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GLOBAL PUBLIC INVESTOR 2021

Head first into the post-pandemic world

Covid and lower-for-longer accelerate GPIs' diversification drive

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GLOBAL PUBLIC INVESTOR 2021

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Global Public Investors – central banks, sovereign funds and public pensions funds – are widening their radius ever further. The policies of 850 institutions with worldwide investible assets of $42.7tn have a profound effect on global markets. They are crucially important for growth prospects, the investment climate and capital markets. They will have a significant role in the post-pandemic global recovery. The 2021 annual edition, the eighth, surveys GPIs' performance and practices across a wide range of investments as well as their activities in the digital economy and sustainable finance.

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With a presence in London, Singapore, Washington and New York, OMFIF is an independent forum for central banking, economic policy and public investment – a neutral platform for best practice in worldwide public-private sector exchanges.

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A MATRIX OF INTERTWINING RISKS

Recovery from Covid-19, the renminbi's rise and climate change are at the top of GPIs' agenda

David Marsh, Chairman, OMFIF

GLOBAL PUBLIC INVESTOR was inaugurated in 2013-14 to track risk management by sovereign institutions around the world in their diverse but overlapping operations. The past year has brought a new dimension to sovereign investment policy. Fresh approaches to liquidity, diversification, investing in China and the green economy have amplified trends already seen before the pandemic, demonstrating once again sovereign investors' boundless capacity for innovation and flexibility. The desire to maintain large reserves to support stability and confidence has increased still further during the pandemic.

The advent of the new administration in the US has had a massive impact on these institutions' behaviour, for three reasons. First, President Joe Biden's fiscal stimulus, allied to continued full-hearted accommodation from the Federal Reserve, has produced a far more vigorous recovery than expected. This has bolstered financial markets around the world, but also sparked expectations that this year's US inflationary blip will turn out to be more than temporary – raising fears of a wrenching correction later, even a full-scale financial crisis.

Second, Biden has in some ways continued Donald Trump's competitively adversarial policy towards China. Despite speculation of a new cold war with China, 30% of central banks polled in this year's GPI survey say they intend to boost investment in the Chinese currency. In promoting the digital renminbi, the Chinese authorities are already laying down a marker of an assault on the dollar's supremacy. Although it still lags far behind the US currency, and remains not fully convertible, in some important ways the renminbi has come of age as a reserve asset.

Third, Biden's espousal of the political dimension of countering climate change has brought the US into the vanguard of the financial campaign towards a zero-emission world, a wave of investments into green economy assets. Reserve managers traditionally require investments to meet standards of safety, liquidity and return. There is now an effective fourth criterion: that these assets serve the purpose of greening the economy.

Diversification into fresh sets of assets is designed to hedge against risks – but below the surface are many trends that give rise to concern. Depressed rates of return in the bond market have propelled central banks' buying of riskier assets such as equities whose valuations in many ways have been distorted by their own policy action.

More generally, central banks have entered a domain where they can be accused of promoting fiscal dominance. Their actions can be regarded as principally geared to help governments manage their much-increased debt rather than safeguard monetary stability. GPIs and the governments and citizens behind them are thus caught in a matrix of intertwining risks.

The most obvious one, but by no means the most frightening, is that a persistent rise in inflation would force the Fed to start tightening credit much earlier than originally expected. This would cause acute dilemmas for monetary authorities around the world faced with a choice of allowing their currencies to depreciate or to raise interest rates with calamitous consequences for their governments' debt management policies. That moment of reckoning is likely to come, sooner or later. It will preoccupy GPIs in the months ahead. ■

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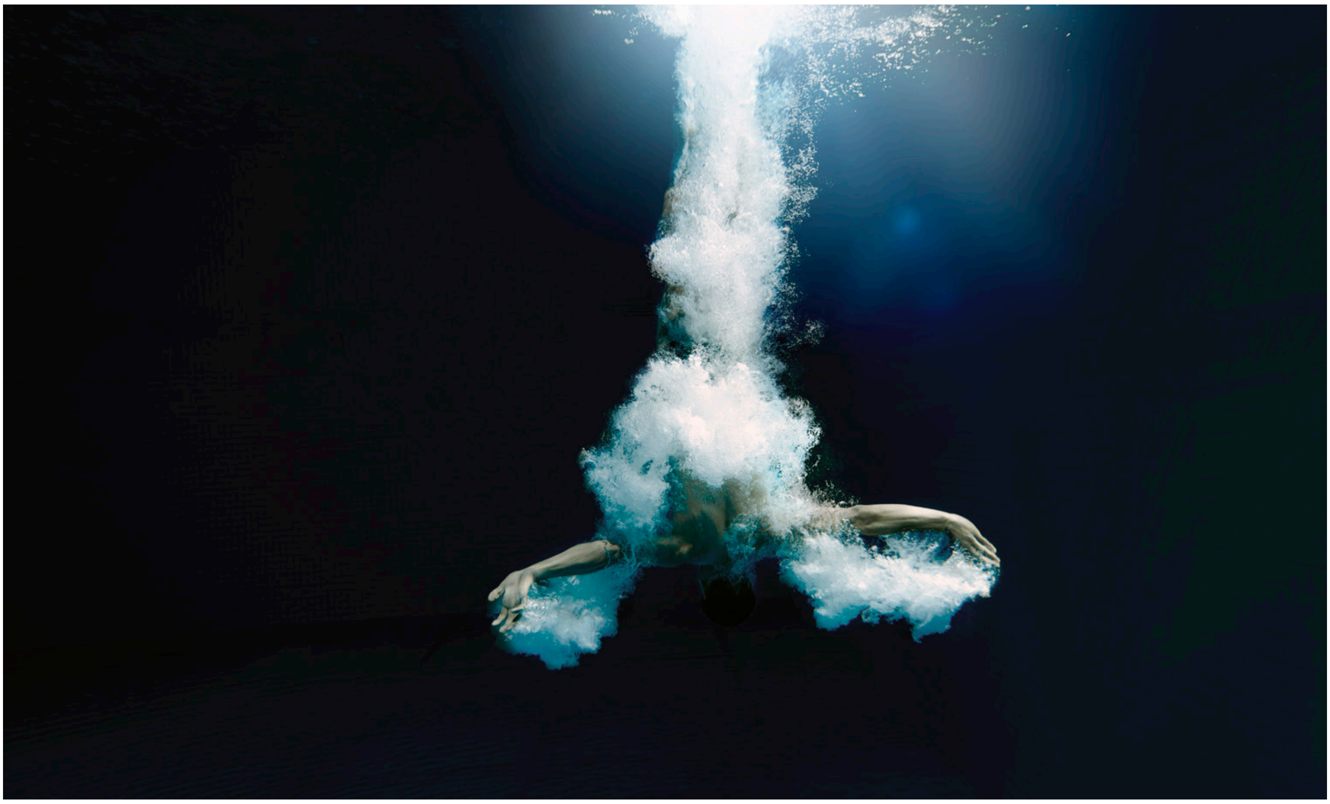
Contributors

OMFIF wishes to thank the following contributors:

HEAD FIRST INTO THE POST-PANDEMIC WORLD

World's sovereign investors, grappling with volatile financial markets and a global economy on the cusp of recovery, are embracing new definitions of asset ownership



CENTRAL BANK INTEREST in renminbi investments has accelerated during the Covid-19 crisis, as reserve managers step up pre-pandemic trends towards diversification, including buying more green and digital assets, OMFIF's 2021 Global Public Investor reveals. Drawing on a survey of over 100 central banks, sovereign funds and public pension funds, as well as internal research and contributions from a range of external asset owners and managers, the report paints a picture of a rapidly changing sovereign investment universe.

A strengthened push to 'green and grow' GPI assets comes as they have reached their highest level ever as of the end of 2020, standing at $42.7tn. Central bank reserves have also risen to record highs, standing at $15.3tn as of the end of 2020, compared to $14tn at the conclusion of 2019, in spite of the pandemic. Public pension fund assets continue to rise, up to $18.1tn from $17.2tn as of the beginning of 2021, with the majority of assets concentrated in North America ($9.1tn) and Asia

Pacific ($4.8tn). This is partly due to stellar returns on riskier assets, such as equities, which experienced a stunning post-pandemic resurgence. The same holds true for sovereign fund assets, albeit at a slower pace. Their assets grew by just under 4% to $9.3tn from $9tn.

This has differed across regions. GPIs in emerging markets experienced considerable declines in total assets, particularly in the Middle East and Latin America where they fell by 2.4% and 0.8% respectively. Losses were concentrated in the United Arab Emirates, Iran and Brazil, the three countries which experienced the largest drops. On the other hand, the US, China and Switzerland grew most, by 19.3%, 12.8% and 11.5% respectively.

Despite the unevenness of asset growth, over 20% of central banks surveyed plan to add to their holdings of equities and corporate bonds, compared to roughly 10% last year. Of public investors, 60% plan to add to their green bond holdings over the next 12-24 months, compared to 45% last year.

Just how much room is left to run for diversification is an open question. The lower-for-longer post-pandemic interest rate environment will no doubt help prolong this push,

$42.7tn

Cumulative assets under management of the top 850 global central banks, sovereign funds, and public pension funds

102

Survey respondents

6%

Weighted average share of central bank assets invested by external asset managers

30%

Share of central banks planning to add renminbi to their reserve portfolios in next two years

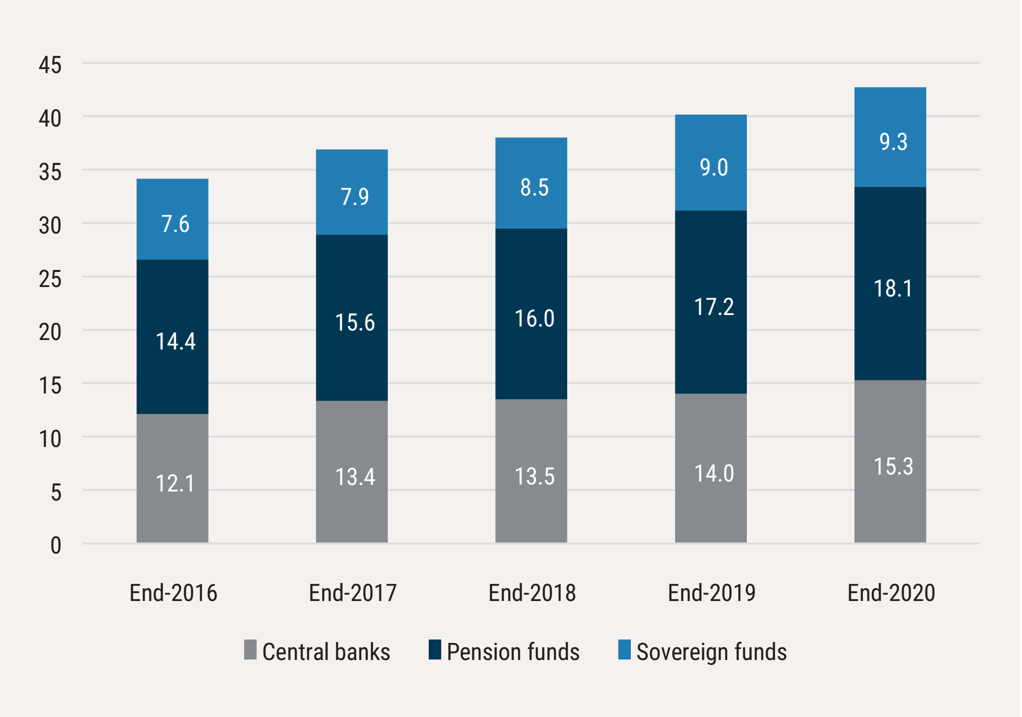
but central banks already hold over $1.4tn in listed equities. As the stock of global foreign exchange reserves continues to swell – a majority of central banks sees a case for continued accumulation – this will no doubt grow, especially as equities performed well as a reserve asset during the Covid-19 shock. But only 60% of central banks said they would be willing to use more than a third of their reserves in the event of a serious currency shock. Will central banks eventually reach a point where the social and opportunity costs of large reserves outweigh the benefits? Should excess reserves be put towards more productive uses?

Public investors have to strike a similarly delicate balance on questions of sustainability. Most invest in green assets, particularly fixed income. But the pandemic has meant that environmental, social and governance factors have exploded as major areas of concern for official institutions, particularly in their discussions with external asset managers. Now, funds want to explore new ways of benchmarking, new scoring methodologies and new approaches to responsible ownership. For central bank reserves managers or stabilisation funds, this poses challenging questions about

1. Reserves growth pushes GPI assets to highest-ever level

Total GPI assets by institution type, $tn

Source: OMFIF analysis



the trade-offs between liquidity, returns and sustainability. Even for large pension funds, far along the ESG curve already, questions of how much and how quickly they can green their portfolios lack definite answers. This tension will play itself out over the coming years.

Debates on active ownership strategies further complicate matters. Only 4% of central banks say they engage in active asset ownership, with a handful of respondents engaging in dialogue with investee companies and participating in multilateral responsible investment forums. But as this changes, questions such as whether market neutrality is compatible with active ownership will come to the fore.

To help navigate these tensions, official institutions often draw on their relationships with external managers, whose expertise and proximity to the market can be critical. On a weighted average basis, only 6% of central bank assets are managed externally. This figure is closer to 38% for sovereign and pension funds. But the reasons external managers are used are common. Drawing on new data as well as conversations with some of the world's largest asset managers, a section of the report explores the dimensions and evolving nature of relationships between asset managers and owners, and the way they will shape the future of public investment.

Looming over the future of these public investors are profound questions of politics, transparency and strategy. For one, this report seeks to unpack official institutions' position as strategic agents by focusing on the role of and reaction to their infrastructure investments. While many institutions have bolstered their investment screening rules in recent years, only 4% of institutions surveyed said they had ever been blocked or discouraged from investing in foreign strategic infrastructure. This trend of seeking greater control and, importantly, transparency extends to central banks as well. Building on a 2019 study, this report examines central banks' activity on social media and seeks to understand how they are leveraging new technologies to reach broader audiences.

