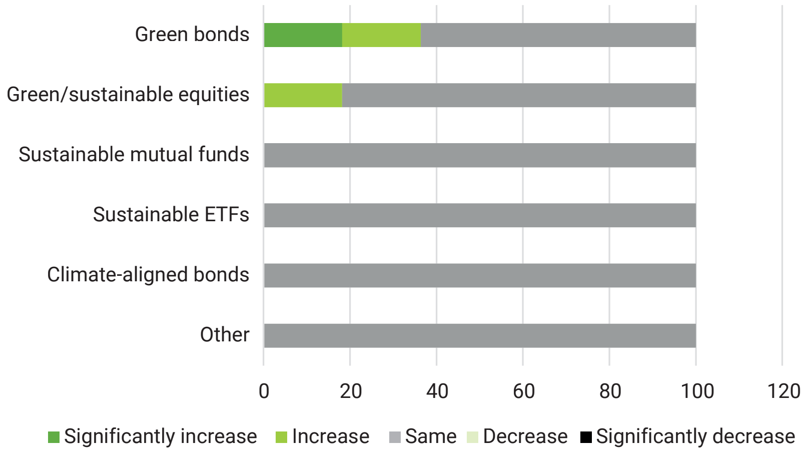
The two most popular reasons given were that such an action would not fit with the funds' strategies and that there is a lack of suitable projects. None of the respondents suggested cost or legal and regulatory barriers as reasons for not investing in green and sustainable assets.

Innovative solutions are being tried. In March 2018, Amundi and the International Finance Corporation closed the largest green bond fund ever raised, at $1.4bn ($2bn when counting the planned reinvestments of proceeds from early investments). The fund, launched just under a year ago, aims to channel money into renewable energy and energy-efficiency projects in emerging markets.

Several public investors committed to the fund, including Swedish pension funds AP3 and AP4 and French pension fund ERAFP. The fund will invest only in bonds that meet the green finance standards set by the International Capital Markets Association, and a committee of scientific experts will sign off on the projects' environmental credentials. Such developments in

Figure 10: Public investors plan increased exposure to green assets

'Are you planning to increase your allocation to "green" real asset investments over the next 12-24 months?', % of total responses, by asset type



Source: OMFIF GPI Survey 2018, OMFIF analysis

certification are helping bridge barriers in accessing green assets in terms of defending investment credentials.

Responding to the same survey question, some funds cited insufficient data as a concern and highlighted the risk of 'greenwashing'. Lack of data to incorporate environmental risk assessment in financial decision-making has traditionally been an important hindrance to the development of the green finance market.

To address this need a group of six sovereign funds (NBIM, the New Zealand Superannuation Fund, and four funds from Abu Dhabi, Kuwait, Saudi Arabia and Qatar) met at France's Élysée palace in December 2017 to establish the 'One Planet Sovereign Wealth Fund Working Group'. The group aims 'to accelerate efforts to integrate financial risks and opportunities related to climate change in the management of large, long-term asset pools' and committed to 'developing an ESG framework to address climate change issues, including methods and indicators that can inform investors' priorities as shareholders and participants in financial markets'.

An important reason given by respondents regarding their reluctance to invest in green assets was that it may be too complex. This complexity creates the need for investors to rethink their approaches and organisational structures, and hire new staff to bring in additional skills and experience to access these assets. This is part of the broader trend of the professionalisation of investment approaches among public investors seeking to access real assets, as documented in a report published by OMFIF and BNY Mellon in June 2018.

"Investing in green assets may be too complex. This complexity creates the need for investors to rethink their approaches and organisational structures, and hire new staff to bring in additional skills and experience to access these assets."

The author of this report is Danae Kyriakopoulou, Chief Economist and Head of Research at OMFIF. Results from the OMFIF GPI Survey 2018 were prepared by Ben Robinson, Senior Economist, and Max Roch, Research and Policy Analyst at OMFIF.

Key sustainable investment deals involving public institutions in 2017-2018

Institution	Description	Date
ABP	Dutch civil service scheme ABP announced that it reduced carbon emissions from its investments by 28% between 2014-17, exceeding the target it had set for a 25% reduction by 2020.	May 2018
United Nations Environment Finance Initiative and Financial Stability Board Task Force on Climate-related Financial Disclosures	Nine leading pension funds, insurers and asset management firms including the Caisse de Dépôt et Placement du Québec and Norges Bank Investment Management announced that they will work together with the UNEP FI on guidelines towards a first set of climate-related investor disclosures in alignment with the recommendations of the FSB TCFD.	March 2018
Amundi and International Finance Corporation	IFC and Amundi closed the largest green bond fund ever raised, at $1.4bn. Several public investors committed to the Fund including Swedish pension funds AP3 and AP4 and French pension fund ERAFP.	March 2018
ABP	The Dutch civil service scheme ABP purchased €430m worth of green bonds issued by the Belgian government	March 2018
Government of Indonesia	Indonesia became the first Asian sovereign to sell green sukuk, raising $1.25bn with a five-year deal alongside a $1.75bn 10-year sukuk.	February 2018
New York pension funds	New York public pension funds announced that they will divest the $5bn they hold in fossil fuel investments over the next five years.	January 2018
ABP	Europe's largest pension fund, Dutch civil service scheme ABP, announced that it will divest its entire holdings in tobacco and nuclear weapons – worth an estimated €4bn	January 2018
ADIA, KIA, NZSF, NBIM, PIF, QIA	The group of these sovereign wealth funds established the 'One Planet Sovereign Wealth Fund Working Group'	December 2017
NBIM	Norway's sovereign fund announced its intention to divest oil and gas stakes which amounted to 5.5% of its portfolio (equivalent to $39bn)	November 2017
China Investment Corporation and Canada Public Sector Pension Investment Board	China's sovereign fund and Canadian public pension fund partnered with US fund GIP to buy Equis Energy, Asia's largest independent renewable firm for $3.7bn	October 2017
European Parliament	The European Parliament passed a resolution urging public and private investment institutions to commit to divesting from fossil fuels.	September 2017
Korea Investment Corporation	South Korea's sovereign fund announced its commitment to invest $300m to an ESG fund.	August 2017
Government Investment Corporation	Singapore's GIC along with Macquairie Infrastructure and Real Assets (MIRA), acquired 31.7% of Energy Development Company, a world leader in the geothermal industry.	August 2017
International Finance Corporation and New Zealand government	The IFC issued New Zealand's first green bond in the Kauri bond market, a 10-year swap rate with the money raised used to support climate-smart investments.	July 2017
Government Pension Investment Fund	Japan's GPIF, the world's largest pension fund, allocated ¥1tn ($8.9bn) of funds (3% of its total) to socially responsible investments. It further announced that it plans to raise its allocation to 10%.	July 2017
PensionDanmark	Six Danish and Norwegian pension funds committed a joint Dkk9.4bn ($1.5bn) in CI III, a Copenhagen Infrastructure Partners fund focusing on European and US renewable energy assets. Danish labour-market fund PensionDanmark was the largest investor with Dkk4bn.	April-July 2017

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Gold's role in Islamic finance

Since the launch of the sharia standard on gold, Islamic financial institutions have embraced the possibilities enabled by the metal. But gold's impact on Islamic finance transcends its investment case.

Shaokai Fan
World Gold Council

Gold not only boosts the size of the Islamic finance universe, but gives investors access to one of the most liquid investable assets.'

Gold has played an important role in the history of Islamic civilisations, but, as an investment class, it has been somewhat sidelined. This is due to conflicting views about the use of the metal in modern Islamic finance. The situation was transformed when the Accounting and Auditing Organisation for Islamic Financial Institutions adopted the sharia standard on gold in late 2016, which clarified gold's status as a sharia-compliant asset class as long as certain regulations are met. While this development was important in itself, the metal can also address many of the issues that have limited the development of Islamic finance.

Three major issues have held back the Islamic investment universe: constrained market size, a lack of high-quality instruments and limited product diversity. These issues reduce the attractiveness of Islamic finance; the industry expanded at a mere 0.6% year on year in 2016.

Gold can help to address all three issues. The total value of financial gold (gold held by investors and official institutions as bars, coins, or ETFs) is nearly $3tn, compared to the $1.9tn Islamic finance market. The gold market is also one of the deepest and most liquid asset classes in the world, with a daily trading volume of up to $220bn. Existing Islamic assets – particularly high-grade, low-risk ones – are plagued by illiquidity. Gold therefore not only boosts the size of the Islamic finance universe, but also gives investors access to one of the most liquid investable assets.

Filling the gap

Islamic finance suffers from a dearth of high-quality investable assets. While the industry has had notable success in new sukuk offerings from highly rated issuers such as Luxembourg, Hong Kong and the International Finance Corporation, the availability of high-quality instruments remains constrained. Gold, by contrast, carries no credit risk, is no one's liability and has long served as a haven asset.

Islamic investors cannot access conventional havens like US Treasuries or Japanese government bonds, since they are interest-bearing instruments and therefore not permissible. Existing low-risk Islamic assets (mostly sovereign-issued sukuk) are either too limited in size or too illiquid.

The addition of gold therefore provides Islamic investors with a vast haven asset that is highly accessible in times of need. This not only benefits investors, but can help to reduce systemic risk, making the Islamic finance market safer and smoother for all.

Gold can fill critical missing links in the current array of Islamic investment options. In conventional finance, derivatives are often used to manage risk. However, derivative-based hedging tools are generally not considered permissible in Islamic finance. Gold, as an effective hedge against wealth erosion, inflation and tail-risk events, can improve the risk management capabilities available to Islamic investors.

Currency hedge

Gold can act as a currency hedge for Islamic investors in southeast Asia whose portfolios are denominated in local currencies. Because these currencies have historically underperformed during periods of market turbulence, gold can act as a hedge against depreciations and exchange rate fluctuations. Whereas gold has returned 43.9% in dollar terms over the past 10 years, it has grown by 73.9% and 114.2% in ringgit and rupiah terms, respectively, over the same period. These qualities allow gold to bolster the diversity of risk management tools available to Islamic investors.

Since the launch of the standard, Islamic financial institutions have embraced gold's possibilities through the development of several new sharia-compliant products across different markets.

Even though it is a permissible asset class, gold's impact on Islamic finance transcends its investment case. Gold can help the industry to address the barriers that are limiting its growth by enlarging the size of the Islamic investment sector, adding depth and liquidity, filling gaps in the Islamic product array by being an effective risk management tool, and helping to reduce systemic risk. These enhancements can make Islamic finance more robust, and can help to usher in the next phase of the industry's development. ●

Shaokai Fan is Director at the World Gold Council.

Central banks return to their golden roots

Magyar Nemzeti Bank decided to repatriate its gold reserves back to Hungary in March 2018. The traditional reserve asset now fulfils a strategic role. Gold stored within a country not only serves as a defence in extreme market conditions, it also increases trust during normal periods.

Dániel Palotai and István Veres
Magyar Nemzeti Bank

Gold, as a traditional reserve asset free from default risk, is regaining its strategic role. It is an asset that can strengthen trust vis-à-vis a country both domestically and internationally.

For millennia, its beauty and the idea of wealth associated with ownership made gold an object of desire. From an economic policy point of view, gold reinforces trust and increases economic stability. This is especially true in extreme market conditions and at times of significant geopolitical uncertainty. To quote Alan Greenspan, then chairman of the US Federal Reserve, from 1999 testimony before the House banking committee: 'Fiat money paper in extremis is accepted by nobody, and gold is always accepted and is the ultimate means of payment.'

Gold has been used as money for centuries. It gained a truly central role under the gold standard in the second half of the 1800s, and in the Bretton Woods system created after the second world war. After the monetary function of gold ceased, central banks in developed countries started to regard it as an investment vehicle. However, because of the size of their reserves, central banks became too dominant in the market. This led to lower gold interest rates in the deposit market, and a reduction of its price in the spot market.

The reason for the falling exchange rate and instability of markets was a lack of coordination between central bank gold sale programmes. Market participants did not know when and how much gold central banks would sell, therefore the supply could not be predicted. This was relieved by the 1999 Central Bank Gold Agreement, in which participating institutions agreed not to sell more than 2,000 tonnes of gold (collectively) in the subsequent five years, or 400 tonnes each year. The agreement helped to lower uncertainty and the gold price stabilised.

After the 2008 financial crisis, gold sales first decreased, then came to a halt. The fourth CBGA was signed in 2014, this time without an annual sale limit. Instead, the signatories issued a statement that they had no intention to sell significant amounts of gold.

Signatories of the CBGAs are typically central banks of developed countries. Historically, CBGA countries owned large reserves that served as collateral for the gold standard system. They possess the majority of the world's gold reserves. However, there are numerous countries in the developing markets that were not part of the system and had not accumulated considerable reserves. Recently, Russia and China's gold reserves grew strongly. For them, accumulating gold is of strategic importance, a symbol of independence from the dollar, and a process that symbolises their increasing political power.

Repatriating reserves

The other, perhaps more symbolic, change is that several countries have decided to repatriate their gold reserves. Distrust in the international financial system and risks around oversees storage influenced the public debate.

One of the most discussed initiatives was that of the Deutsche Bundesbank. In January 2013, the Bundesbank announced that it intended to ship half its gold reserves back to its own vaults by 2020. This process was actually finished by 2017. The motivations were building and maintaining trust in the domestic financial system and free storage of the precious metal. The Bundesbank did this transparently, with open communication reinforcing public trust.

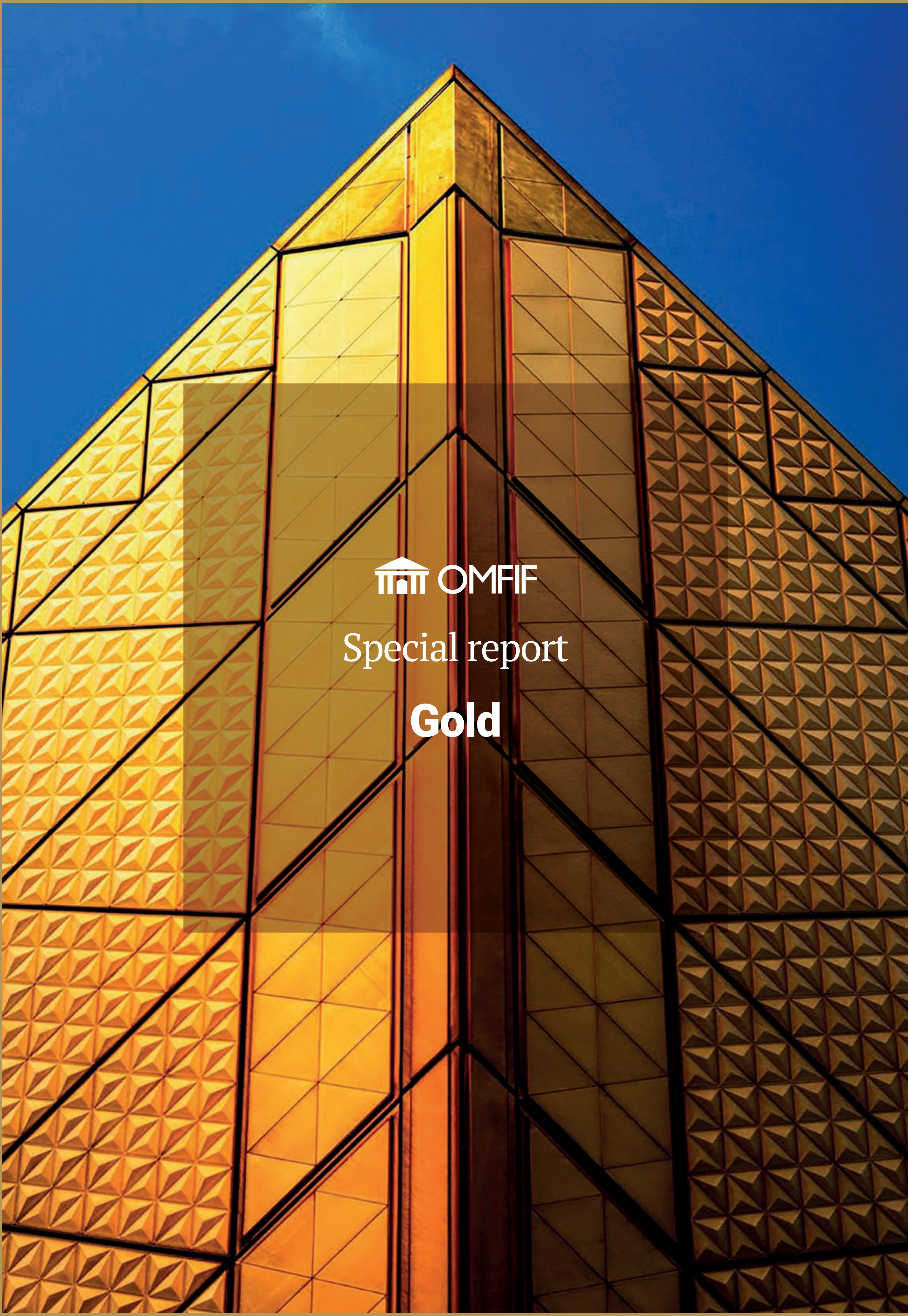
Gold, as a traditional reserve asset free from default risk, is regaining its strategic role. It is an asset that can strengthen trust vis-à-vis a country both domestically and internationally. One could say that central banks have returned to their roots. Moreover, gold is a safe and liquid asset that has a low correlation with other asset classes, offering diversification benefits.