The Covid-19 pandemic has underscored and intensified these intertwined trends. This report digs into them and draws meaningful conclusions about best practice for public investment across the globe. ■

21%

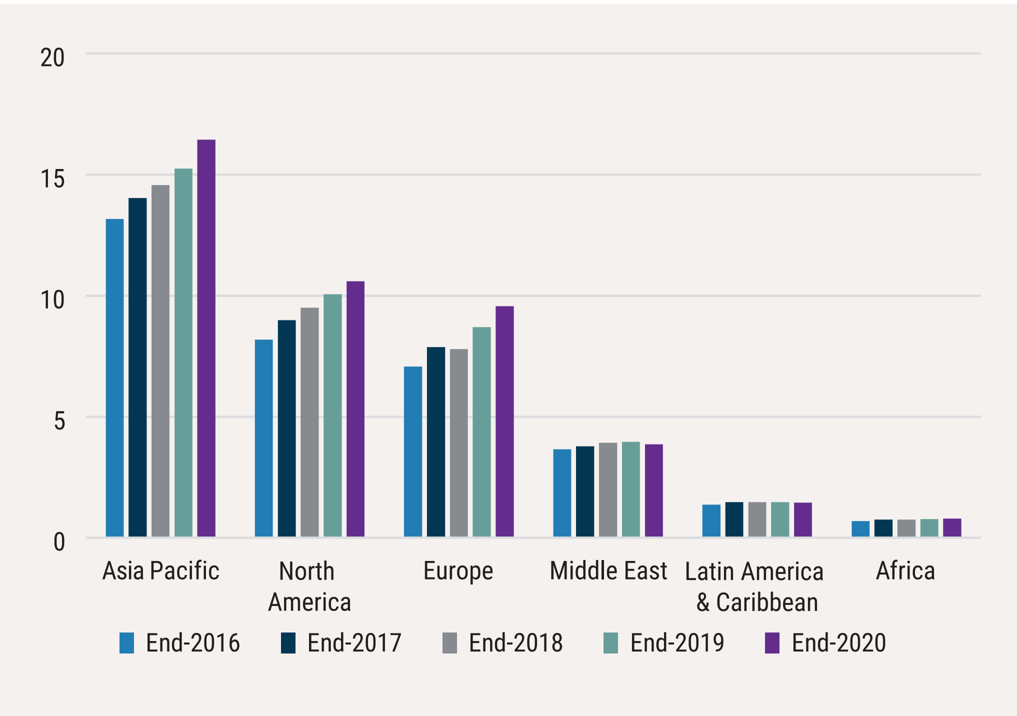
Share of central banks planning to add equities over the coming 12-24 months

4%

Share of surveyed central banks that said they engage in active ownership practices

8%

Share of sovereign and pension funds who have ever been discouraged from investing in foreign infrastructure



2. Europe leads in percentage growth

Total GPI assets by region, $tn, 2016-20

Source: OMFIF analysis

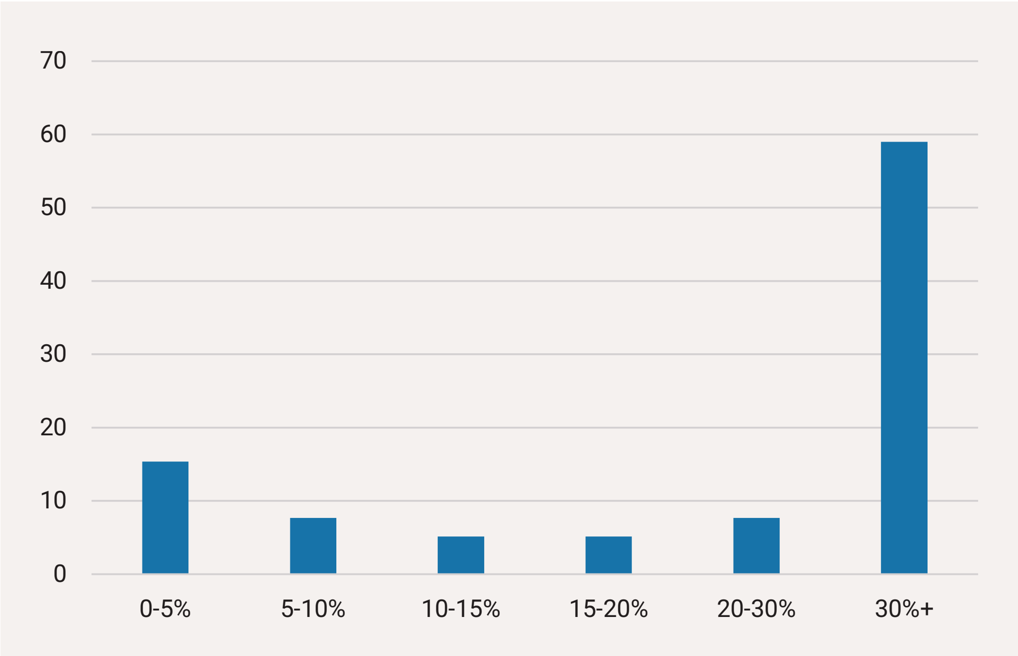
1. What are central bank reserves for?

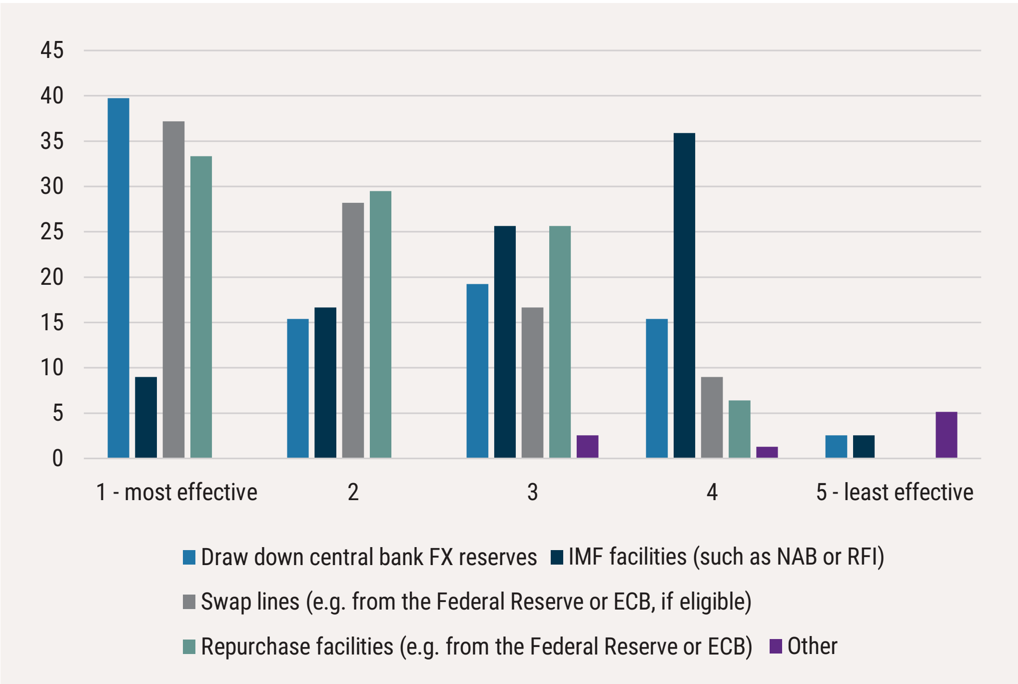
ONLY 59% OF GPI 2021 survey respondents say they would be prepared to use more than 30% of their reserves in the event of a serious shock, raising questions as to whether central banks could make more productive use of their holdings. Drawing down foreign exchange reserves remains the most effective tool in the financial safety net, though many central banks prefer swap lines and repurchase agreements.

Swap lines and the signalling effect of reserves

What is the maximum share of your reserves you would be willing to use in the event of a currency crisis?, %, and Please rank the following elements of the global financial safety net in order of potential effectiveness during a period of stress, %, where 1 = most effective

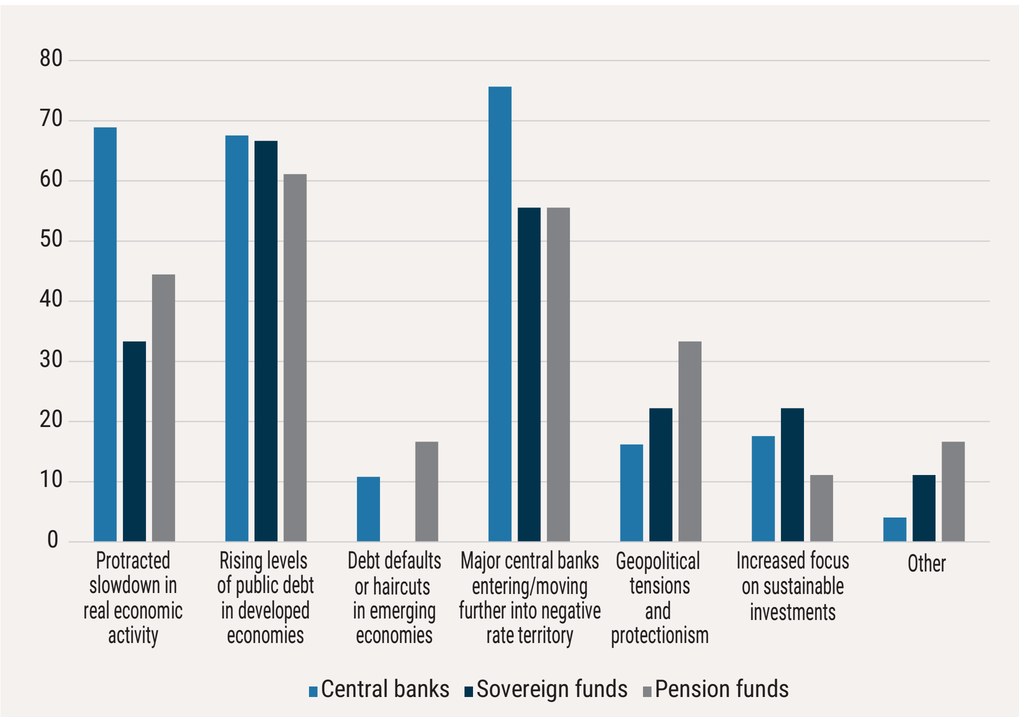
Source: OMFIF GPI survey 2021





2. Covid-19 shock will perpetuate lower for longer and reserve diversification

GPI SURVEY RESPONDENTS identified the continuing low interest rate environment as the most important channel through which Covid-19 is affecting their reserves and portfolio management (70%), alongside post-pandemic debt overhangs and low real economy growth (66% and 61% respectively). Central banks in particular are concerned about the low-rate challenge, and 40% of them said that this would force them to further diversify their foreign exchange reserves.



Low growth, low rates and high debt – three main post-pandemic concerns for public investors

What do you see as the most important channels through which the pandemic and associated policy action is affecting reserves management?, %

Source: OMFIF GPI survey 2021

3. Widespread concern over excess risk-taking and monetary policy

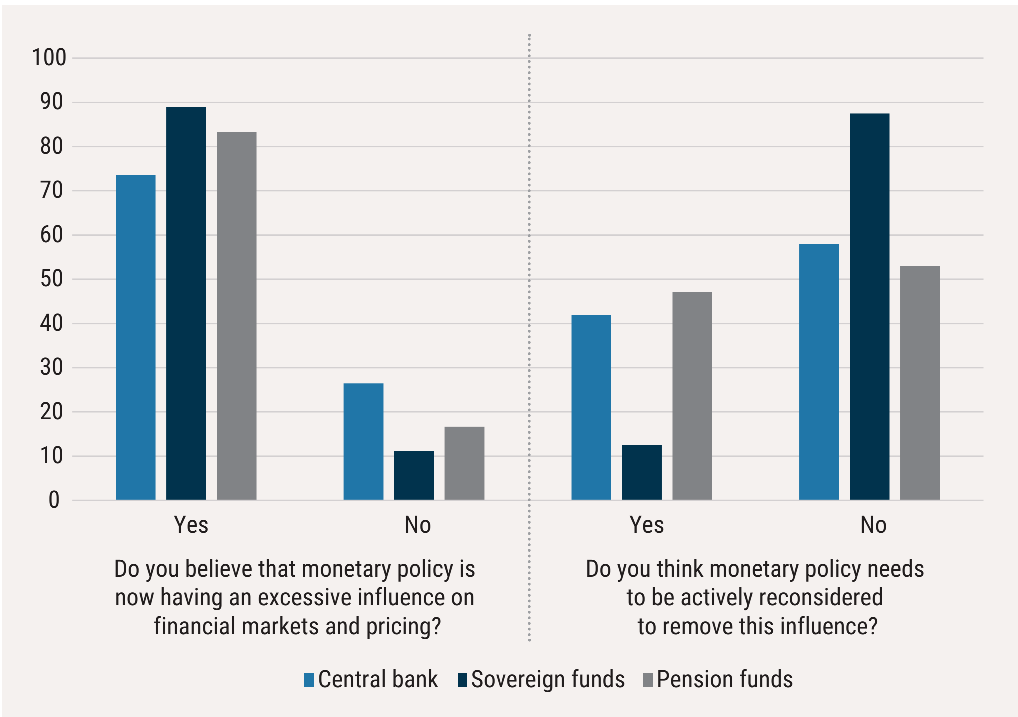
JUST OVER 40% of pension funds feel that their peers are taking on excessive risk, squeezed by factors including return requirements and demographic pressure.

This is in part due to the role of monetary policy, respondents say: 75% of central banks think monetary policy is having an excessive influence on markets and pricing. 'The way central banks are intervening in the market produces substantial changes to the prices of some assets and can lead to financial bubbles,' commented one central bank respondent. But only 40% think policy needs to be reconsidered as a result of this influence. It seems that central banks have only one tool left to use, and they need to use it, despite potential consequences.

Concern about central banks' sway in the marketplace

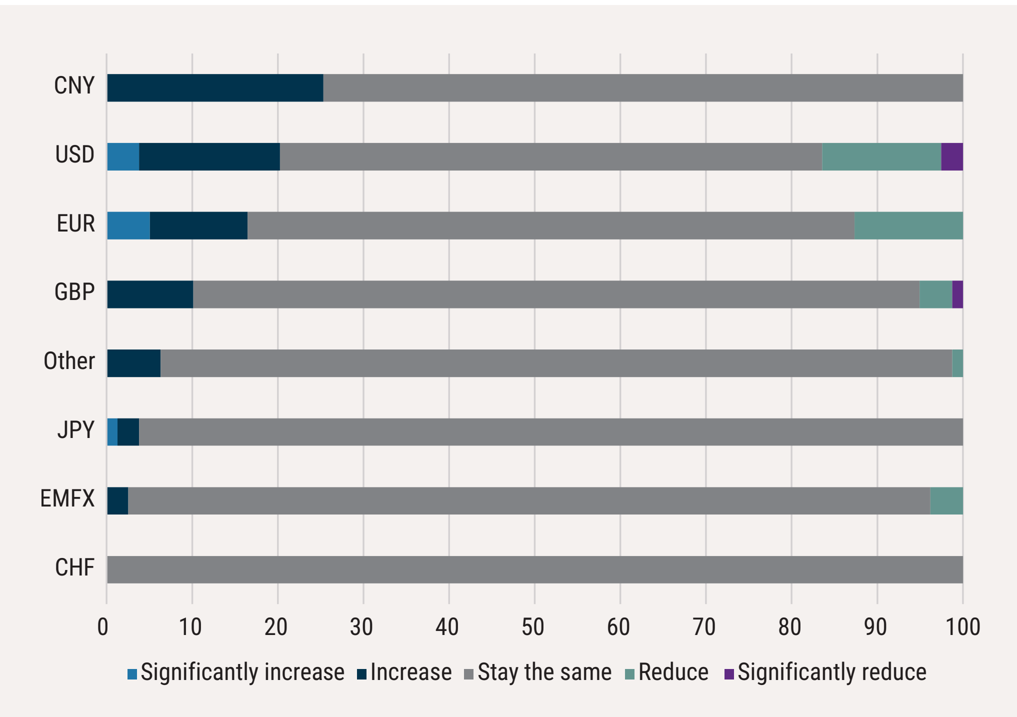
Do you believe that monetary policy is now having an excessive influence on financial markets and pricing?, %, and Do you think monetary policy needs to be actively reconsidered to remove this influence?, %

Source: OMFIF GPI survey 2021



4. Renminbi will rise as a reserve for central banks

THE RENMINBI'S GROWTH as a reserve currency is set to accelerate. Of central bank respondents, 30% plan to add to their renminbi holdings over the next 12-24 months, while 70% plan to increase their involvement over a longer-term horizon. This is particularly the case in Africa, where almost half of central banks surveyed plan to increase their renminbi reserves over the next two years.