Gold in Hungarian central bank reserves

After studying the trends described above, Magyar Nemzeti Bank decided to repatriate its gold reserves from London. The bank is of the view that gold reserves – stored within the country – not only serve as a defence in extreme market conditions, they also increase trust in normal periods and lend stability to the economy. Therefore, owning (and storing) gold is not only an investment, but also an economic strategy consideration.

Based on the experience of the financial crisis, and global geopolitical uncertainties, it has become important again for central banks to keep their gold reserves close to home.

Dániel Palotai is Executive Director and István Veres is Treasurer at Magyar Nemzeti Bank.



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Special report

Gold

Glittering demand for gold

Central bank holdings of the yellow metal have been growing since 2008 and are now at their highest level since the 1990s. However, purchases sit within an increasingly complex market and have been dominated by just a handful of central banks over the past few years.

Central banks added more than 371 tonnes of gold to their reserves during 2017, boosting total holdings by around $170bn. This brings the value of gold held by central banks and official institutions to $1.4tn (see Figure 1). In contrast, central banks hold $11.4tn of foreign exchange reserves, almost 63% of which are in dollars, followed by euros at 20%.

Central bank gold holdings, estimated at almost 31,800 tonnes, have been growing since 2009-10, after a selling spree that began in 1970. Current holdings are at their highest level since the 1990s, although last year showed the smallest annual increase since 2010, when central banks bought just 79 tonnes. Throughout the year, gold prices rose by 13%, boosting returns.

Net purchases have been dominated by just three emerging market central banks over the past few years: Russia, China and Kazakhstan (see Figure 2). Purchases by other emerging market central banks have moderated since the highs reached after the 2008 financial crisis, while gold holdings by advanced economies are mostly stable.

Motivation for purchases

These varied patterns of accumulation reflect different motivations for holding gold. Though Russian purchases started growing in 2008 in keeping with a broad-based trend among central banks worldwide, the pace increased substantially after 2014. This was spurred by political and economic pressures and financial sector sanctions the West imposed on Russia.

Attempts to boost non-dollar assets, especially one like gold that is highly liquid and can be sold to meet short-term balance of payments pressures or to stabilise the budget against a backdrop of continued low oil prices, makes this an attractive investment.

The rise in China's purchases since 2009 reflects Beijing's ambition for greater diversification and its desire to move away from dollar assets, which make up the majority of its reserves. China's push to internationalise the renminbi also benefits from the currency being backed by substantial gold holdings, in the same way that the dollar's reserve status is aided by the huge amounts of gold US monetary authorities hold.

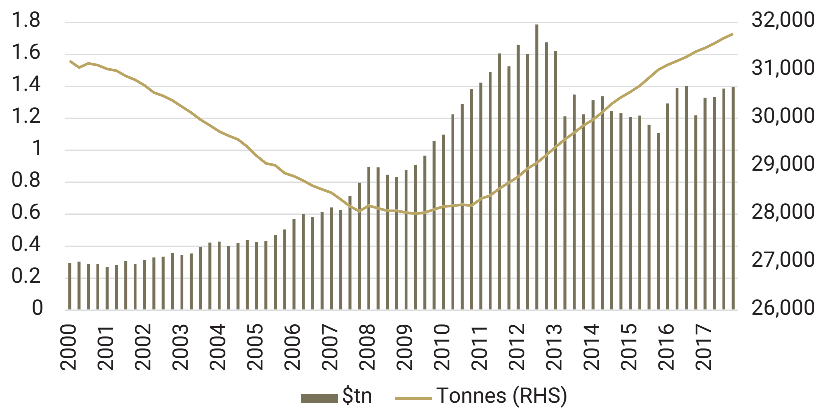
Most purchases by other central banks are small (less than 0.8 tonnes per year per institution on average) and reflect a more prosaic attempt to combat uncertainty over the main reserve currencies. The euro, yen, sterling and dollar have each fluctuated in value over recent years.

Large-scale central bank quantitative easing has weakened currencies in Europe and Japan, while political events including the UK's decision to leave the European Union and the possibility of a US-initiated trade war have weakened sterling and the dollar over the last 12-24 months, along with a number of Asian currencies.

Artificially depressed interest rates on certain countries' assets, driven by central bank actions, have spurred a shift into gold, which is nobody's liability and which protects against country risk and insufficient premiums on traditional bonds.

Figure 1: Highest gold holdings since 1990s

Gold holdings by central banks, $tn and tonnes

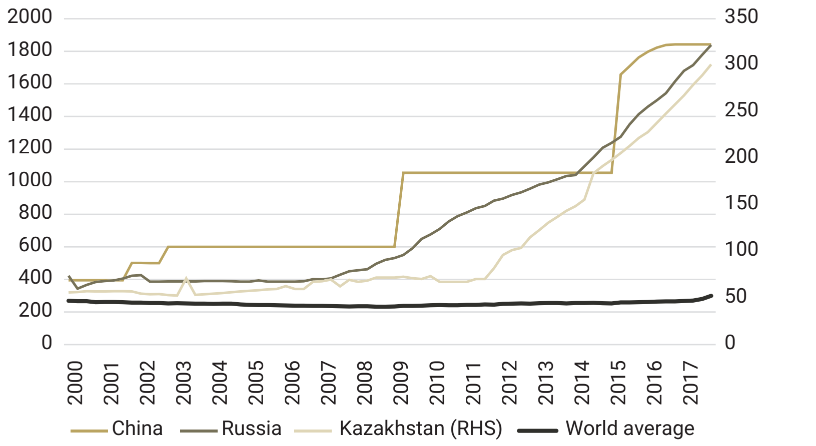


Source: World Gold Council, GFMS, OMFIF analysis
Note: Data on gold holdings are based on estimates that may not match other sources owing to differences in accounting methods

> "Artificially depressed interest rates on certain countries' assets, driven by central bank actions, have spurred a shift into gold, which is nobody's liability and which protects against country risk and insufficient premiums on traditional bonds."

Figure 2: Net purchases dominated by three central banks

Gold holdings by national central banks against world average, tonnes



Source: World Gold Council, International Monetary Fund, OMFIF analysis

“The prospect of higher inflation and rising interest rates in the US creates additional demand for gold, both as a hedge against inflation and to protect against financial instability spreading from highly indebted emerging economies.”

The prospect of higher inflation and rising interest rates in the US creates additional demand for gold, both as a hedge against inflation and to protect against financial instability spreading from highly indebted emerging economies.

Russia overtakes China

Among central banks there was strong demand from Russia (224 tonnes), Turkey (86 tonnes) and Kazakhstan (43 tonnes) throughout 2017 (see Figure 3). Russia has been the largest or second-largest buyer of gold for each of the last eight years. Since 2009 it has added 1,190 tonnes to its reserves, far more than China, the second-biggest buyer over the period with 789 tonnes. Russia's year-end holdings of 1,839 tonnes amount to almost 18% of its total reserves.

Turkey's purchases of 86 tonnes add to the 102 tonnes deposited at the central bank by commercial banks over the year as part of the reserve option mechanism. This government policy encourages retail investors to deposit their gold at commercial banks, which is then stored on the central bank's balance sheet, in order to boost the use of gold within the financial system.

The central bank's actions reflect a return to net purchases after almost six years in which Turkey did not add to its gold reserves. Since 2011 the lira has faced significant foreign exchange pressure following the start of the Syrian civil war. At the end of the year the central bank held over 200 tonnes of gold.

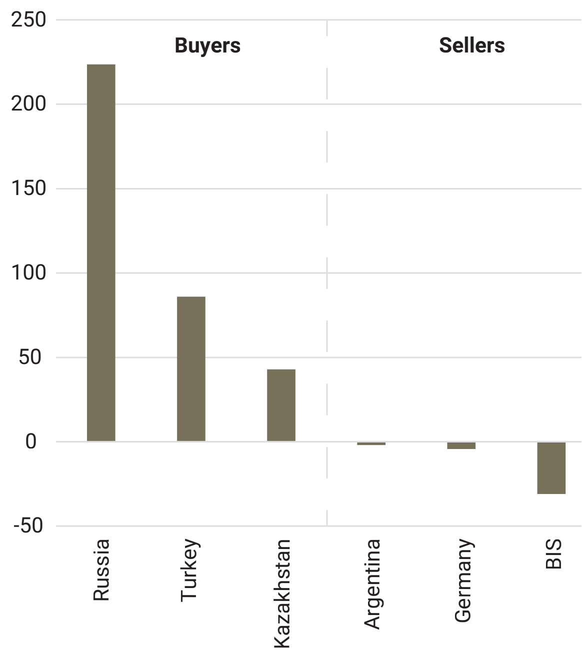
Kazakhstan has been in the top three central banks by gold increases in each of the last five years. Its 43 tonne increase in 2017 was the second highest after the 48 tonnes it bought in 2014. Official holdings have increased 267% since 2011, although some of this is a result of swaps. It holds 301 tonnes of gold, which makes up almost 41% of its total reserves.

Kazakhstan is a significant gold producer and has banned exports to build up its reserves, although in 2017 the central bank announced it would start selling small gold bars domestically to create a more liquid market.

China has reported no purchases since October 2016, despite having made some of the largest increases over the preceding few years. This may reflect a reversal of the People's Bank of China's heightened transparency in the run-up to the renminbi's inclusion into the International Monetary Fund's special drawing

Figure 3: Russian, Turkish central banks lead purchases

Top three gold buyers and sellers in 2017, tonnes



Source: World Gold Council, International Monetary Fund, OMFIF analysis right composite currency in October 2016. This led to quarterly data on gold holdings being released between 2015 and late 2016, a practice that has since been stopped.

While official reserve holdings have not seen a reported increase over that time, not all of China's gold is held at the central bank. For reasons of secrecy some is held off balance sheet and purchased over the counter rather than via an exchange. While Russia's gold holdings overtook the PBoC's in early 2018, according to official data, that may not reflect the true amount of gold China holds.

Central bank sales over the year were minimal. The biggest single seller was the Bundesbank, which sold more than four tonnes of gold for its coin-minting programme. Holdings by the Bank for International Settlements declined by a net 31 tonnes, reflecting sales and swaps undertaken on behalf of its members.

Market developments

Over the last few years the composition of demand has shifted (see Figure 4). Central banks' share of total gold demand fell to 8% in 2017, from 14% in 2013. Gold investment products, led by ETFs and, more recently, retail gold products in China, Japan and elsewhere in Asia, have driven year-on-year swings in demand, though this has been erratic (see Figure 5). In 2013, ETFs accounted for sales of 912 tonnes (down from net purchases of 306 tonnes the year before), while in 2015 they purchased 547 tonnes (up from net sales of 125 tonnes the year before). These are bigger inter-year swings than from any other source of demand.

Such investors have different motivations for buying gold than traditional buy-and-hold institutions such as central banks. They look for other market signals than jewellery and technology producers, who rely on the metal as a raw material. A growing share of gold demand from hedge funds, ETFs and others could make prices more volatile and sensitive to monetary policy announcements.

The rapid growth of Chinese gold retail investment has been driven in part by volatility in China's stock and property markets, which are the main alternatives for domestic investors. While Chinese markets have been calm in 2017 and into 2018, high levels of debt and government-led economic reforms that may moderate growth in the years ahead mean property and stock markets could be hit, potentially increasing demand for gold.

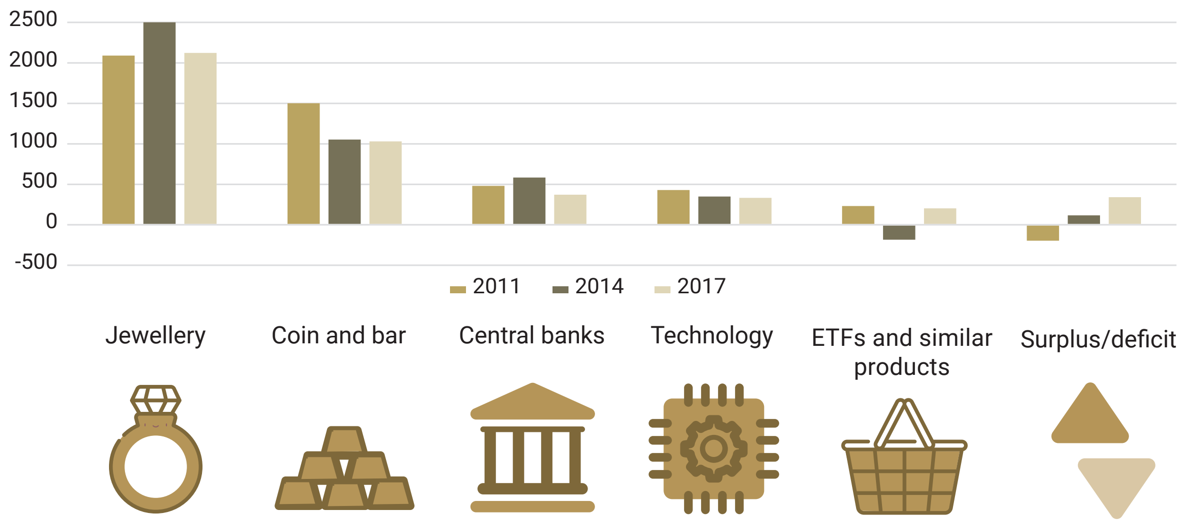
Jewellery, the biggest single source of demand for gold, faces opposing forces in the months and years ahead. India, which vies with China for the position of the largest gold market, has benefited from four years of low prices for oil and other commodities, of which it is a large net importer. Private consumption, including gold demand, has been boosted by falling inflation over the last few years, which is, in part, a result of lower import prices. As a net importer, China has also benefited from this trend.

However, oil prices have risen above $75 a barrel so far this year, and are 30% above the December 2016 level. Along with a stronger dollar as US interest rates rise, this could mean that higher dollar-denominated commodity import prices reduce Indian and Chinese spending power, which will affect gold demand.

A rise in oil prices could, however, lead to higher demand for gold in the Middle East, where it has fallen substantially over the

Figure 4: Decline in central bank share of gold demand

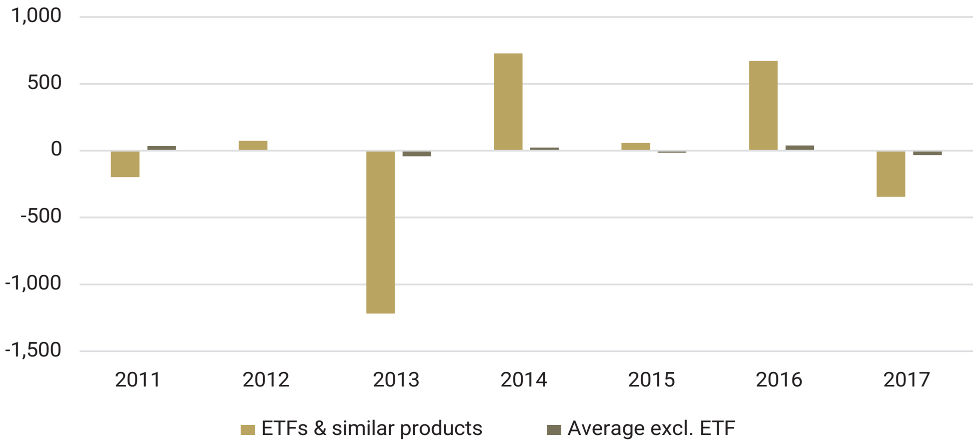
Sources of gold demand, annual net purchases, tonnes



Source: World Gold Council, OMFIF analysis

Figure 5: ETF demand driving large inter-year swings

Year-on-year change in gold demand, ETFs vs. others, tonnes



Source: World Gold Council, OMFIF analysis

last few years. Total Middle East consumer demand fell by 42% between 2013 and 2016, before recovering slightly in 2017. This was led by declines in Iran, Saudi Arabia and the United Arab Emirates, which are among the most oil-dependent countries in the region. Rising oil prices could push up demand for jewellery and ceremonial uses of gold, as well as retail investment.

Outlook for gold

Central bank purchases sit within an increasingly complex market for the yellow metal, in which alternative sources of demand, new investment products and differing dynamics among investors are playing a bigger role.