Respondents split on classic reserve currencies and renminbi set to grow

Over the next 12-24 months, are you planning to increase, reduce or maintain your exposure to the following currencies?, %

Source: OMFIF GPI survey 2021

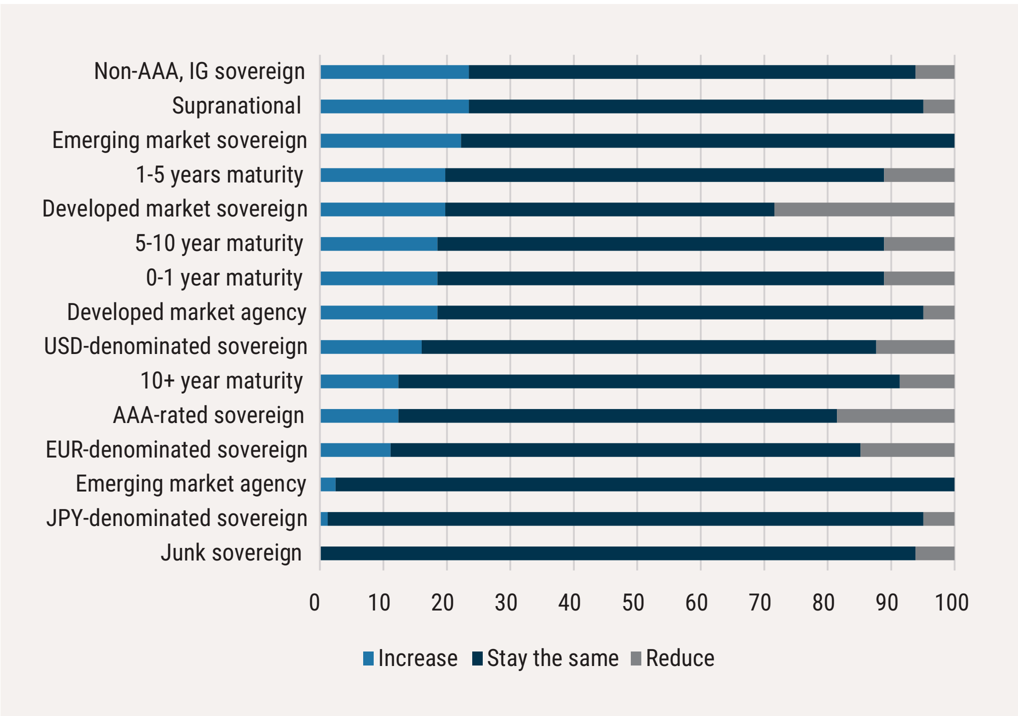
5. Developed market sovereigns on their way out of GPI portfolios

AS EUROPEAN GOVERNMENT agencies look to return the functioning of their bond markets to a more normal environment, less reliant on quantitative easing and central bank asset purchases to fulfil their funding needs, they face a big hurdle. Many GPIs plan to diversify away from higher-rated debt, driven to a large extent by a search for yield. Meanwhile, emerging market sovereigns are set to benefit from GPIs' risk-on trades.

Demand for higher-rated debt is set to fall

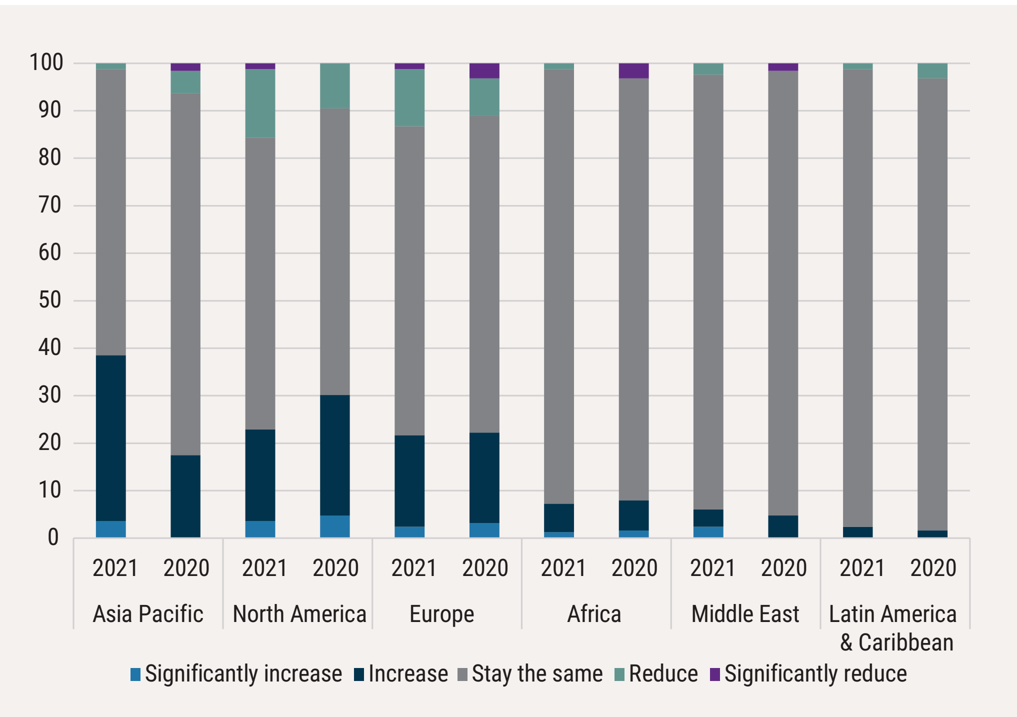
In the next 12-24 months do you expect to increase, reduce or maintain your allocation to government bonds in the categories below?, %

Source: OMFIF GPI survey 2021



6. Asian assets are in high demand

ALMOST 40% OF GPIs plan to increase their exposure to Asia compared to just 15% last year. In contrast, only 8% and 7% plan to add to their North American or European holdings on a net basis respectively. The lower-for-longer interest rate environment appears to be driving public investors away from traditional regions and haven assets and towards newer markets, with China set to benefit in particular.



China-led surge in demand for Asia Pacific assets

Over the next 12-24 months, are you planning to increase, reduce or maintain your exposure to the following regions?, %, 2020 and 2021.

Source: OMFIF GPI survey 2021

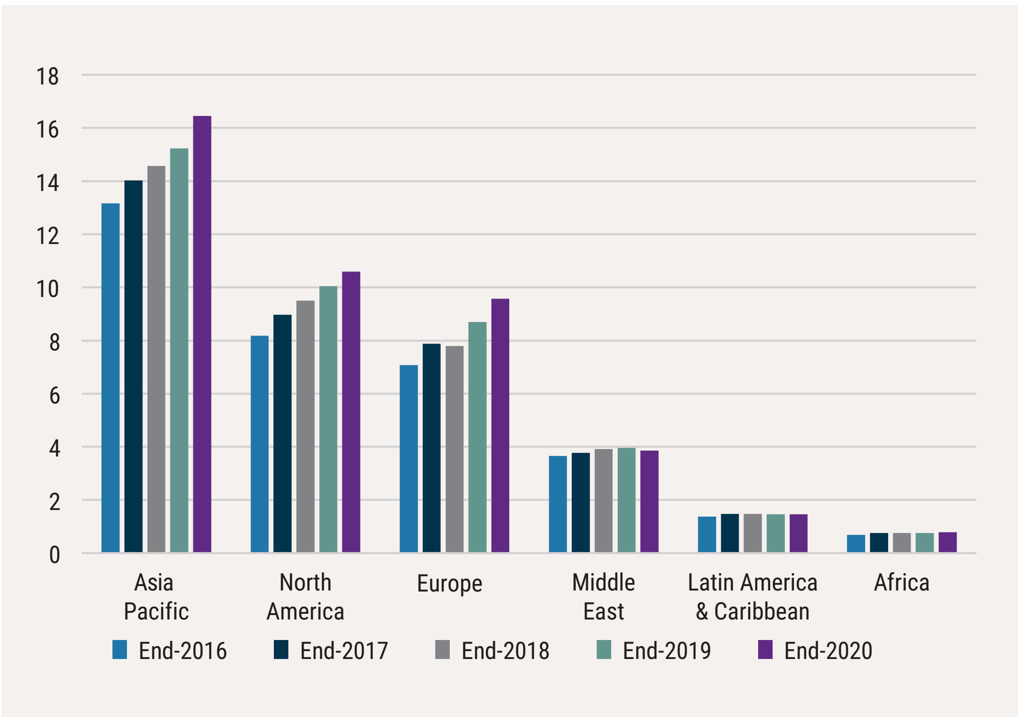
7. Middle Eastern GPIs experience steep asset drops as currency shocks bite

RATTLED BY THE combination of currency pressure and historically low oil prices, Middle Eastern sovereign investor assets fell over the course of 2020 (-2.4% total), driven by declines in central bank reserves (-0.4%) and sovereign fund holdings (-5.1%). While assets fell in total in Latin America as well (-0.8%), central bank reserves actually rose over the course of 2020 (3.3%), driven in part by a precautionary build-up in countries such as Ecuador, whose reserves more than doubled compared to end-2019.

Pressures on emerging markets drive assets lower

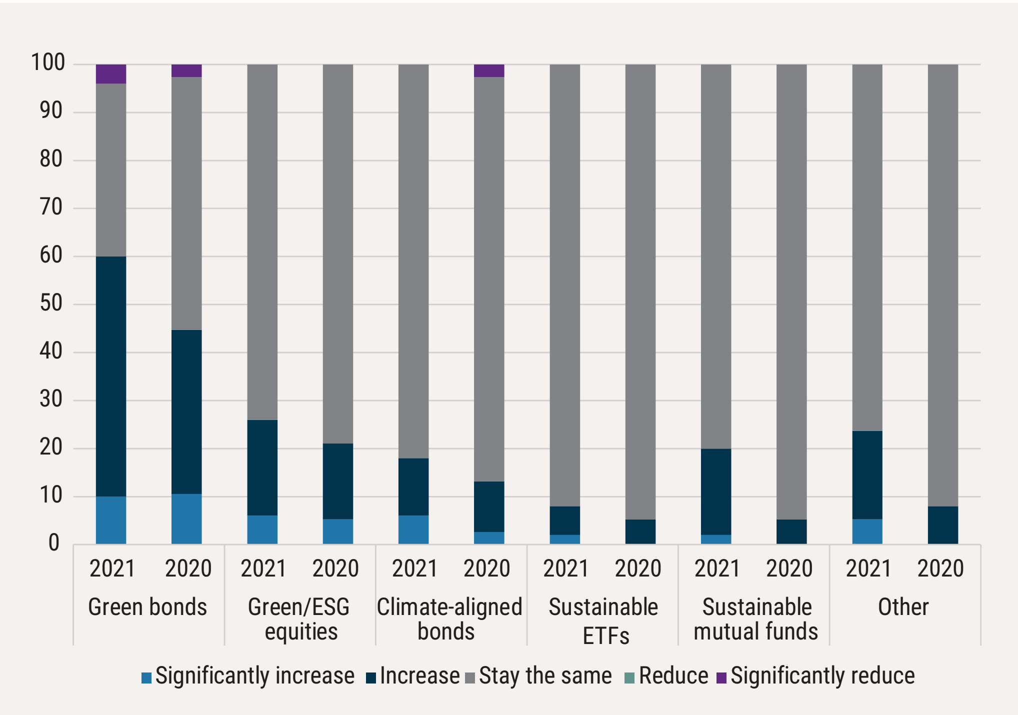
Total GPI assets by region, $tn, 2016-20

Source: OMFIF GPI survey 2021



8. Central banks boosting green investment but slow to implement ESG policies

MORE THAN 90% of central banks surveyed have already invested in green bonds as part of their reserves; 60% are planning to increase their holdings, compared to only 45% a year ago. However, 50% of central banks still don't implement any environmental, governance and social considerations in their portfolios, indicating there is still some way to go for improving sustainability in sovereign portfolios. They do not need to look too far for examples of how to do so: 10% of central bank reserve managers say sustainability is one of their most important investment factors.



Pace of green bond investment accelerates

Are you planning to increase your allocation to 'green' asset investments over the next 12-24 months?, %, 2020 and 2021

Source: OMFIF GPI survey 2020 and 2021

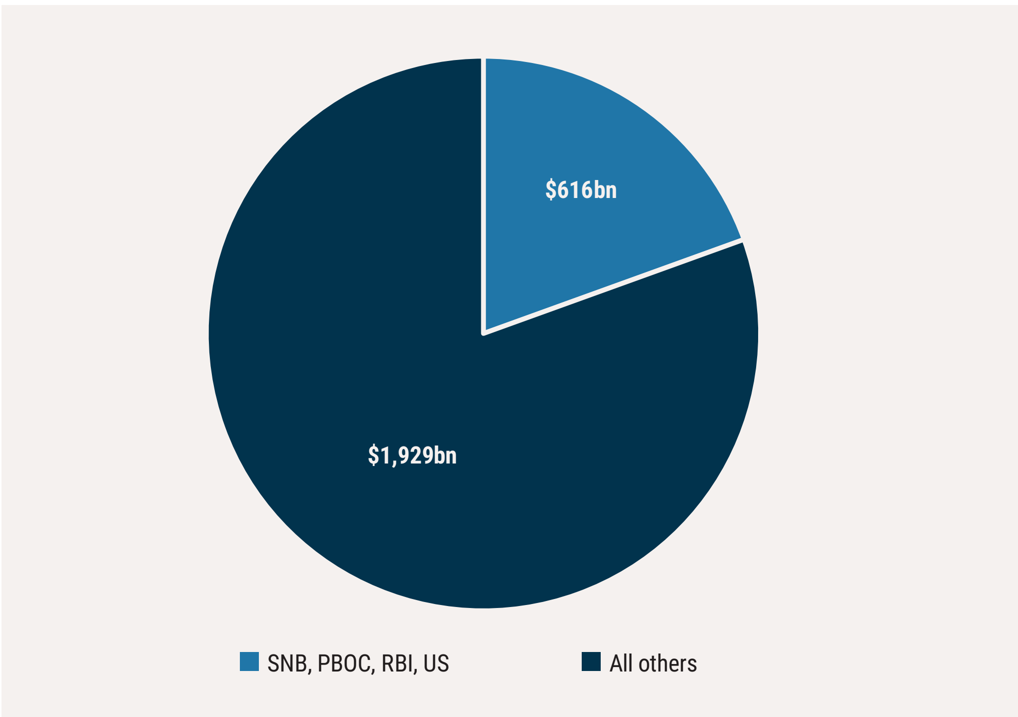
9. Just four central banks make up almost 20% of asset growth

THE GROWTH IN total assets is highly concentrated among a small sample of funds, this report reveals, with four entities – the Swiss National Bank, the People's Bank of China, the Reserve Bank of India and the US Monetary Authorities – making up 24% of growth in total assets under management among GPIs. The Swiss National Bank's assets alone grew by roughly $229bn, or 27%, driven by the strong performance of its US equity holdings.

Gains concentrated among largest asset owners

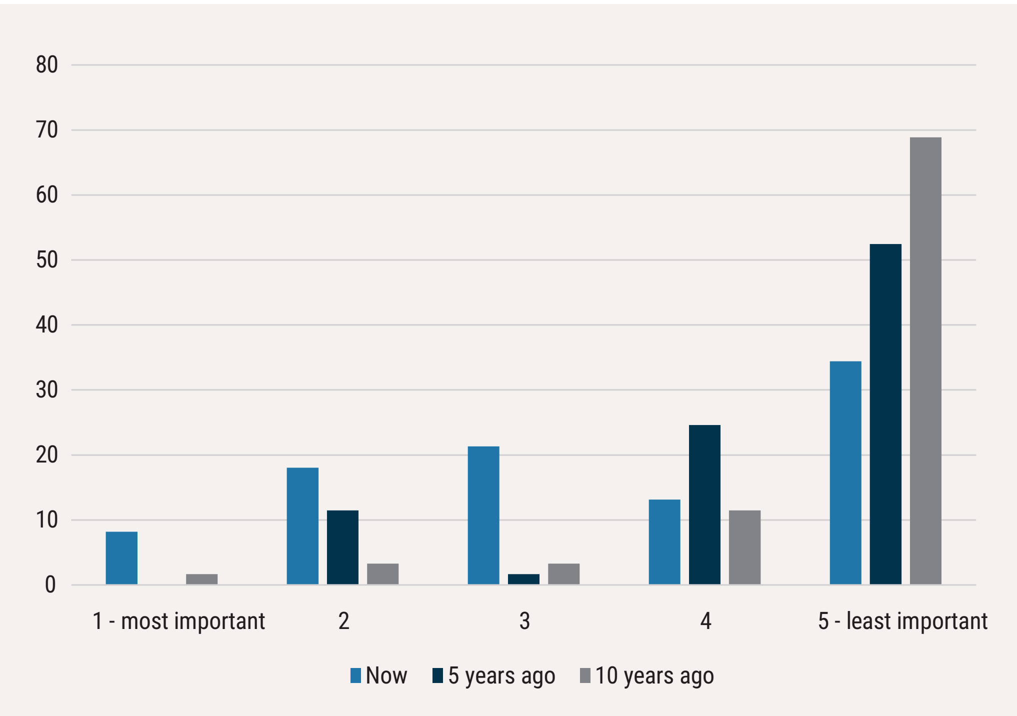
Increase in total assets, $bn, 2019-20

Source: OMFIF analysis



10. Preserving independence rises as an institutional priority

THE EXTRAORDINARY ACTIONS of central banks during the Covid-19 crisis, following on from intervention after the 2008 financial crisis, has called into question the independence of central banks from government policy-makers. It seems to be a question at the forefront of the central bankers' minds: 65% of those surveyed now think preserving independence is one of the two most important considerations for them and 40% rank it their top priority, compared to less than 30% 10 years ago. Sustainability is also becoming a more important consideration, with close to 30% scoring it among their top two priorities today compared to just over 10% five years ago.