Greater demand for reserve asset diversification among central banks, combined with the risk of higher inflation resulting from tax cuts and trade disputes among the US and its largest trade partners, mean gold accumulation is likely to persist. Fluctuating values among the main reserve currencies, heightened by central bank divergence, provide further impetus.

Latest data from 2018 show total gold demand in the first quarter was the lowest in 10 years, led by weak investment demand from all sources except US ETFs, where stock market volatility and rising inflation expectations lead to higher inflows.

Central banks, by contrast, had a strong start to the year. Net purchases were almost 117 tonnes, above the 115-tonne quarterly average seen since central banks became net purchasers in 2009-10, and 42% higher than the previous year. Fitting the pattern of the last few years, this was driven by a small number of institutions buying gold as part of a geopolitical hedge, boosting gold's status as a strategic asset.

The author of this report is Ben Robinson, Senior Economist at OMFIF.

Europe is Islamic finance's next frontier

The asset class's potential growth is underpinned by fast-expanding ties with Islamic finance hubs, a more sharia-friendly regulatory environment, an increasing Muslim population and low penetration of Islamic finance products.

Nikhil Rathi
London Stock Exchange

The international securities market gives issuers access to London's deep, liquid pool of international capital through a customer-focused admission approach.

According to a 2016 report by Thomson Reuters and the Islamic Corporation for the Development of the Private Sector, global Islamic finance assets are expected to reach $3.5tn by 2021. While Gulf Co-operation Council countries and Southeast Asia have largely driven the development of Islamic finance, Europe is the next frontier. The asset class's potential is underpinned by fast-expanding ties with Islamic finance hubs, a more sharia-friendly regulatory environment, an increasing Muslim population and low penetration of Islamic finance products.

The London Stock Exchange Group is playing a key role in fostering this growth. In 2014, the UK became the first western country to issue a sukuk, a financial instrument structured in such a way as to generate returns for investors without infringing on Islamic law. This landmark transaction contributed to London becoming the western centre of expertise in Islamic finance. The UK's leading position is reflected in the broad range of sharia-compliant instruments and indices available across the LSEG.

FTSE Russell, the LSEG's global index provider, has created a sharia-screened collection of investable stocks that underpin a number of innovative indices. In 2008, the FTSE Shariah Global Equity Index Series was launched, designed to be the basis of sharia-compliant investment products that meet the requirements of Islamic investors across the world. The Russell-IdealRatings Islamic index similarly offers investors an accurate and complete global equity market index that reflects established sharia investment guidelines. The Citi Yield Book Sukuk index, recently acquired by FTSE Russell, measures the performance of global dollar-denominated, investment-grade sukuk.

There are also three sharia-compliant exchange traded funds listed on the London Stock Exchange.

Sharia-compliant offerings could be a particularly attractive source of alternative capital for Islamic entrepreneurs and fast-growing companies. The LSEG has long understood the power of small and medium-sized enterprises to drive innovation, job creation and economic growth. In 2012, we launched Elite, our international business support and capital-raising programme. Today there are over 700 international companies in the programme.

In April 2016, Elite began operating in Morocco, together with the Casablanca Stock Exchange. Companies in the Moroccan Elite programme learn about Islamic finance and working with the local investor community. In February 2018, Elite was introduced in Saudi Arabia, in partnership with Monsha'at, the Saudi SME authority.

Elite Club Deal, an online private placement platform, was launched in 2016 for Elite companies and professional investors. The platform can handle a number of deal structures and sharia-compliant offerings, alongside traditional bank finance. According to a report by the International Finance Corporation, there is a cumulative SME funding gap of between $8.63bn and $13.20bn across countries in the Middle East and North Africa.

The importance of sukuk

It is the sukuk sector that is emerging as the pillar of Islamic finance. The asset class represents 17% of the Islamic finance industry and is anchored by sovereign issuers, including from the UK, Gulf and Southeast Asia. Increasing standardisation, more Islamic liquidity seeking sukuk instruments and deeper global familiarity with the product are propelling the growth of the market. Unlike conventional bonds, sukuk products allow issuers to tap into both the traditional Islamic and western institutional investor communities. As the most international exchange, the LSE is ideally suited to ensure a global investor base for these products.

The international securities market gives issuers access to London's deep, liquid pool of international capital through a customer-focused admission approach. The LSE has welcomed 67 sukuk issuances, raising more than $50bn for issuers.

While regional exchanges are particularly suited to attracting traditional Islamic finance, the London-Dubai dual-listed Islamic Development Bank sukuk transactions are testament to the LSE's ability to enhance global investor confidence.

Emirates, the airline that raised $913m through a sukuk issuance in 2015, highlights the LSE's central role in promoting Islamic finance. The transaction was a triple first. It was the first sukuk certificate guaranteed by an export credit agency; the largest debt capital markets offering to date, conventional or Islamic, in the aviation sector with an ECA guarantee; and it was the first time a sukuk had been issued to raise finance prior to the delivery of an aircraft.

Liquidity in the market is still a concern, particularly as demand generally outstrips supply. The LSE has developed highly liquid and transparent electronic fixed-income order books that allow primary and secondary access, and trading for international investors. In 2015, the LSE launched a dedicated sukuk segment on its fixed income markets. As sukuk issuers raise capital internationally, it is imperative that stock exchanges can provide platforms to support liquidity.

Green sukuk

There is a strong link between sukuk issuance and the politics and economics of sustainability. The UK is playing a leading role in financing the green economy. Sustainable financing mechanisms are funding environmental and social infrastructure projects. There are 64 green bonds listed on the LSE, which have raised $20bn. This includes the first green bond from the Gulf region, issued by the National Bank of Abu Dhabi, which raised $587m in London last year.

As global infrastructure requirements grow, sukuk products are considered cost-effective instruments to diversify funding. It is widely acknowledged that the broader principles of Islamic finance include environmental and social protection. As sukuk financing gains popularity among investors and issuers, the ethical aspects of sharia-compliant financing are increasingly relevant. Owing to the asset-backed structure of most sukuk transactions, the instrument is well suited to green infrastructure and renewable projects, ensuring that the funds raised are only used for designated green purposes.

The UK was recently identified as an important destination for Islamic finance, with the country given an index value of 16.2 (above the global average of 10.3) in the 2017 ICD Thomson Reuters Islamic Finance Development Report. This is the highest ranking among non-Muslim majority countries. Islamic finance is playing a vital role in supporting UK infrastructure development. Funding has been committed to developments such as the Shard, Battersea Power Station regeneration, London Gateway, the Olympic Village and the redevelopment of the Chelsea Barracks.

The UK has more than 20 banks offering Islamic financial services, among them five dedicated Islamic finance banks, $728m net assets of Islamic funds and over 69 educational institutions providing Islamic finance courses. The LSEG's commitment to championing Islamic finance across Europe, and a rare concentration of leading law firms, banks and professional services firms with a specialisation in all aspects of Islamic finance, underpin the UK's success in this sector. ●

Nikhil Rathi is Chief Executive of London Stock Exchange plc and Director of International Development at the London Stock Exchange Group.

Owing to the asset-backed structure of most sukuk transactions, the instrument is well suited to green infrastructure and renewable projects.

OMFIF

Special report

Islamic finance

Building confidence in Islamic finance

The international sukuk market has grown fivefold over the last decade, but remains a tiny fraction of the global fixed income market. Financial institutions and policy-makers must do more to build confidence in this field, which offers great growth potential and a substantial social impact.

The short-term liquidity problems faced by oil-exporting Gulf countries since the collapse in the oil price in 2014 has seen these economies turn to sukuk markets to fill their funding gaps. The fall in the assets under management of Middle Eastern global public investors this year exemplifies how public savings were strained in 2016-17, when the assets of central banks, public pension funds and sovereign funds fell by $24bn.

The increase in sovereign supply of sukuk is supporting market growth. Demand from foreign investors looking to diversify their global portfolios has always been strong. The governments of Saudi Arabia, Qatar and Oman made up the largest issuances in 2017 from public institutions, totalling $33.6bn as they tried to maintain their public expenditure.

GPIs are also issuing sukuk for financing infrastructure projects. The Investment Corporation of Dubai raised $2.7bn through sukuk to finance the expansion and development of Dubai's two international airports. Similar issuances will continue in the Gulf as demand for productivity-enhancing funds increases under the region's economic diversification strategies.