Sustainability increasingly appreciated as institutional priority

Ranking of 'climate change' in response to 'How would you rank the following issues in terms of priority for your central bank now as compared to the past 10 years?,' %

Source: OMFIF GPI survey 2021

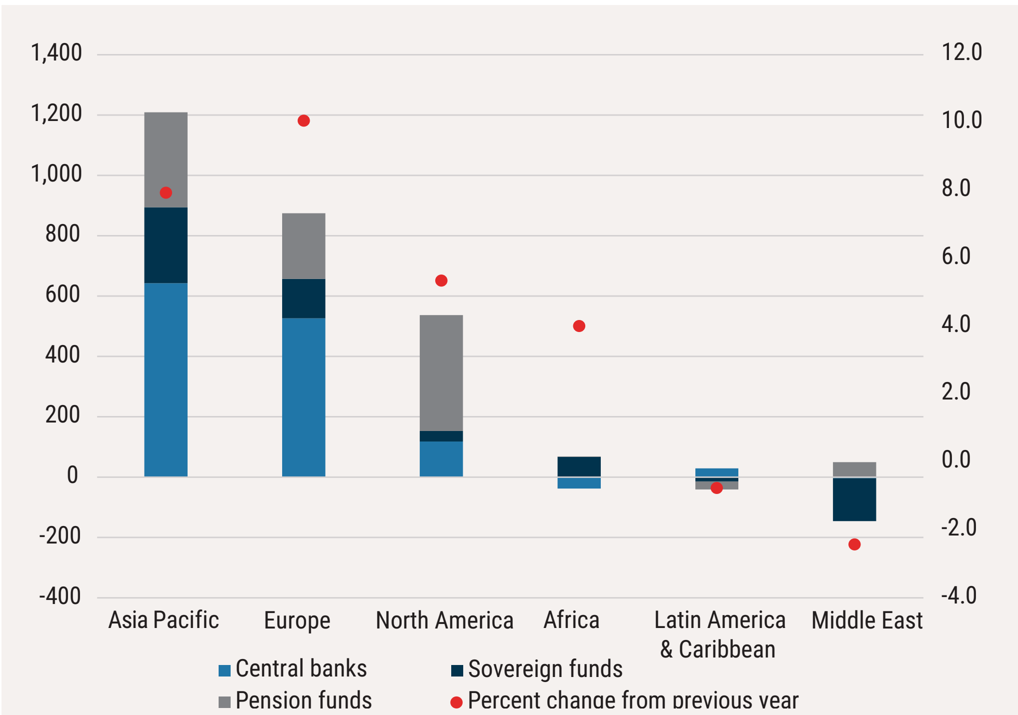
11. European GPI assets grow fastest, surging towards $10tn

EUROPEAN SOVEREIGN INVESTMENT assets grew by more than 10% over the course of 2020, faster than any other region, and reached a cumulative value of $9.6tn, third behind North America ($10.6tn) and Asia Pacific ($16.4tn). The region's foreign exchange reserves fared particularly well, probably in part due to valuation effects on assets such as gold. Some 16 of the fastest-growing European GPIs by absolute volume were central banks, including the Swiss National Bank (up $229bn), Deutsche Bundesbank (up $44bn) and the Central Bank of the Russian Federation (up $42bn).

Strong growth in central bank assets propels European GPIs

Change in total assets by institution type, $bn, 2019-20 (LHS), and cumulative percentage change, %, 2019-20 (RHS)

Source: OMFIF analysis



1

Reserves management

- Swap lines and repos are the most effective elements of the global financial safety net
- Only half of reserve managers would be willing to use more than 30% of their reserves in a crisis
- Equities performed well as a reserve asset during Covid-19 market shock
- Reserve managers only used about 20% of deposits and cash on hand at the height of disruption

The Covid-19 crisis tested the use and effectiveness of central bank reserves. It has also highlighted questions about their purpose, and the importance of other tools in the safety net.

Strengthening the global financial safety net

By Danae Kyriakopoulou and Pierre Ortlieb

CENTRAL BANKS ENTERED the Covid-19 pandemic with a higher level of collective foreign exchange reserves than in the run-up to all previous financial crises. Central bank foreign exchange reserves, which include gold, have increased steadily over the past decade, rising to $15.3tn at the end of 2020 from $12.1tn in 2016.

The Covid-19 crisis tested the use and effectiveness of these reserves. Central banks are motivated to engage in capital flow management and potentially draw down foreign exchange reserves when they need to:

- Access foreign currencies to provide import cover and provide liquidity to dependent companies
- Support the value of the exchange rate if the central bank has a target
- Manage debt sustainability in the face of high levels of foreign currency-denominated debt.

These conditions were scrutinised during the Covid-19 crisis and several central banks – particularly from emerging markets – intensified foreign exchange interventions. According to the Organisation for Economic Co-operation and Development, such interventions reached 'magnitudes comparable to those of the 2008 crisis, amid considerable turbulence and volatility in the foreign exchange market.'

An analysis of reserves managers' actions during the financial upset caused by Covid-19 highlights three main lessons.

First, foreign exchange reserves acted more as a deterrent than an actively used instrument. Across a sample of key emerging markets, reserves managers only used about 20% of deposits and cash on hand during the once-in-a-generation disruption to the global economy.

Second, equities performed well during the turmoil and showed they are a reliable asset class for diversified reserves. Despite a rapid fall in March and April 2020, global stock markets rebounded quickly, demonstrating their ability to absorb shocks, store value and generate returns.

Third, multilateral global financial co-operation, not asset sales or other unilateral measures, is the most important line of currency defence during periods of protracted, profound economic turbulence. As in the 2008 financial crisis, swap lines proved highly effective in alleviating stress in foreign exchange markets and pressure on emerging market currencies, highlighting their important role as part of the global financial safety net. As our survey findings show, swap lines are as popular as foreign exchange reserves when it comes to managing currencies during a crisis. However, that repurchase agreements made available by the Federal Reserve and European Central Bank were little used remains more puzzling.

RESERVE STOCKPILES AS A DETERRENT

Changes in both stocks and flows have contributed to the rise in foreign reserves over the past decade.

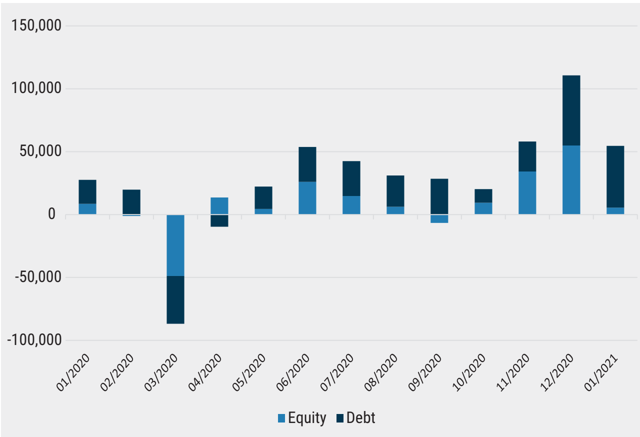
The value of reserves has increased during a sustained bull market and as central banks have ventured into riskier and higher-yielding assets in response to a dearth of safe assets in the era of quantitative easing. Central banks, particularly in emerging markets, have also actively added to the level of their reserves. They need to strengthen adequacy and safeguard against the expectation of reversals in capital outflows when rates in advanced economies begin to gradually increase after the pandemic.

There is no straightforward answer to what constitutes 'adequate' reserves. Sveriges Riksbank Governor Stefan Ingves highlights 'the banking system's size and funding structure' as an important determinant. Ingves also expresses preference for holding adequate reserves in advance even if that means taking on a higher running cost for larger reserves. He warns that one of the lessons of numerous banking crises is 'how rapidly a developing crisis can worsen when foreign exchange reserves are not easily accessible.'

Indeed, foreign exchange reserves are usually the first line of defence in a crisis that puts the exchange rate under pressure. During the initial phase of Covid-19 in March and April 2020, unprecedented capital outflows from emerging market economies presented one such crisis (Figure 1).

Given the volume of this shock, it is reasonable to expect there to have been a proportionally historic response. To some extent, there was. For example, Reuters reported in late May 2020 that Brazil (led by the central bank) had 'sold a record $21.5bn of US Treasuries in March as it battled a stampede of foreign investors out of its markets.'

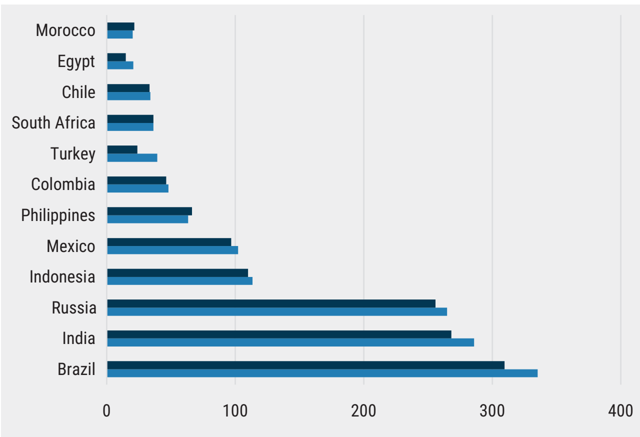
However, it is worth comparing these figures against the total scale of foreign exchange reserves. Figure 2 compares estimated holdings of US Treasuries by a select set of central banks in emerging markets to the decline in the country's reported holdings in US Treasuries across March and April 2020. This shock had only a small impact on the stockpile of reserves held by these central banks. In Brazil's case, even the record figure made up barely 10% of its estimated securities



1. The mother of all sudden stops

Estimate of monthly portfolio flows into (+)/out of (-) emerging markets, $m

Source: IMF, Koepke and Petzold (2020)



2. Covid shock barely hit securities holdings

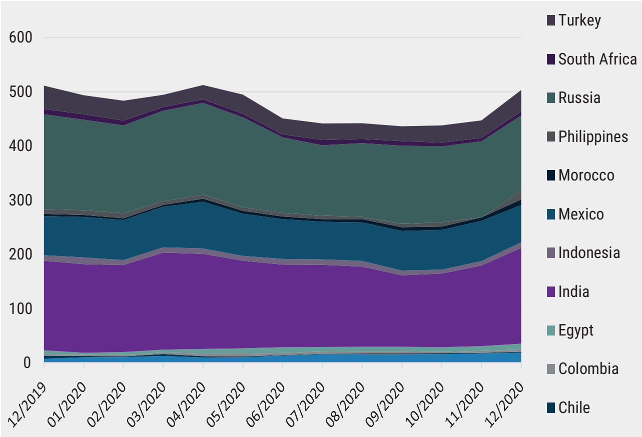
Securities holdings of selected reserves managers, $bn

Source: IMF

3. Cash holdings largely unaffected

Total currency and deposits of selected reserves managers, $bn

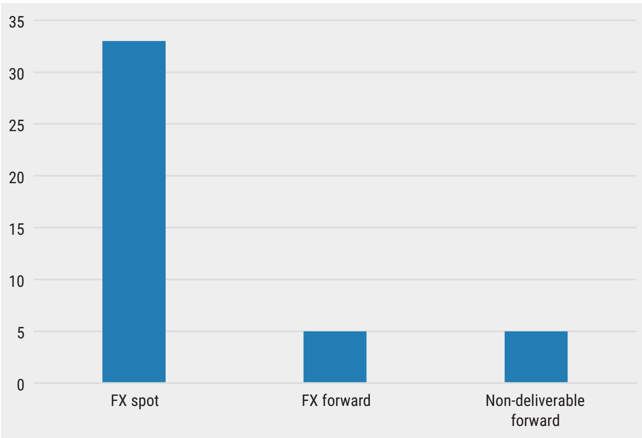
Source: IMF



4. Reliance on spot, not swap, markets

Central bank foreign exchange interventions by type, March-April 2020

Source: IMF



holdings at the end of 2019.

Alternatively, consider holdings of currency and deposits with banks, other central banks and multilateral institutions such as the International Monetary Fund. Across this set of central banks, these declined by over $100bn. But even this represented only a roughly 20% drop in cash on hand (Figure 3).

Some central banks intervened through other means, including activity in the foreign exchange forward and non-deliverable forward markets. The IMF noted in a March 2021 report that 10 central banks had engaged in these markets during the Covid-19 pandemic. In contrast, 35 central banks intervened in the foreign exchange spot market through sales or purchases (Figure 4). Data collected as part of the IMF's Special Data Dissemination Standard for reserves suggest that the outstanding balance of forward positions was largely unchanged for many economies. Most of the drawdown and activity would be seen in securities and currency holdings.

The absence of significant change suggests that reserves stockpiles – which now sit at their highest level ever, a year on from the Covid-19 shock – serve mostly as a signalling device rather than a tool. Exchange rate movement may absorb part of the shock.

This has its merits. It may ward off the possibility of sustained pressure on the exchange rate and self-perpetuating loops, which is particularly important for countries with pegged exchange rates (even though there may be some correlation between large reserves holdings and sound macroeconomic fundamentals). In addition, it alleviates the risk of overreliance on the global lender of last resort.

The Covid-19 shock was by no means an ordinary one, both in its origins outside of the financial system and the speed of the rebound. This may have limited the extent of the crisis and the burden placed on foreign exchange reserves, partly explaining the absence of significant reserve drawdowns. Even so, the shockingly small scale of the reserves management response raises questions about the opportunity costs and social risks of excess foreign exchange reserves. Of central banks that responded to our annual reserves management questionnaire, only 59% reported that they would be willing to use more than 30% of their reserves during a currency shock. And 23% would only be willing to use up to 10% of their foreign exchange reserves, presumably relying on currency adjustments and multilateral measures to do the rest of the work. This suggests, however, that reserves managers may be unnecessarily hoarding liquidity. In spite of this, 50% of reserves managers surveyed see a strong case for continued accumulation of foreign currency holdings.

EQUITIES CEMENT THEMSELVES AS A RESERVE ASSET

The increasingly widespread use of equities as a reserve asset class was vindicated in the Covid-19 experience.

At the end of 2020, 8.8% of global foreign exchange reserves were allocated to equities, our analysis of the allocation of foreign exchange reserves reveals. This is up from 8.6% in last year's findings, suggesting continued diversification into equities amid a protracted low-yield environment.

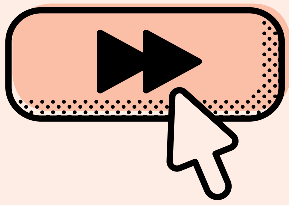
It is widely believed that fixed income assets serve as a cushion during periods of market volatility. During a shock akin to the one sparked by Covid-19, central banks typically lower interest rates, raising the price of bonds. Yet, over a slightly longer period of time, equities can have a similar effect, providing a cushion to reserves managers as markets snap back.

Incorporating equities into foreign exchange reserves, one reserves manager suggested in our survey, may in fact reduce the overall risk of the portfolio over long time horizons. As one respondent put it, 'Those central banks that fared better and raked in better returns are the ones that diversified into equities in a timely manner.' As equities rebounded over the summer and autumn of 2020, reserves managers reaped the rewards of their exposure.

The growing prominence of equities in central bank reserves portfolios is a neat corollary to the notion that many central banks are unwilling to use all their foreign exchange reserves during a shock. While the types of equities central banks generally invest in are highly liquid, they represent a more return-orientated, productive investment than fixed income products. Indeed, 27% of central banks surveyed said that they planned to

'The crisis has highlighted that reserves have grown to levels far beyond what would be used even in a once-in-a-generation sudden stop.'

Time to press fast-forward



Gary Smith
Managing Director, Sovereign Focus

DURING 2020, CENTRAL banks deployed policies on an unprecedented scale to mitigate the consequences of economic lockdowns. However, one aspect of central banking appeared to continue much as before. Now is the time for reserves management departments to press the fast-forward button, stop trying to fight the battles of the 1990s and implement new strategies.

Most nations now know that their foreign exchange reserves will provide protection against short-term economic volatility. In the 20th century reserves were not expected to grow to a size that would warrant the use of the term 'rainy day funds'. However, as reserves have grown, some nations have used FX reserves to finance sovereign funds, some nations have allowed their reserves managers to incorporate investments typical of sovereign funds and some have just piled reserves high. The International Monetary Fund has recognised that many central banks now have characteristics of rainy day funds.

Addressing the economic consequences of the pandemic and implementing a green energy agenda are the kind of issues that a rainy day fund should be used for. Future generations will be grateful for action on climate and action is needed now if Paris agreement commitments are going to be honoured.

While the long-term argument for a renewable energy transition is indisputable, there will be near-term financial costs associated with the transition – both in terms of the required capital investment in solar and wind energy, and in equipping households to switch to green energy. The argument for mobilising all sources of national wealth to finance this national and global priority is compelling. FX reserves should be considered as part of the solution.

The argument against using FX reserves stems from a desire to maintain self-insurance and a hard-wired inability to declare satisfaction with any level of FX reserves, as academics and policy-makers have failed to agree on a durable and dependable definition of reserves adequacy. These fears could be addressed with coordinated support from nations who issue the currencies that constitute FX reserves through the expanded use of currency swap agreements.

There is evidence that the use of swap lines has been more effective in supporting currencies under pressure than the deployment of FX reserves, as seen by the success of the swap lines extended by the Federal Reserve in 2008-09. In South Korea, the Fed's actions halted the run on the won, which led to pressure easing on emerging market currencies generally. Moreover, maintaining a swap line is cheap in financial terms when compared to the missed opportunities of holding FX reserves.

The primary cost of a swap line is that it may undermine the sovereignty of the nation that relies on it. Swap lines have facilitated the projection of soft power. We know that dollar swap lines have in the past been granted by the US to 'friendly' nations and renminbi swap lines are closely tied to Belt and Road initiative partners in China.

Could swap lines be depoliticised? One solution could be the coordinated extension of swap lines by all of the reserve currency issuers, perhaps under the supervision of the IMF. The existence of multiple swap lines might lessen the political power conferred on a single swap line issuer. Multiple swap lines could herald a new period of financial co-operation, an antidote to the 'my country first' politics of recent years.

A coordinated multi-currency network of swap lines administered by the IMF might also help to lower the risk of domestic currencies being crowded out when central bank digital currencies are rolled out for international payments by reserve currency issuers. ■

add to their equity exposure over the coming two years, showing that diversification will continue.

CO-OPERATION AS THE MAIN LINE OF DEFENCE

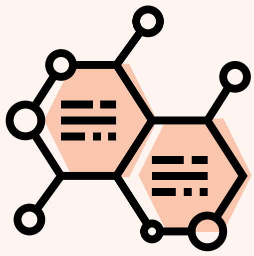
The Covid-19 pandemic also provided motivation to strengthen multilateral elements of the global financial safety net. Beginning in March 2020, the Fed established bilateral swap lines with 14 central banks, an extension of the decades-old tradition of central bank currency swaps. Similarly, it also established a temporary repo facility for foreign and international monetary authorities on 31 March 2020. This allowed them to enter into repo agreements with the Fed using US Treasury holdings as collateral so as to provide liquidity for central banks outside of the swap agreements.

The liquidity swaps provided by the Fed, which peaked at just under $449bn on 22 May 2020, had a critical impact on global currency markets, serving to dramatically dampen dollar funding costs (Figure 6).

Drawings on the swap line system far exceeded the combined official sales of US Treasuries and drawdowns on cash and deposits. While some, including the IMF, have pointed out that intervention in foreign exchange funding markets through borrowing and lending of foreign currency is not strictly a reserves management activity as it does not 'transfer exchange rate risk' from private to public balance sheets, the impact of swap lines was vital in stabilising global currency markets.

Over the past decade, the foreign exchange swap market has become a systemically important global financial market. Its size is hard to estimate. The most recent triennial survey from the Bank for International Settlements puts the daily average turnover in the market at $3.2tn in 2019, compared to just under $2tn for the foreign exchange spot market. It is a critical source of money market funding and currency hedging, both of

Changing portfolio structures



Jan Schmidt
Executive Director, Risk Management, Czech National Bank

WHILE MANY PARTS of the economy halted for a large part of 2020, financial assets caused no dramatic losses for investors. The drop in equity markets and the yields from massive debts and credit spreads due to suspended production have not indicated anything like crisis mode. The costs of the 2020 crisis will likely only become visible in the years ahead.

A period of high uncertainty, focus on other priorities, expectations of worse liquidity and volatility are certainly no incentive for moving between asset classes. However, due to events in the last year, and the belief that measures tackling Covid-19 would be successful, the Czech National Bank made the following substantial changes to its portfolio structure in 2020:
• Increased the percentage of stocks in its reserves • Increased the duration of portfolios by moving funds into the investment tranche • Established three new US agency mortgage-backed securities portfolios • Purchased gold • Established the renminbi portfolio • Established the pound portfolio.

The movements between portfolios were made solely based on several generally applied principles. First, the CNB never speculates on future price movements on financial markets. Second, the CNB spreads out its reserve restructuring over time to avoid market extremes having a marked effect. Third, all portfolios are managed against a predefined benchmark. And fourth, transaction costs are included in the relative rates of return on the portfolios. Thanks to these principles, and despite the extreme differences between the maximum and minimum prices of individual financial assets in 2020, all decisions were implemented smoothly and had no negative effect on returns.

In 2020, the return on the CNB's reserves in foreign currency was 2.7% compared with 7.2% in 2008. The return on US stocks was 14% and that on US government bonds with maturities between one and 10 years 5.5%, compared to minus 37% and 10.5% respectively. Since 2008, however, the reserves have seen substantial changes in structure; in particular, the stocks have risen from around 1.4% to almost 14%.

Despite the different starting points of interest rates, the CNB's performance was not hit even by investing in equities. From this we can conclude that diversification in general, and in our case from bonds into stocks, has undoubtedly paid off.

During the pandemic, the bank's operations adapted to enable staff to work from home. CNB installed equipment, introduced new controls for trading and settlements from home, put cybersecurity measures in place, established new communication channels, learned to work with new online technology and coped with the more demanding organisation of work and capacity shortfalls caused by health and social factors, such as schools being closed. These measures were all new and had to be done very quickly, without lengthy testing or extensive preparation. In the second half of the year, conference and training activities started up again and the professional growth of employees was resumed.

Leaving aside the question of whether 2020 was actually a crisis year, the costs of tackling Covid-related problems and the risks of the pandemic jeopardising the global economy, questions remain for the rest of 2021 and for the next few years. Can central bank balance sheets and government budgets always resolve any crisis? And is the new way of working truly effective, not only in terms of delivering short-term performance, but also in long-term social and psychological changes? ■

which were under extreme distress during the Covid-19 pandemic. In this case, central bank policy was well-tailored to the root sources of financial pressure as the swaps alleviated liquidity mismatches and rollover risks on bank and non-bank balance sheets.

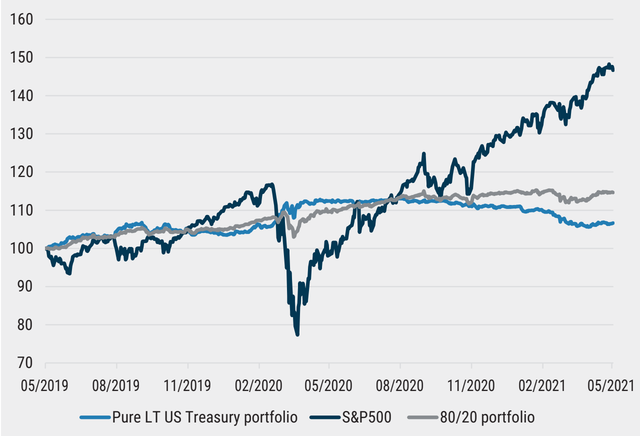
The popularity and success of dollar swap lines contrast with the disuse of the Fed's foreign and international monetary authorities repo facility. While this was heralded as a major policy innovation in March 2020, use peaked at a mere $1bn in 2020. The relative lack of take-up reflects a number of concerns. For one, pricing was unfavourable and exceeded even market repo rates in some cases. In addition, central banks generally prefer to access swaps, where the collateral is in their own currency, as opposed to using dollar repos, where collateral is in a foreign currency that may be difficult to source. However, access to FIMA is much more widespread. It is available to any central bank with an account at the Federal Reserve Bank of New York. Swaps, on the other hand, are limited to a select coterie.

These co-operative arrangements are key as they preclude the emergence of doom loops in sovereign bond and funding markets. By easing liquidity conditions, they prevent asset sales and avoid the magnification of financial shocks. As the IMF notes in a review of Covid-era measures, 'The use of foreign exchange intervention might involve considerable cross-border spillovers and externalities, particularly if used by many countries simultaneously.' Swap lines provide a neat means to circumvent this coordination challenge. In addition, as much as their impact is direct, they also operate through confidence effects, reassuring market participants of the Fed's willingness to backstop the global financial system.

THE EURO'S GLOBAL ROLE DURING COVID-19

While the dollar market remains the world's pre-eminent source of liquidity, the Covid-19 shock has underscored the role of the euro as an international currency (see p.34). Between March and April 2020, the European Central Bank reactivated an existing swap line with Denmark, doubling the amount to €24bn. It then established similar arrangements, at smaller volumes, with other European economies through August 2020. It created a new Eurosystem repo facility, EUREP, as a precautionary backstop to address pandemic-related euro liquidity to non-Eurosystem central banks.

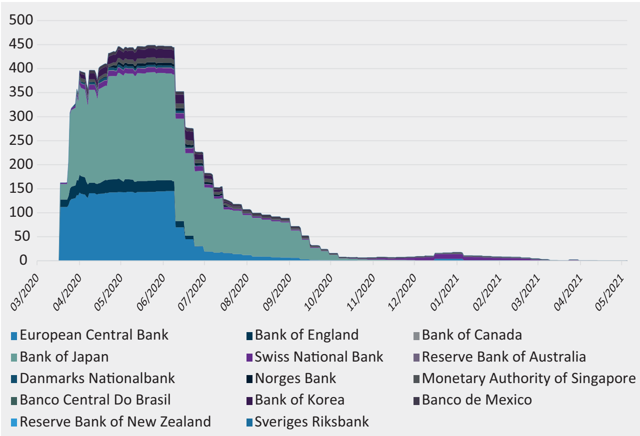
These euro swap lines underscore how important signalling effects are when it comes to these central bank initiatives. The euro 'is clearly a currency that is in demand,' ECB President Christine Lagarde said at the June 2020 monetary policy press conference, given 'the number of swap lines or repo lines that have been asked or requests that have been submitted to [the ECB].' Yet take-up of these lines was minimal. They were a safety net



5. Equity diversification can facilitate bounceback

Stylised performance of reserves portfolios, 3 May 2019 = 100

Source: Refinitiv Eikon

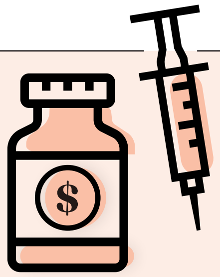


6. Swap lines instrumental in alleviating market pressure

Take-up of dollar liquidity swap lines by eligible central banks, $bn

Source: New York Fed

'The Covid-19 pandemic provided motivation to strengthen multilateral elements of the global financial safety net.'



Reserves management in pandemic times

Seok Jun Yang

Director General, Reserve Management Group, Bank of Korea

IN THE FIRST half of 2020, global financial markets suffered from extreme volatility due to the pandemic. In March, Korean financial markets tumbled, with the Korea Composite Stock Price Index falling by more than 30% from its previous peak and the won reaching its weakest level against the dollar since 2009. In particular, dollar funding conditions deteriorated significantly.

In response to this turmoil, the Bank of Korea implemented various stability measures, including accommodative monetary policies. The BoK supplied liquidity to the Korean foreign exchange market to stabilise the exchange rate and relax dollar funding stresses. The top priority of reserves management during this period was how to meet liquidity demands in a timely and effective manner, without any unintended consequences.

For this purpose, the BoK has long accumulated a large quantity of foreign exchange reserves, enough to rank eighth worldwide among central banks. This stemmed from the experience of the Asian financial crisis in 1997, when Korea fell short of foreign exchange reserves. The BoK has also separated its reserve assets into a short-term liquidity tranche and an investment tranche. The purpose of this is to cope efficiently with liquidity needs by using cash equivalents like short-term Treasuries that can be liquidated for a timely response with minimal transaction costs. During the pandemic, the BoK has paid particular attention to the possibility of persistent dollar liquidity demand. It has maintained a larger short-term liquidity tranche than in normal market conditions and has increased the weight of highly liquid assets, like US Treasuries, within the investment tranche. In line with this, the BoK strengthened its credit barbell strategy in the investment tranche by putting more weight onto both government debt and equities in developed markets to handle issues of liquidity and profitability. This strategy could not be pursued in 1997 when the reserves were not substantially diversified.

The BoK also implemented an operational contingency plan for the pandemic. Regulations prohibit transactions from being carried out at home, so the front office at BoK headquarters operated a night desk to cover business hours in New York and London because portfolio managers overseas had to work from home. The back office reinforced its settlement resources and secured IT systems to maintain normal operations, while regularly assessing possible replacement workplaces in case of a lockdown at headquarters.

The BoK will continue to manage its foreign exchange reserves to enhance profitability, while making safety and liquidity a priority. The BoK will also keep making efforts to become a leading central bank in foreign exchange reserves management. As an example of a small but meaningful effort, the BoK has invested in environmental, social and governance stocks through its external managers since 2019 and plans to increase those quantities. As for green and sustainability bonds, considerable amounts have already been included in the BoK's assets in the process of replicating the global bond index. ■

$21.5bn

Brazil sold a record amount of US Treasuries in March 2020.

$15.3tn

Central bank foreign exchange reserves at the end of 2020.

$449bn

The liquidity swaps provided by the Fed, which peaked at just under $449bn on 22 May 2020, had a critical impact on global currency markets.

59%

Only 59% of central banks said they would use more than 30% of reserves in the event of a currency shock.

20%

Reserves managers only used about 20% of deposits and cash on hand during the once-in-a-generation disruption to the global economy.

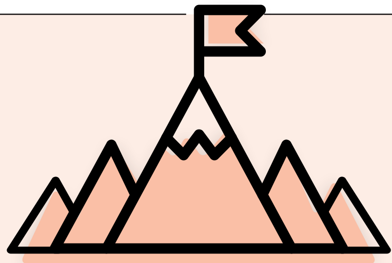
and not used in practice.

STRENGTHENING THE GLOBAL FINANCIAL SAFETY NET

Foreign currency liquidity swaps acted as the main tonic to global financial markets during the Covid-19 shock. Their effect was enormous and far exceeded that of asset sales and liquidity drawdowns by reserves managers. Our survey of sovereign investors suggests that 37% of respondents believe central banks swaps are the joint most effective tool for global financial safety, alongside drawing down currency reserves (Figure 7).

But they are not enough for a prolonged economic and financial upset. The Fed's swap arrangements exclude China, whose firms have issued a significant volume of dollar-denominated debt. Banks are also the only intermediaries on the receiving side, meaning that it can take time for the direct effects of swap lines to trickle through to non-bank financial intermediaries. But, as noted by BIS, it is the latter that have played an increasingly important role in transmitting

Challenges for emerging markets



Alejandro Díaz de León Carrillo
Governor, Banco de México

WHEN EMERGING MARKET economies face a large and disruptive shock, such as the Covid-19 pandemic, the challenge for policy-makers is twofold. First, mitigating the immediate effects of such unforeseen shocks on their domestic markets and economies. Second, staying the course on sound macroeconomic and financial stability, while maintaining resilience and financial integration.