Trends in the global sukuk market

In 2017 sukuk issuance increased by almost 50% and the amount outstanding of these sharia-compliant bonds approached $400bn (see Figure 1). In January 2018 sukuk issuance was 10% higher than a year before. However, although the market has grown fivefold over the last decade, it remains a tiny fraction (around 0.5%) of the global fixed income market.

Malaysia, which issues half of all outstanding sukuk, is the leader in this field, and Saudi Arabia became a market mover in 2017. It made record issuances aiming to bridge the public deficit caused by the 2014 oil price collapse.

Sukuk have become increasingly popular as a form of financing in several other Muslim-majority countries, including Indonesia, Bangladesh, Oman, Jordan and Turkey, which turned to alternative sources of financing following the 2008 financial crisis.

International issues, predominantly from Indonesia and Malaysia, have also risen, reflecting the increasing prominence of the US sukuk market (see Figure 2). Around 50% of sukuk are issued by private companies, which in large part points to the significance of Malaysia's corporate sukuk market.

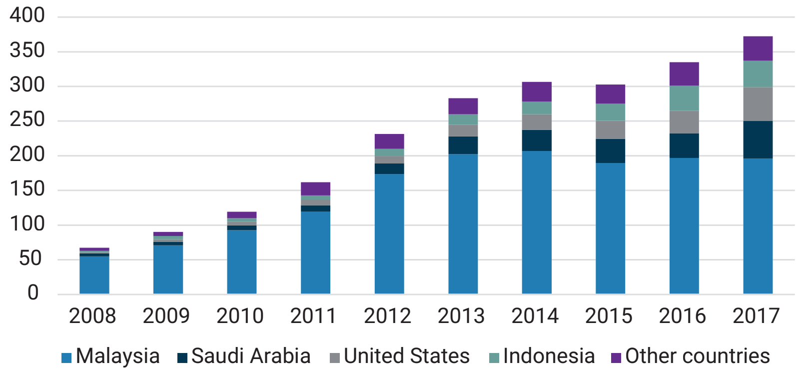
Alongside the rise of other countries' importance, the share of public issuers in the sukuk market increased notably in 2017 (see Figure 3). These are mostly Treasury securities, yet state-owned enterprises, institutions and agencies from various sectors make up one-quarter of public sector sukuk. Some of these have launched truly innovative products, including green sukuk to finance solar projects in underdeveloped regions in Egypt and Malaysia.

Notwithstanding the successes of 2017, the sukuk market still faces numerous challenges, many of which it shares with all fixed income assets, in addition to more market-specific difficulties. One is the probable decline in liquidity and hence demand for sukuk resulting from monetary tightening in the Gulf economies, all of which are pegged to the dollar. This adds to other geopolitical concerns in and around the Gulf, where half of sukuk investors come from. On the supply side, oil exporters might trim down their

> "Multilateral co-operation is needed to overcome a lack of regulatory harmonisation. Governments and regulators from all jurisdictions must form a uniform set of standards, definitions and interpretations of Islamic finance principles."

Figure 1: Sukuk becomes an increasingly attractive form of financing

Amount outstanding of sukuk by country of issue, $bn



Source: Thomson Reuters, OMFIF analysis issuance in the near term owing to the pick-up in oil prices since the end of 2017.

A long-term challenge weighing on sukuk issuance is the absence of standardisation of Islamic finance rules, and issuing sukuk is still a relatively time-consuming and complex process. Standardisation would help avoid confusion among investors and limit the number of cases where compliance under sharia law is questioned. Such disputes, if repeated, may undermine confidence in this market, which otherwise offers great growth potential as well as a substantial social impact.

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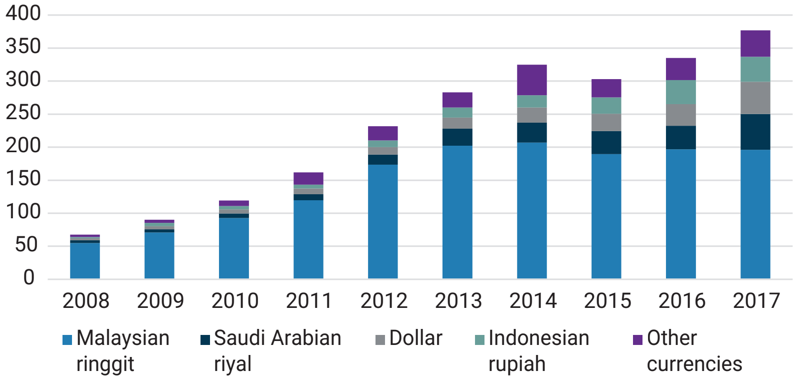
Figure 2: The bulk of sukuk issuance is in local currencies

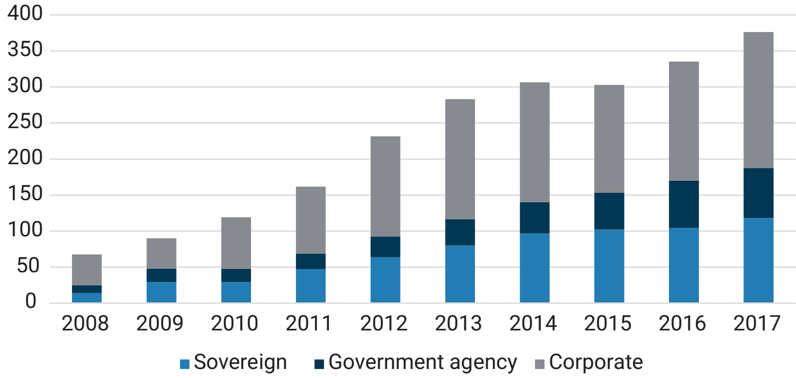
Amount outstanding of sukuk by currency, $bn



Source: Thomson Reuters, OMFIF analysis

Figure 3: Sovereign sukuk issuances gain in importance

Amount outstanding of sukuk by sector, $bn



Source: Thomson Reuters, OMFIF analysis

“Sharia-compliant financial transactions cannot include haram, or ‘forbidden’, products. This extends to investments related to alcohol, tobacco, pork, pornography, gambling or weapons.”

The principles of Islamic finance

Islamic sharia law, meaning a 'clear path to be followed and observed', does not dictate general principles, but aims to deal with specific cases of transactions and sets out rules to govern them.

But its abstract nature complicates Islamic finance. The way such activities are structured varies by jurisdiction and is open to diverse scholarly interpretation.

Prohibitions

The prohibition of riba is the essential principle governing Islamic finance. Riba represents the unearned excess or profit gained in relation to a transaction derived from the passage of time, and extends to all forms of interest.

Other tenets include the prohibition of gharar, which translates broadly to deceit, risk, fraud and uncertainty. Under this principle, all parties to a contract must have all knowledge of its subject matter and financial outcome. Maysir and qimar, which are forms of gambling, are also prohibited. Maysir refers to the gain of wealth by chance, while qimar refers to games of chance where one party benefits at the cost of others. However, sharia law does permit gains based on analysis of data involving the skill of the investor.

Lastly, sharia-compliant financial transactions cannot include haram, or 'forbidden', products. This extends to investments related to alcohol, tobacco, pork, pornography, gambling or weapons.

Sharia-compliant techniques

Profit and loss sharing is the foundation of Islamic financing and aims to promote equitable income distribution. Under the rules of riba, lenders do not charge a premium for their investment, but instead act as a partner to the debtor. The financier receives a share of the profits for their risk. Similarly, if the investment makes a loss, so does the lender.

The two types of profit and loss sharing financing are musharakah and mudarabah. Musharakah involves a partnership where two or more parties provide capital to finance a project or own real estate or a movable asset. Profits are distributed at pre-agreed ratios, and any losses are shared according to the proportion of capital contributed. Mudarabah differs as there is only one investor who supplies the capital to an agent or manager with the aim of generating a profit. The share of profits is mutually agreed before the investment, but losses fall solely on the financier.

Non-profit sharing structures are more common for financing consumer and corporate credit. Murabaha is the most popular form used in trade and asset financing. It is an asset purchase transaction where a party purchases an asset from a third party at the request of a client, and then resells the asset to the client while deferring payment to a pre-agreed date. The sale price includes the original acquisition price and a mark-up.

Ijarah relates to the leasing of an asset. The contract involves the sale of the right to use an asset for a period of time. The leaser remains the owner of the asset and can therefore repossess it in case of non-payment.

Salam is a form of forward agreement where delivery occurs at a future date in exchange for spot payment. The vital condition for salam to be valid is for the payment to be made in full at the time of initiating the contract. To reduce credit risk, the bank has the option to ask for a financial guarantee, mortgage or a third party guarantee.