At times of stress, policy-making can face large trade-offs when pursuing these two objectives. Following the right long-term strategies can become even more challenging as urgent needs can push back macroeconomic resilience, financial integration and the policies needed for a strong, well-incentivised market economy with deep and liquid markets.

For Mexico, attaining a well-functioning, deep and liquid foreign exchange market that could work as a critical shock absorber took decades of implementing consistent policies and avoiding the temptation of capital flow management measures. Mexico opened its economy in the late 1980s, seeking to integrate it with the world economy in terms of trade and financial markets. This strategy faced a major challenge with the 1994-95 Tequila Crisis, when after almost 70 years of fixed exchange rates, authorities adopted a floating exchange rate regime.

At that time, it was clear for the local authorities that, for the Mexican economy to achieve long-term development, it was essential to attain a deep and liquid FX market with an efficient price discovery process. It was also crucial to improve the resilience of local financial institutions, corporates and households to large FX swings. This required a multi-step long-term strategy, which included maintaining full convertibility of the currency, avoiding capital controls, promoting the development of the derivatives market and enacting regulation to avoid the dollarisation of the financial system.

Today, the Mexican peso is the second most traded currency in EMEs, trading around the clock under the continuous linked settlement system, with a daily total turnover of $114bn (spot, forward and swap peso/dollar), according to the 2020 Bank for International Settlements' triannual survey.

The development of the FX market had a positive effect on the money and fixed-income markets by broadening the investor base in domestic debt instruments and lowering the cost of funds. Better functioning FX and domestic financial markets have been critical for Mexico to weather several large shocks to the economy in the last five years (such as the end of the commodity super cycle, North American Free Trade Agreement uncertainty and Covid-19) and reduce output and volatility of nominal variables. Maintaining strong fundamentals and staying the course in the long and difficult journey to integrate and develop deep and liquid financial markets significantly enhances the economy's resilience and ability to cope with large and destabilising shocks.

Notwithstanding the progress in financial markets development, there will be episodes of extreme volatility that require the intervention of financial authorities to address market dysfunctions. A clear example is the pandemic. The central banks of most EMEs, including Mexico, were able to respond countercyclically by loosening monetary policy and providing ample liquidity to domestic financial markets.

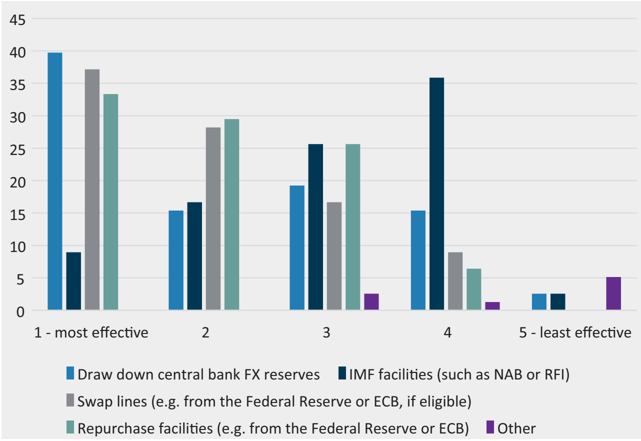
In addition to expanding the policy toolkit, the Covid-19 crisis has reinforced an important and hopefully lasting lesson. International co-operation is a key element in mitigating the effects of a global shock. Bilateral agreements, such as central bank swap lines and repurchase agreement lines, have proved to be effective in relieving funding pressures. The International Monetary Fund's facilities, such as the Flexible Credit Line, have also helped EMEs to complement their policy toolkit.

Strengthening the global financial safety net must be at the core of policy-makers' agendas. This will enable both emerging and advanced economies to stay the course in times of turbulence. ■

7. Swap lines and repos as effective as reserves

% of responses to 'Please rank the following elements of the global financial safety net in order of potential effectiveness during a period of stress', 1 = most effective

Source: OMFIF GPI survey 2021



financial shocks and increase pressure on markets.

Hedge funds unwinding faltering Treasury cash-futures trades, for example, significantly exacerbated strains in the Treasury market. Swap lines unveiled by major central banks worked to gradually reduce this tension by adding funds to the foreign exchange swap market. However, designing a global financial safety net that can ensure quicker, more direct transmission of liquidity relief measures to non-banks is an important priority.

In the longer term, it is worth designing a system that does not rely so heavily on the Fed's intervention. Dollar liquidity swap lines are tied up with questions of sovereignty and geopolitical power. This will always preclude their institutionalisation or further internationalisation. The Fed, both in 2008 and 2020, generally only extended swaps to US allies and no further. While this did not necessarily stop them being effective, it underscores the degree to which geopolitics will present a significant obstacle to the anchoring of the global financial safety net.

Regional financial arrangements, such as the European Stability Mechanism or the Chiang Mai Initiative in Asia, can help circumvent these problems and complement bilateral arrangements. However, they suffer from a 'stigma effect' which makes their use difficult in practice. This became relevant as expectations were raised for countries under pressure – particularly Italy and to a lesser extent Spain – to draw on the ESM for support. Banca d'Italia Governor Ignazio Visco stated at the time that 'These funds come without strings attached. If needed, I don't see any risk to use them, but we should not consider that they are a manna. This is still a loan, rather than being a loan in the market this is a loan with respect to Europe.' Commenting on the ESM's new pandemic crisis support mechanism, Spanish Prime Minister Pedro Sánchez highlighted the contrast with Greece's experience of strict conditionality during the sovereign debt crisis. He said that this time there would be 'no troika, no men in black'. Ultimately, however, political resistance to using the funds was too strong and neither country applied for a loan.

'The increasingly widespread use of equities as a reserve asset class was vindicated.'

Reacting to the shortcomings of the existing mechanisms, some countries explored alternative routes. As analysed in last year's Global Public Investor, this included countries using state pension funds and sovereign fund assets to support struggling industries or support government financing needs. The IMF, with a lending capacity of $1tn, also stepped up its toolkit in acting as a lender of last resort. The IMF already offered multiple instruments for financial assistance that were successfully deployed during the crisis. From March-April 2020, it lent over $14bn, mostly to emerging markets, and approved debt relief for 25 low-income countries under its catastrophe containment and relief trust. Other measures included a significant expansion in sovereign drawing right allocations disbursed by the IMF. This proved successful during the global financial crisis but has faced stiff political resistance over the course of the pandemic. It has been approved as of May 2021.

The IMF also finally secured approval for its short-term liquidity line in April 2020. A version of that proposal was first introduced in 2017 but was shelved at the time. The instrument has not been used yet. Expanding what is available to multilateral institutions – and countries' willingness to use them – would significantly strengthen the global financial safety net and reduce reliance on ad hoc, unilateral policy-making.

The crisis has highlighted that reserves have grown to levels far beyond what would be used even in a once-in-a-generation sudden stop. This raises important questions. While the signalling effect of excess reserves is important, it may be worth reconsidering the purpose of these funds. If they were not used in the Covid-19 shock, what is the opportunity cost of holding them in safe and liquid but low-yielding assets? This may partly explain why equities performed well in their first major test as a reserve asset, providing cushioning and returns once the bounce-back began.

Finally, swap lines are recognised as a key tool for international monetary policy-making. Yet despite their success in alleviating funding pressures, the global financial safety net remains incomplete, given the limited scope of its instruments and the stigma around some multilateral tools. ■

Didier Borowski
Head of Global Views, Amundi

European common debt

A game changer for European bond markets and the euro

THE EUROPEAN UNION'S member states have just ratified the Own Resources Decision, which is essential to the Next Generation EU fund. This fund will provide a common and secure debt instrument. This is a key moment for the euro area, whose bond markets are still fragmented.

EU bonds are attractive to international investors, but the volume was insufficient to meet demand. In Europe, the bund and core euro area debts have acted as safe havens until now, causing long-term bond yields to fall into negative territory and penalising institutional investors. Due to the scarcity of German government bonds, the 10-year bund yield is still negative, despite the recent rise in long-term interest rates observed in Europe and the US.

The European Commission has just issued the very first tranche (€20bn) of its NGEU bonds, a quarter of the expected issuance this year. It was heavily oversubscribed (demand of €142bn), which shows the appetite of investors. Between now and 2026, €800bn of NGEU issuance is expected – between €150bn and €200bn per year. The NGEU is a game changer and the EU will become a key player in the global capital markets.

The Commission will now be one of the largest issuers in euros, on a par with largest member states. Its funding strategy will be just as diversified as that of member states. Short-term debt instruments (EU-Bills) will be issued. The maturity of the bond issues will range from three to 30 years.

The Commission intends to raise 30% of the funds in the form of green bonds, which will amount to around €250bn. With SURE social bonds, the EU will become one of the largest issuers of environmental, social and corporate governance bonds, helping to strengthen its political and market leadership in sustainable finance.

All else being equal, the new pool of risk-free European securities might lead to lower demand for the bund from international investors and higher German long rates.

A safe asset has the potential to significantly strengthen the euro. With the new package, the EU's balance sheet is expected to reach €1tn in coming years, on top of the €9tn of euro area public debt, a substantial change that will reshape the euro's role in global markets. Public support for the euro has reached a record high in the euro area: 80% of respondents had a positive view in March 2021 versus 76% in October 2019. Internationally, the euro is the second most traded currency, but also one of the major reserve currencies.

The euro is still far behind the dollar: it makes up 21% of global foreign exchange reserves versus 59% for the dollar. But the dollar's share has fallen to its lowest level since 1995. The US Treasury market is one of the deepest and most liquid in the world and therefore no currency can replace the dollar in the short term. However, the surge in US government debt and the Federal Reserve's balance sheet could eventually lead international investors to diversify away from the dollar. The issue of a common European debt is a unique opportunity to develop the international use of the euro.

Europe has assets and real potential in several strategic technologies such as quantum computing, green energy and 5G. However, Europe remains very dependent on the US and increasingly on China for technology such as data centres, cloud computing and artificial technology. European-based advanced technologies cannot be developed without the single market. And the EU's strategic autonomy cannot be achieved without strong capabilities in advanced technologies. The creation of a common debt instrument and the internationalisation of the euro will certainly make it easier for Europe to meet these challenges. ■

'With issuance volumes of €150bn-€200bn per year until 2026, the NGEU is a game changer. The EU will become a key player in the global capital markets.'

IN CONVERSATION

How reserve managers adapted to Covid-19

Sandra Švaljek, deputy governor, Croatian National Bank, discusses the central bank's experiences during Covid-19 and explains how they stabilised the exchange rate.

DANAE KYRIAKOPOULOU: How did the Covid-19 crisis impact your reserves management operations and priorities?

SANDRA ŠVALJEK: The pandemic crisis and the 2008 financial crisis were both massive global setbacks with huge implications for economic and financial development. But while they were similar in size, there were some important differences between them. At the outbreak of the pandemic, the financial market conditions and banking sector performance were quite different to the period that led to the 2008 financial crisis.

In 2008, interest rates were positive or what we might call 'normal' from today's perspective. In contrast, yields on European markets during the pandemic were at historically low levels due to accommodative monetary measures and a policy of low interest rates. Unlike before 2008-09, banks had significant capital buffers and were quite resilient. Therefore, the credit risk of the main counterparties in financial markets was not a threat as in the previous crisis. During March and April 2020, liquidity risk was more pronounced, and for us this was especially relevant as we were defending exchange rate stability by selling our foreign exchange reserves.

Overall, low interest rates, stable banks and ample liquidity, coupled with swift and strong policy reaction, helped the financial markets to calm down soon after the outbreak of the crisis. Additional monetary policy accommodation was undoubtedly an appropriate response to the crisis, but for reserves management, it comes at a price. The low-yield environment in fixed income markets stayed even longer than previously expected, and reserves managers were faced with additional challenges to ensure adequate returns when searching for yields.

The most important lesson that we have learned from this crisis is that, to maintain exchange rate stability, it is of utmost importance to have an adequate level of FX reserves and a sufficient share of the FX portfolio in highly liquid assets. Both the FX adequacy and the appropriate FX structure helped us weather the pandemic storms without any difficulties.

DK: The pandemic also put the exchange rate under pressure, and you took strong measures to stabilise it. What drove your reactions?

SS: In Croatia, the pandemic accentuated imbalances in two areas of domestic financial markets: the bond market and FX market.

Just like in 2008, we were faced with severe depreciation pressures and had to react promptly. Back in 2008, we released huge liquidity by relaxing the macroprudential measures that were in place before the crisis to dampen the excessive credit growth. In 2020, we reacted by intervening strongly on the FX

‘The most important lesson that we have learned from this crisis is that, to maintain exchange rate stability, it is of utmost importance to have an adequate level of FX reserves and a sufficient share of the FX portfolio in highly liquid assets.’

market to stabilise the exchange rate.

From 9-31 March, we made five substantial FX interventions and a number of smaller bilateral interventions, and thereby sold to the banks more than €2.7bn. Through those interventions, FX reserves dropped by 13% compared to their level at the end of February 2020. Record interventions that amounted to 5.5% of gross domestic product sent a clear signal to the market that the Croatian National Bank is determined to act to preserve the stability of the exchange rate.

It has to be stressed that those exchange rate pressures were not driven by a weak external position. The macroeconomic situation prior to Covid-19 was strong and stable. Moreover, the Croatian current and capital account balance has remained in surplus throughout the pandemic. Rather, pressures were mostly driven by expectations, temporary rebalancing in domestic sectors and a flight to safe assets.

DK: The flight to safe assets was part of the motivation for setting up swap lines with reserve currency central banks. What was your experience in working on this with the European Central Bank?

SS: As we know, lockdowns started in the middle of March 2020 and this prompted a substantial market reaction. The currency swap line with the ECB was established in April 2020. It has been renewed several times and is currently set to expire by the end of March 2022.

We have never actually used the additional €2bn liquidity made available through this swap line. However, we are confident that this precautionary liquidity arrangement bolstered central bank credibility and helped to calm the market.

DK: In previous currency crises (e.g. the Asia crisis), reserve adequacy was tested more severely with negative spirals of depreciations and reserves drawdowns. Why was it different this time? Was it down to more effective communication from policy-makers or down to markets having become more sophisticated?

SS: The macroeconomic environment at the outbreak of the pandemic in Croatia, when the currency pressures on the Croatian kuna emerged, was rather favourable with no external imbalances. Once lockdown had been introduced, consumption and imports fell much more than exports.

Although there were no clear reasons for the kuna to significantly depreciate, uncertainty regarding future developments and the possibility of a completely lost tourism season pushed demand for the euro and we had to react swiftly. Our readiness to promptly provide the amount of foreign liquidity needed, together with establishing a currency swap line with the ECB and joining the European Exchange Rate Mechanism (ERM II) later on, were essential for reinforcing the confidence in domestic currency.

‘It sounds counterintuitive, but I'm quite confident that actually not using the swap is a strong signal for market participants that we are credible in conducting our monetary policy.’

However, in my view, those activities would not be fully effective if they were not supported by the clear communication of our governor, chief economist and other members of the CNB board. Our frequent appearance in the media in four or five weeks during the most severe lockdown was unprecedented. We were explaining the market developments, communicating in detail what the CNB is doing and why and emphasising that the level of international reserves is sufficient to ensure the stability of the domestic currency. Strong verbal interventions helped reassure markets and the general public that we have the situation under control.

DK: Did the communications change as you moved ahead with your five interventions in that period? What was the evolution of your thinking process and communications?

SS: The markets were already quite accustomed to FX interventions and understood that by intervening, we do not intend to defend any specific level of the exchange rate, but rather to smooth excessive fluctuations. A credible, managed floating exchange rate policy has been successfully implemented for almost 30 years, so it was nothing new.

But unlike FX interventions, asset purchases as monetary policy tools that hadn't been implemented before had to be communicated more carefully. Due to the high volatility of the illiquid domestic bond market, where investment funds were faced with huge outflows, financial stability and favourable financing conditions for all economic agents were in danger. Therefore, in March we decided to start purchasing government bonds on the secondary market. We were confident that this measure should be a necessary element of the monetary policy package.

DK: What were the lessons from this first experience in conducting quantitative easing?

SS: We started our asset purchase programme cautiously with smaller amounts. However, we quickly realised that this could be insufficient to prevent the rise in government bond yields. Therefore, we increased asset purchases and broadened the scope of entities that can participate in the auctions. At 5.4% of GDP, the programme became one of the largest asset purchase programmes implemented by a non-euro area central bank or across emerging economies.

In my view, there are two elements that contributed to the success of our securities purchase programme. First, our flexibility in shaping the programme according to market circumstances and second, good coordination between fiscal and monetary policy. This restored favourable financing conditions, which allowed the government to issue bonds on the domestic and international market. FX inflows from government foreign financing were eventually purchased by the CNB, helping us to offset the loss of reserves due to interventions at the outbreak of the crisis. By the end of the year, the level of FX reserves recovered and we entered 2021 with a record level of FX reserves.

DK: How did you see the actions of the ECB and the Federal Reserve in this crisis? Your five interventions came before the swap lines were set up. Had it been available earlier, would you have preferred to use the swap line instead of drawing on your own reserves for liquidity purposes?

SS: The Fed does not have a mandate to support foreign central or private banks, or to serve as the lender of last resort to the rest of the world. However, as the issuer of the most important international trade and reserve currency, its role goes unquestionably beyond its national mandate. Its interest rate policy has huge effects on the rest of the global economy. In activating large FX swaps and repurchase agreements with other central banks, it helped prevent larger dollar liquidity fees. So, while those actions were primarily done to support the US financial system, there were benefits for the rest of the global economy.

In the case of the ECB's currency swap, it helped us as it had a signalling role as a buffer of euro liquidity. But we never meant to use them since we truly believe that the level of our reserves was adequate to preserve exchange rate stability. It sounds counterintuitive, but I'm quite confident that actually not using the swap is a strong signal for market participants that we are credible in conducting our monetary policy.

DK: Your reserves are invested quite conservatively, with a large allocation to cash and public fixed income. Has the experience of this crisis, where equities bounced back quickly and performed quite well, shifted your thinking in terms of considering equities as a more attractive asset class to invest in?

SS: Having equities within the FX reserves portfolio might be attractive. However, we always have to bear in mind that our main aim is to preserve the liquidity and safety of our FX reserves. The importance of this was underscored during the pandemic when we had to intervene and sell part of our portfolio, especially to preserve liquidity. Our reserves management is quite conservative and I don't think that it will change very much.

DK: You said that your reserves fell by 13% across the five interventions. This may seem large but it was in the context of one of the biggest crises in decades. If a relatively modest drop is sufficient to ensure safety and liquidity, it raises the question of what is the purpose of holding these reserves, if not investing them in equities or in asset classes would also yield return. Many other central banks who are also primarily concerned with safety and liquidity have started investing in new asset classes. Do you see a way for using reserves more productively either to generate returns or support

other objectives linked to economic development?
SS: The CNB is a conservative investor by nature and so we are reluctant to significantly increase exposure to credit or currency risk. FX reserves have a role in maintaining the stability of our currency against the euro, which determines the FX structure of the portfolio where the euro is our dominant reserve currency. Therefore, it is extremely challenging to combine the main goals of liquidity and security with satisfactory returns, especially in an environment of historically low and negative interest rates.

Having said this, in 2011 we took the strategic decision to extend the maturity profile of our investments. So, while we did not engage in direct diversification, we did extend the maturity profile of fixed income assets that were already part of our reserves. This proved to be a very good strategic decision as the formation of longer-term fixed income portfolios benefited from rising bond prices. And then we were able to sell parts of our position to increase the profitability of the overall portfolio, which positively contributed to the financial performance of the CNB in recent years.

As for further diversification, I have to mention one very important decision: last year we switched to the ECB's accounting guidelines. By doing this, we have created more room to manoeuvre in our foreign reserves management. We will be able to invest in more asset classes, we will be more flexible in terms of investing in other currencies and we will be able to engage external managers. However, liquidity and security will remain the main goals of our FX reserves management and, irrespective of possible diversification, we do not intend to increase our risk tolerance in the following years.

'The new ECB accounting framework will enable us to engage with more external managers. However, it is with great caution that we will consider this possibility.'

DK: You mentioned working with external managers as you look ahead to make use of the more flexible approach under the ECB's accounting guidelines. This is something we are seeing in conversations with other central banks who are increasingly turning to external managers to make use of skills such as expertise in incorporating environmental, social and governance criteria or investing in equities. Why do you think central banks would consider engaging with external managers?
SS: That's true – we are aware of one study by the Bank for International Settlements that showed that 60% of all central banks are currently using the services of external managers. This is an understandable development, not only because some central banks have limited capacity to build the skills and knowledge of their reserves managers, but also because the environment of very low yields is conducive to the reliance on external managers since central banks are hesitant to invest in asset classes they are less familiar with.

We have only limited experience related to deploying external asset managers. Since 2015, we have relied on the World Bank's Reserve Advisory and Management Partnership programme and entrusted it with management of a small dollar portfolio. This has to some extent catalysed our diversification process, but still in line with our existing risk preferences. From our perspective this programme is basically a technical assistance tool since, through our collaboration with experts from the World Bank Treasury, we got acquainted with some techniques that were not familiar to us before.

Looking ahead, the new ECB accounting framework will enable us to engage with more external managers. However, it is with great caution that we will consider this possibility. It will depend on overall risk and return prospects, market conditions, the role of international reserves in the future and the whole monetary policy framework. ■

2

Asset allocation

- 30% of central banks plan to increase their exposure to renminbi
- 65% of GPIs will increase their holdings of green bonds
- 28% of public investors will reduce their ownership of developed market sovereign debt
- 44% of central banks are diversifying their holdings simply to preserve capital

Suppressed returns in traditional assets are forcing many public investors to ride up the risk curve.

By Pierre Ortlieb and Natalia Ospina

Lower for longer accelerates diversification drive

THE COVID-19 PANDEMIC has shaken public investor behaviour. In the words of one central bank respondent to OMFIF's 2021 Global Public Investor survey: 'Reserves management has become more challenging as the low-yield environment incentivises taking into consideration riskier asset classes, resulting in a deterioration in the credit quality of the portfolio.' The pandemic has perpetuated the difficult 'lower-for-longer' environment, as major central banks have extended monetary accommodation measures or put in place new ones (Figure 1).

Concerns around debt overhangs and the continued environment of low returns on traditional central bank assets have added to existing pressure on GPIs to diversify. They have also caused a growing share of central banks to give up their pursuit of even bare minimum yields. Of the central bank respondents, 40% suggested that the low-yield environment is driving continued diversification. Among public pension fund respondents, the proportion was close to 60%. Yet an equal share of central banks also said they were simply accepting a lower return, up from 28% last year, suggesting that many have been beaten into submission (Figure 2).

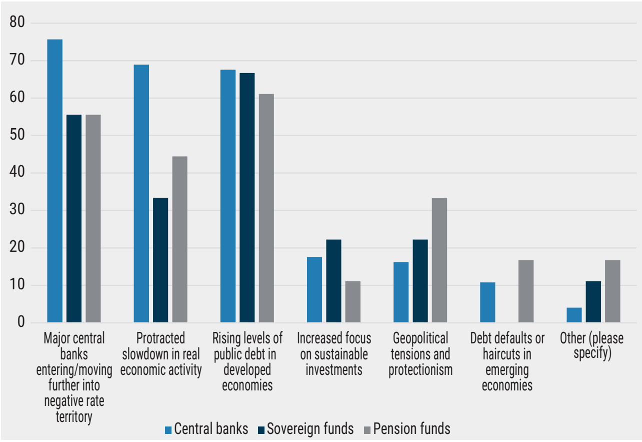
This has sparked some reflection over reserves managers' mandates, and may in the long run lead to revision of the three traditional objectives: liquidity, safety and return. One respondent noted that, 'Given the liquidity and capital preservation objectives of the portfolio, we do not have a choice but to maintain the liquidity profile of the portfolio at the cost of lower return.' This suggests that the more traditional hierarchy of reserves management objectives is being put aside and the respondent is simply accepting a loss on capital.

Other central banks have taken a different view, upending the classic order. As one respondent from Asia pointed out, 'In response to extremely low levels of yields, we have invested in the debt obligations of some highly rated emerging countries in hard currency and increased our geographic diversification.' In other words, as low rates make it difficult to preserve capital and liquidity at the same time, diversifying to achieve moderately positive returns and preserve capital is becoming an important consideration.

CHANGES IN RISK APPETITE

This has spilled over into a disagreement on the appropriate risk appetite for central banks and other public investors, with significant discord on what should be considered the investable universe of these portfolios. Many respondents are concerned about valuations in risk asset markets, with 30% of central banks and 40% of pension funds believing their peers are now taking 'excessive risk' due to the lower-for-longer environment. As one central bank respondent noted, 'The valuation of stock markets, particularly in the US, seems excessive by many measures – price levels rely on the assumption that central banks will maintain low/negative real interest rates for a long time to come.'

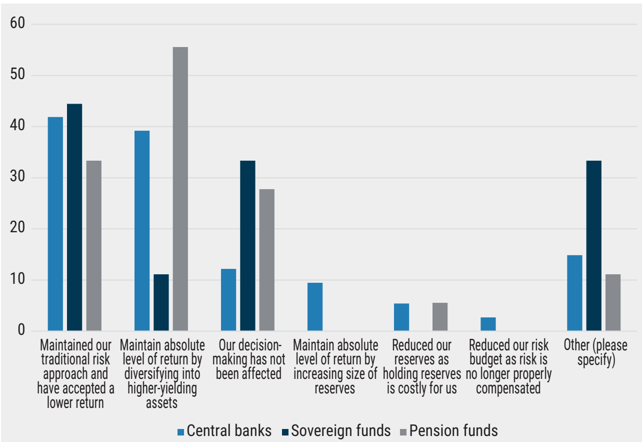
The sentiment that policy was sparking excess risk-taking was widely shared by our respondents, with one sovereign fund noting that 'Monetary policy has distorted market and market pricing... it is difficult to know how policy-makers can reverse from their current positions or how markets can adjust going forward without significant volatility.' The survey shows that 77% of the respondents feel policy is having excess influence on financial markets, including 74% of central banks (Figure 3a). Respondents from Africa and North America expressed concern about the impact of monetary policy on



1. Debt and interest rate levels cause for worry

What do you see as the most important channels through which the pandemic and associated policy action is affecting reserves management?, % of total responses

Source: OMFIF GPI survey 2021



2. Responding to the rate challenge

How has the extremely low level of yields on traditional reserves assets in recent years affected your decision making?, % of total responses

Source: OMFIF GPI survey 2021

Shaokai Fan
Head of Central Banks Relationships, World Gold Council

Gold brings confidence amid uncertainty

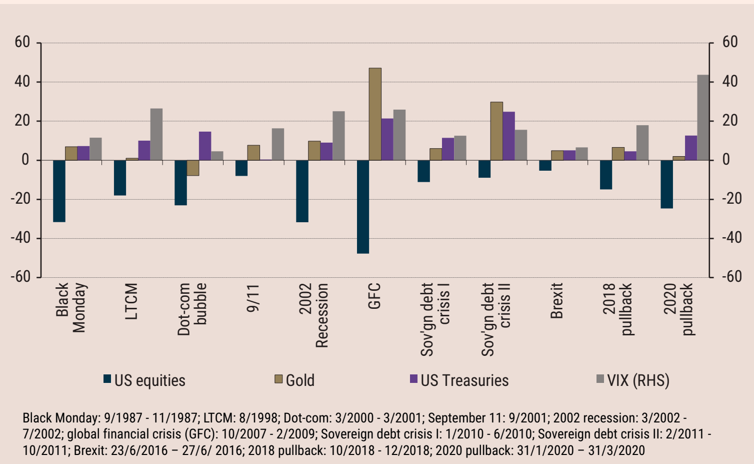
A safe haven for reserves managers

ONE YEAR ON from the onset of the pandemic, central bank reserves managers have shifted their focus from the immediacy of the virus to the economic recovery. Financial markets were rattled last year, but strong fiscal support and accommodative monetary policies softened what might have been a full-scale rout.

Nevertheless, the acute phase of Covid-19's financial impact serves as another reference point for central bankers on the behaviour of reserve assets during a crisis. Gold, perhaps the most historic reserve asset, once again demonstrated its indispensability as part of a modern central bank's portfolio.

Gold performed strongly in 2020, with prices climbing to new heights amid the uncertainty of the pandemic. It performed exactly as anticipated during a crisis. It outperformed risk assets as it has done in nearly every episode of systemic risk in the past four decades (Figure 1).

Gold's safe haven characteristics are a key aspect of its appeal to central banks as a reserve asset. In the World Gold Council's annual survey of central banks, we polled reserves managers on the reasons they hold gold.



1. Strong performance in systemic risk episodes

Return on asset class, % (LHS), and VIX level change (RHS) over relevant period

Source: World Gold Council

The 2021 survey revealed that gold's performance during times of crisis has become the most relevant reason to hold gold for the first time, displacing gold's historical position. The breakdown of this factor between advanced and developing economies presents an even starker result, with 91% of developing market central banks saying that gold's crisis performance is relevant compared to 53% of advanced economy banks. The pandemic may have driven the rise in the importance of this factor.

We studied the impact of gold on reserves performance during 2020 by constructing a hypothetical central bank portfolio based on the International Monetary Fund's currency composition of official foreign exchange reserves allocations. The base portfolio contained no gold while two test portfolios contained 5% and 10% allocations to gold, respectively.

The outcome showed that the test portfolios with gold not only outperformed the base portfolio in terms of return, but in risk-adjusted return as well. The Sharpe ratio was lifted with the addition of gold. Although not all central banks look at gold's impact on the overall portfolio, this analysis underscores the multifaceted role gold has in meeting reserves management objectives during crisis periods.

Ultimately, gold's continuing importance to central banks has been validated by the behaviour of the central banks themselves. Magyar Nemzeti Bank in Hungary announced that it had tripled its gold holdings to 94.5 tonnes in March 2021. As a testament to gold's relevance during this turbulent period, MNB stated that 'managing new risks arising from the coronavirus pandemic' played a key role in its decision to boost its gold reserves.

With reserves managers continuing to face a panoply of global challenges, the need for an asset that can weather crises is more necessary than ever. Gold's track record during crises will continue to make it a core component of reserves management going forward. ■

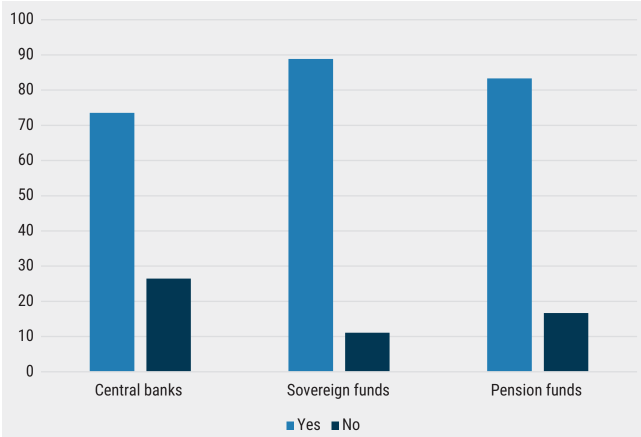
market pricing.

Crucially, however, few respondents suggested that policy should be amended or revised to alleviate its so-called excessive influence. Across the sample, only 40% of respondents suggested that policy should be reconsidered to curb its influence on markets. This share was highest among pension funds, at 47%. On the other hand, 42% of central bank reserves managers surveyed suggested that their colleagues in monetary policy departments should revise their thinking to fix financial markets (Figure 3b).