Istisna is a newer concept, where a commodity can be transacted before it comes into existence. Nothing is exchanged at the time of contracting, though the parties agree to future obligations. Islamic banks typically use istisna to finance construction and manufacturing projects.

Sukuk

Sukuk are bonds that comply with sharia principles. They are structured so that premiums are based on the performance of the underlying asset, meaning they do not infringe riba. The issuer of the sukuk pays the holder an agreed amount of the revenue created from the asset.

For issuers the key advantage of sukuk is cost efficiency when structuring deals. This arises from the lack of supply of sukuk and large investor demand, which drives down yields.

Equally, non-Islamic corporates issuing sukuk can reach Muslim investors seeking sharia-compliant opportunities. For non-Muslim investors, sukuk offer a way to diversify their portfolios.

However, the acceptance of sharia-compliant assets, from both a legal and scholarly perspective, varies by jurisdiction. A lack of harmonisation slows the structuring of new sukuk.

A dispute around Dana Gas exemplifies this field's complexities. The energy firm, based in the United Arab Emirates, announced in June 2017 that it would restructure $700m in sukuk. The firm said it had received advice that the sukuk was no longer sharia-compliant under UAE law. It sought to replace the sukuk with a revised version with a new maturity date and half the profit rates. Creditors accused Dana Gas of simply trying to avoid a default. Such upheaval in the absence of global rules on sharia assets may deter others from investing.

International bodies such as the Bahrain-based Accounting and Auditing Organisation for Islamic Financial Institutions are trying to standardise Islamic financial legal frameworks. Several countries, including Morocco, Malaysia, Oman and Kenya, have already established national sharia boards. However, operational methods still vary and can impede cross-border issuance.

The global community has so far interacted through conferences – organised mainly by the AAOIFI and Malaysia-based Islamic Financial Services Board – to recommend principles and industry best practices. However, these institutions do not have the authority to enforce standards.

Multilateral co-operation is needed to overcome regulatory dissonance. Policy-makers from all jurisdictions must collaborate to form uniform standards, definitions and interpretations of Islamic finance principles. This will engender market stability, which in turn will promote greater investor confidence.

Key transactions in Islamic finance involving public institutions in 2017-18

Institution	Description	Transaction size ($bn)	Date
Government of Saudi Arabia	Sovereign bond issuances by the Saudi Arabian government aiming to finance the budget deficit resulting from low oil prices. Three separate issuances of hybrid sukuk (six major and seven minor), in both dollars and riyal, for five- to 10-year maturities. The April and July 2017 issuances were the largest-ever sovereign sukuk issuances in dollars and riyal, respectively.	27.4	April 2017-January 2018
United Arab Shipping Company (controlled by sovereign funds from Qatar, Saudi Arabia, Kuwait and Iraqi Fund for Reconstruction and Development)/Hapag-Lloyd	Merger between United Arab Shipping Company and Hapag-Lloyd. The new company became the fifth-largest container shipping line. The merger was funded with tawarruq and ijarah facilities provided by Qatar Islamic Bank and Bank of London and Middle East, respectively.	14	May 2017
Government of Malaysia	Sovereign bond issuances by the Malaysian government of similar size to those observed in the corresponding period of the previous year. Twelve separate sukuk issuances, with nine-month to 30-year maturity, based on mubaraha and hybrid structures.	13.6	April-September 2017
Perusahaan Penerbit Surat Berharga Syariah Negara Indonesia	Sovereign bond issuances by a special purpose vehicle incorporated by the Indonesian government with the purpose to issue sukuk. Nineteen separate sukuk issuances on US (wakalah-based) and domestic market (ijara-based).	9.3	Various months of 2017 and 2018
Government of Qatar	Sovereign bond issuances by the Qatari government. Eight separate ijarah-based sukuk issuances, with three- to 10-year maturity, of lower joint size than in the corresponding period of the previous year.	4.2	January and April 2017
Saudi Aramco	The first sukuk issuance by Aramco, Saudi Arabia's state-owned oil company. A hybrid sukuk issued in local currency with seven-year maturity. Part of a programme to raise $10,000 mn.	3	April 2017
Investment Corporation of Dubai	Funding the expansion and development of Dubai's two airports.Two ijara facilities consolidating previously multiple sharia-compliant financing products (ijarah, mubarahah, wakalah and various sukuk structures).	2.7	May and July 2017
Government of Oman	Sovereign bond issuance by the Omani government. Ijarah-based sukuk with the government's land earmarked for development as the underlying asset. First transaction of this sort in Oman.	2	May 2017
Government of Pakistan	Pakistan's Water and Power Development Authority expands power and water access throughout the country. A dual tranche of conventional and Islamic-source project financing was issued jointly by the government and private companies in connection with the Dasu dam project. The Islamic portion was structured in two tranches – a government-backed sukuk and asset-backed syndicated diminishing musharakah, worth $478m and $304m respectively.	1.3	March 2017
Islamic Development Bank	Islamic Development bank is an international Islamic financial institution that fosters economic development in member countries and Muslim communities in accordance with sharia law. This transaction funds development projects for Islamic Development Bank member countries and Islamic communities in non-member countries.	1.1	July 2017
Islamic Development Bank/French Agency for Development	Co-financing agreement to support countries in sub-Saharan Africa. Each party will contribute $500m by 2022.	1	January 2017

Section 4

Appendix

Global distribution of GPIs
Top 750 GPI ranking
Methodology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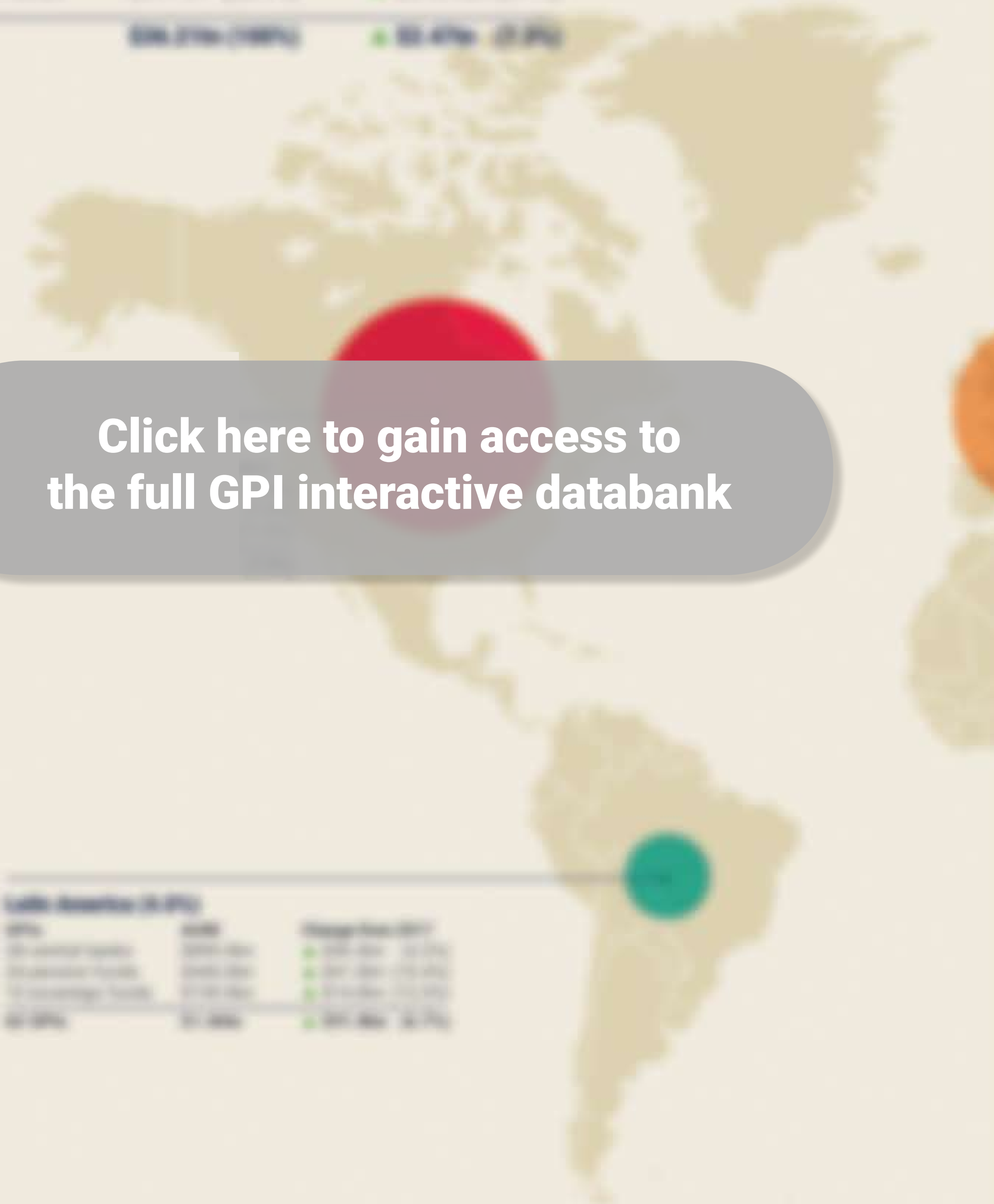
Global distribution of GPI assets



Click here to gain access to the full GPI interactive databank

Top 10 Ranking by region

Africa


1
People's Bank of China
China
GPI rank: 1
4
China Investment Corporation
China
GPI rank: 6
2
Government Pension

Europe

Total assets held by top 10: **$4.47tn**

Latin America Caribbean

Middle East

Total assets held by top 10: **$3.16tn**

North America

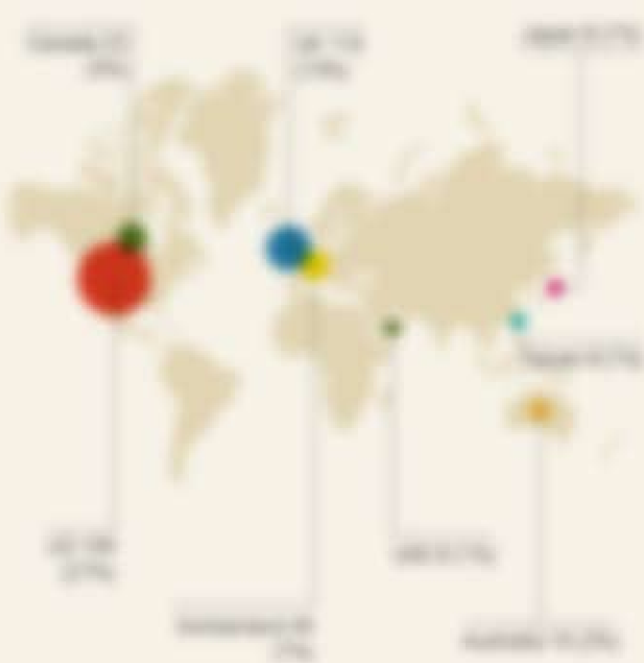
Total assets held by top 10: **$3.92tn**

Top 10 Ranking changes

Biggest fallers

Biggest risers

Distribution of GPI assets



Top 750 Ranking

Rank and change on 2017	Institution	Country	Region	Type	Assets $bn	Assets % change	Year est.
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Notes on data sources and Top 750 entries

Data for assets under management are largely sourced from Global Public Investors' official websites, usually based on annual reports and financial statements. When no such official data are available, OMFIF uses reliable sources from the financial industry and research community.

Most data are taken as of December 2017. In cases where this is not possible, the latest available data are taken. Where figures are not recorded in dollars, an average conversion rate between the reporting currency and dollars of the year in which the report was published is used.

Total assets are used where possible, however in a small minority of cases net assets, fair value or market value are used.

1: Includes reserves managed by China's State Administration of Foreign Exchange

2: Includes assets held by the Japanese Ministry of Finance

3: Manages the Government Pension Fund Global

4: Also owns Central Huijin Investment, which owns government stakes in major Chinese banks. This is estimated to be over $400bn of total assets

5: Includes assets held by the Federal Reserve, Exchange Stabilization Fund and Treasury

6: GIC manages government reserves

7: Temasek manages commercial assets previously owned by GIC and classifies itself as an investment company

8: Includes AP-Fonden 1-4 and 6-7

9: Includes assets held by HM Treasury

10: The PIC is also responsible for investing the assets of the Government Employees Pension Fund

11: Created in 2017 through a merger of Mubadala Development Company and the International Petroleum Investment Company

12: Includes Australian Defence Force Superannuation beginning 2016-17

13: Includes all pension funds under North Carolina State Treasurer

14: Includes Alberta's Heritage Savings Trust Fund

15: 2017 assets differ as members' benefits must now be listed as liabilities due to the 2016 Australian Accounting Standards Board 1056 Superannuation Entities ruling.

16: Régime de retraite des employés du gouvernement et des organismes publics

17: Includes the National Investment Corporation of Kazakhstan and Unified State Pension Fund of Kazakhstan

18: Includes Land Grant and Severance Tax Permanent Funds

19: Replaces the National Pensions Reserve Fund

20: Includes Judges' School, State Patrol, State Cash and County Cash Plans

21: 2017 assets differ as members' benefits must now be listed as liabilities due to the 2016 Australian Accounting Standards Board 1056 Superannuation Entities ruling.

22: Includes ERS, TSB, MERS, SPRBT, JRBT, RIJRFT, and RI Defined Contribution Plan

23: Includes Employees System, Police System and Uniformed System

24: Previously named Fondo Strategico Italiano

25: Incorporated Richmond Council Pension Fund in 2017

Note on methodology

The ranking table includes 750 Global Public Investors.

All figures are in dollars. Throughout the publication 'dollar' refers to the US currency. Figures for the percentage change in assets are calculated using year-on-year figures where possible, generally between December 2016-December 2017.

OMFIF adopts a regional classification: Africa (AF), Asia Pacific (AP), Europe (EU), Latin America Caribbean (LA), Middle East (ME) and North America (NA).

Three broad fund classifications – central banks (CB), public pension funds (PF) and sovereign funds (SF) – integrate different categories of asset managers in an easy-to-assess manner.

OMFIF recognises that not all states are universally recognised as enjoying full political independence or sovereignty. Seven central banks, such as South Korea and Israel, from countries not recognised by at least one UN member, are included. Central banks from 11 countries that are recognised, like Uzbekistan, are excluded as no reliable information is available.

Nine independent states do not have a fully-functioning central bank that holds their reserves. North Korea's foreign exchange reserves are held by the Foreign Trade Bank.

Of the 44 inhabited overseas territories, dependencies or other non self-governing territories, six have central banks and monetary authorities, four of which are included in the GPI ranking (Bermuda and Cayman are not included due to lack of data).

Institutions such as pension funds are deemed public if they fulfil at least one of the following characteristics: they are owned or financed by the state; they serve public employees; or they are constituted as public institutions under public law.

Sovereign funds are institutions owned or controlled by the government and are mandated to manage assets transferred by the government. These assets are derived from balance of payments surpluses, official foreign currency operations, the proceeds of privatisations, fiscal surpluses and receipts resulting from commodity exports. Sovereign wealth funds, a smaller grouping within this category, are contained in the sovereign fund definition.

Sovereign funds generally operate without explicit short-term liabilities and a significant share of their investments are in international assets. They typically fulfil some combination of the following roles: stabilisation fund to insulate the budget and national economy from 'Dutch disease' and volatile commodity prices; savings fund to share wealth across generations; development fund to provide resources for socioeconomic projects; and reserve investment fund to invest excess reserves in assets with higher returns.

Some institutions are grouped to reduce double-counting and eliminate doubts about sectoral overlaps. The most notable examples are: the US, where the term US Monetary Authorities has been used; China, where the holdings of the People's Bank of China include those of the State Administration of Foreign Exchange and other associated institutions; Japan, where the foreign reserves are owned by both the Bank of Japan and the Ministry of Finance; and the UK, where the Treasury's Exchange Equalisation Account owns the Bank of England's reserves.

'US Monetary Authorities' represents a combination of US institutions. The Federal Reserve holds some foreign reserves, while the Exchange Stabilization Fund holds the rest along with US stocks of special drawing rights. The general account of the Treasury holds the US gold reserves and the International Monetary Fund position. The Federal Reserve Bank of New York operates for both the Treasury and the Federal Open Market Committee and holds the Federal Reserve System's foreign exchange.

Central bank reserves include foreign exchange, gold, International Monetary Fund position and special drawing right holdings. Gold valuations are given by the IMF. This does not always match central banks' own valuation of their gold holdings.

Central bank data on page 19 do not include SDRs and may use different valuations to those used in the 750 ranking.

Important note

Figures for years prior to 2017 may not correspond directly to those published in previous editions of *Global Public Investor.* This reflects revisions to and comparisons between 2017 data and past years' figures, as well as changes to the composition of the 750 institutions from year to year because of fluctuations in asset values.

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