The disconnect between respondents who feel that policy is influencing markets and those that actually think policy needs to be amended – a difference of almost 40 percentage points – suggests that the benefits of accommodative policy still outweigh its costs. Most respondents who want to see policy revised added caveats. As one central bank put it, 'Policy should be adjusted; however, it is necessary that the effect of the Covid-19 pandemic be reduced first and inflation targets be reached.' In other words, while markets may be in an unusual state, it is fine for them to remain so until central bank policy aims are reached. Until economic conditions have recovered, public investors can continue to expect a tough investment environment.

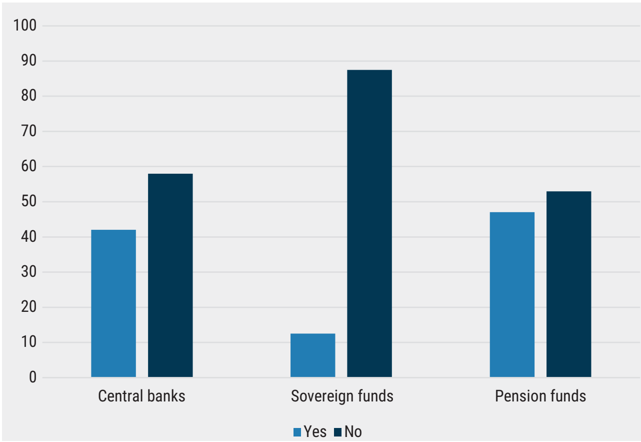
DRIVING DIVERSIFICATION

The low-rate, high-valuation trading environment has driven continued diversification by central banks, with 60% of GPIs stating that they have sought to actively increase their risk-adjusted returns. More worryingly, however, the share of central banks stating that they have had to diversify to preserve capital – the bare minimum objective for a reserves manager – has risen to 44%, from 29% in 2020 (Figure 4). In other words, more risk-taking and higher returns are increasingly required to meet the basic aims of liquidity and safety. As it becomes more difficult to meet mandated aims with traditional instruments,



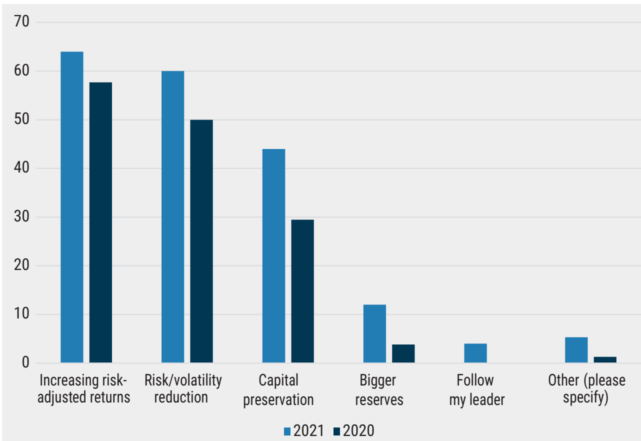
3. Benefits of monetary easing outweigh costs – for now

a. Do you believe that monetary policy is now having an excessive influence on financial markets and pricing?, % of total responses



b. Do you think monetary policy needs to be actively reconsidered to remove this influence?, % of total responses

Source: OMFIF GPI survey 2021



4. Preserving capital requires increasing risk

What is/has been the main reason for the diversification of portfolios?, % of total responses

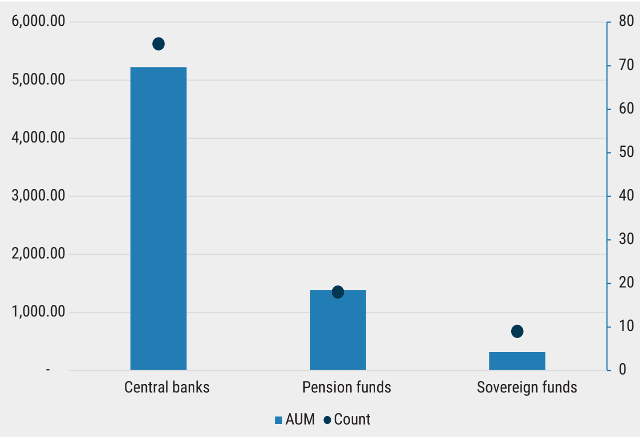
Source: OMFIF GPI survey 2021

> 'Reserves management has become more challenging as the low-yield environment incentivises taking into consideration riskier asset classes.'

5. Composition of 2021 GPI survey respondents

Breakdown of respondents - count (RHS) and total AUM, $bn, (LHS)

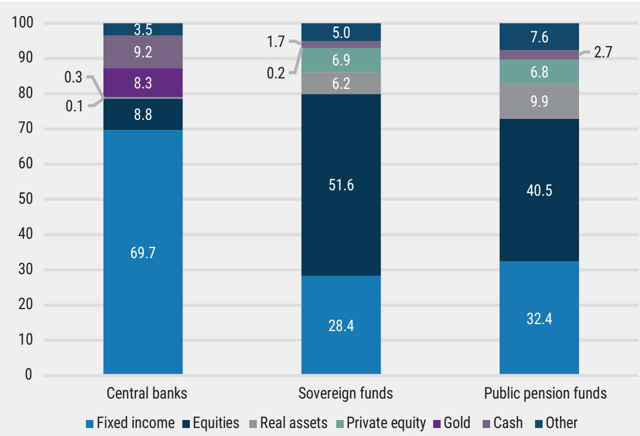
Source: OMFIF GPI survey 2021



6. Equities continue to gain ground

Asset allocations by institution, %

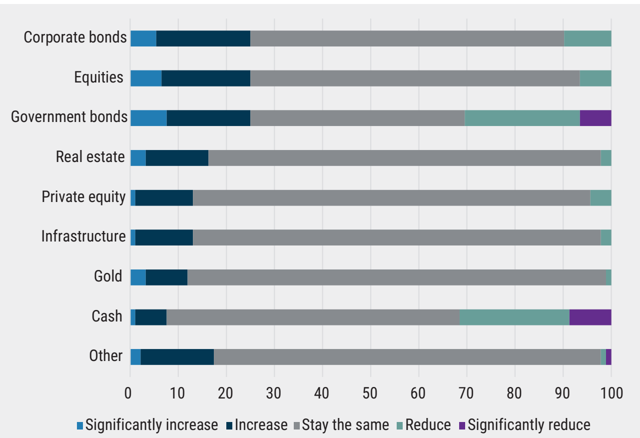
Source: OMFIF GPI survey 2021 and OMFIF analysis



7. Notable split on government bond investment

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

Source: OMFIF GPI survey 2021



central banks will have to balance these loss-making assets with riskier investments designed to preserve their capital.

The asset allocation of over 150 GPIs suggests that this push has continued forcefully. OMFIF combined over 100 survey responses (Figure 5) with data from public sources and estimates of the portfolios of major players. The findings suggest that central banks now own over $1.4tn in listed equity, up from $1.1tn a year ago. The share of equities in central bank reserves is particularly high in Asia, where holdings have swelled to 10.5% of total reserve assets.

At the same time, the proportion of bonds and cash has fallen from 81.8% to 78.9%. Of central bank portfolios 70%, a steady share, have tilted away from government and quasi-government bonds and towards credit. This again points to the return challenge posed by the lower-for-longer environment. Rising gold holdings, meanwhile, point towards concerns around both medium-term inflation prospects and uncertainty over the global reserve currency system.

These findings present a clear picture on the development of GPI portfolios since July 2020. They point towards continued diversification into riskier bonds and equities among central banks, as well as greater equity holdings among sovereign funds (Figure 6). Looking forward, the findings of our 2021 survey suggest that these trends are on track to accelerate, especially as reserves continue to grow.

The survey points to four important ways in which public investors will shape and direct asset markets over the coming years. First, GPIs, and central banks in particular, plan to add to their holdings of certain types of government bonds, aiming for higher yield without adding significant risk. Second, the growth of equities as a reserve asset will continue apace. Third, public investors have developed an extraordinary appetite for Asian assets, supported by the region's relatively rapid recovery from the Covid-19 shock. And finally, the renminbi is slated to surge as a reserve currency, with respondents indicating a far greater appetite for the Chinese currency than in previous years.

DEMAND FOR ‘RISKY’ GOVERNMENT BONDS

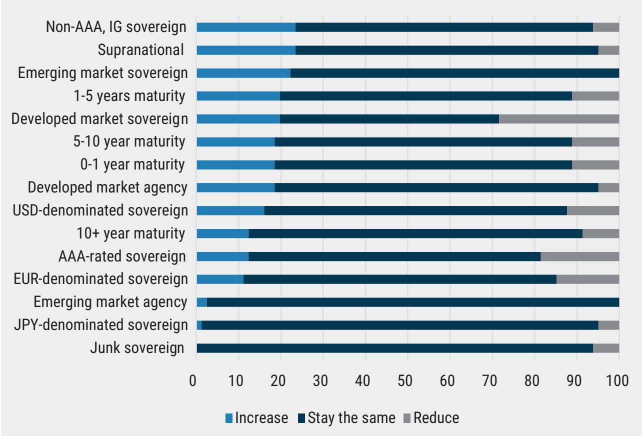
There is a marked split in demand for government bonds. While 30% of surveyed respondents said they planned to reduce their government bond holdings, 25% said they planned to increase them (Figure 7).

This discrepancy is explained by the different sub-categories of government bonds that public investors are exploring. Specifically, GPIs are looking most closely at higher-yielding categories of quasi-government bonds. On a net basis, GPIs are most keen on non-AAA sovereign debt (23%), supranational debt (23%) and emerging market sovereign debt (22%). On the other hand, the least popular government bond class is low-yielding, developed-market sovereign debt, (Figure 8).

This picture of demand for supranationals is corroborated by responses to a survey question on Next Generation EU debt. When asked whether they felt the new issues would become a staple of reserves portfolios in the future, 70% of central banks responded positively (Figure 10). Respondents from Africa, Europe and Latin America also responded in the affirmative, at roughly 73% each. One respondent noted that the 'need to diversify and rescue returns in a world of low rates,' and the bonds' potential to 'help combat social or environmental problems,' would strengthen their position as a staple asset class. Another noted that the new bonds would help strengthen the international position of the euro more generally.

On the other hand, pension funds and Asian respondents were most sceptical about the new NGEU assets, with a slim majority in both cases suggesting the instruments would not become a reserves management cornerstone. Many respondents who answered in the affirmative suggested that the success of these new bonds as a reserve asset would depend on a number of uncertain variables, including pricing and liquidity. Though initial demand has been overwhelming, the long-term status of these instruments has yet to be decided.

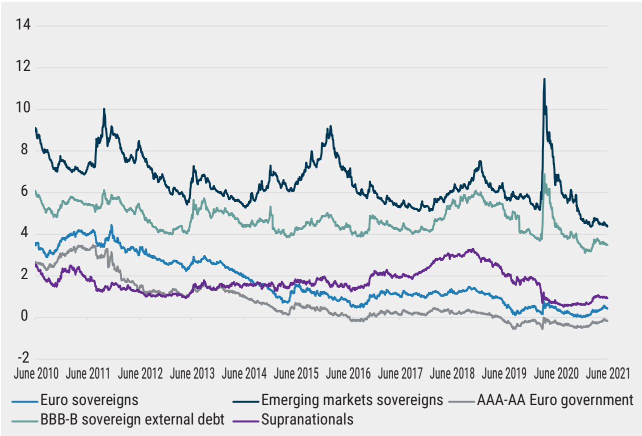
Green sovereign debt, and green bonds in general, are also in high demand given their environmental, social and governance criteria and ability to provide a slight yield pick-up. The events of 2020 heightened awareness of the grave impact external shocks can inflict on the global economy and attention turned towards the next potential



8. Where there's a yield, there's a way

In the next 12-24 months do you expect to increase, reduce, or maintain your allocation to government bonds in the categories below?, % of total responses

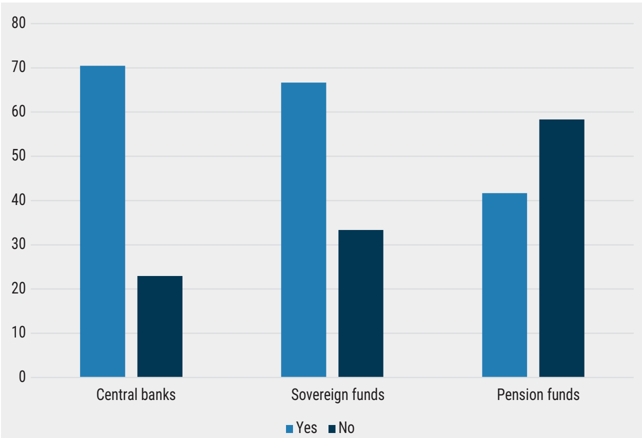
Source: OMFIF GPI survey 2021



9. Evident why there is interest in higher-risk bonds

Index returns on different government bonds, %

Source: Thomson Reuters, OMFIF analysis



10. Global demand for Next Generation EU bonds mixed

Do you expect the new EU-issued debt instruments to become a permanent feature of reserves portfolios in the future?, % of total responses

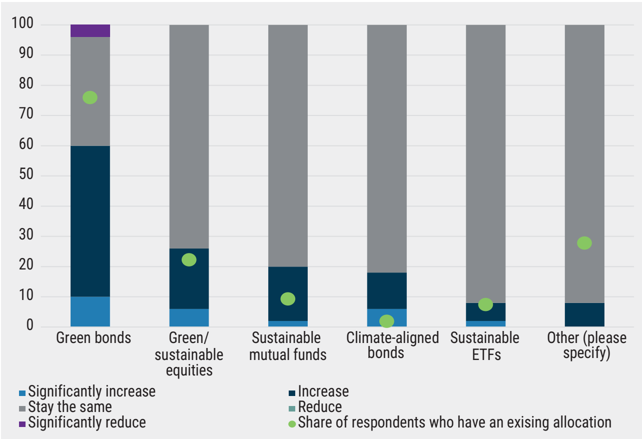
Source: OMFIF GPI survey 2021

'More risk-taking and higher returns are increasingly required to meet the basic aims of liquidity and safety.'

11. Public investors are on the lookout for more green bonds

Which sustainable assets do you invest in and are you planning to increase your allocation to 'green' asset investments over the next 12-24 months?, % of total responses by sustainable asset class

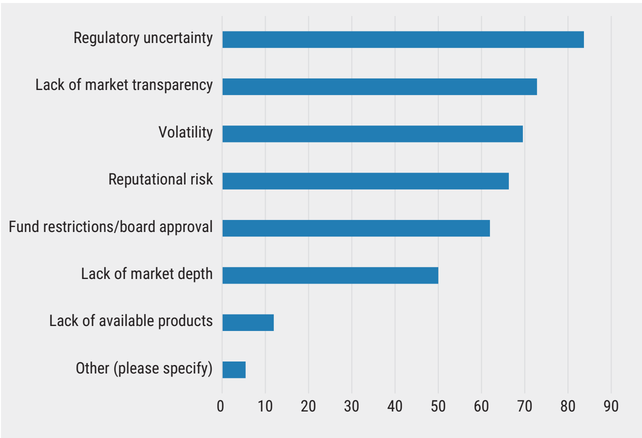
Source: OMFIF GPI survey 2021



12. Too many hurdles for digital assets

Which of the following are obstacles to the incorporation of digital assets in your reserves portfolio?, % of total responses

Source: OMFIF GPI survey 2021



shock: climate change.

As a result of these two factors, this year's survey reveals that green bonds are still the asset class of choice for GPIs' sustainable investments, with 76% of respondents already investing in them. In addition, 60% of respondents are looking to add to their holdings and this is highest among central banks. Of surveyed monetary authorities, 65% plan to add to their green bond investments, up from 48% last year (Figure 11).

In addition to the popularity of higher-yielding classes of sovereign debt, fixed income assets higher up the risk curve are sought after given their ability to provide additional returns. Chief among these is corporate credit: 25% of central banks surveyed claimed they were looking to increase their holdings of the asset class in the next 12-24 months. Corporate bonds are generally an easy way to diversify – they allow for better yields without requiring massive changes in risk management.

Increasingly, central banks may feel pressured into diversification for a number of different reasons. For some reserve managers, a lack of supply of traditional assets is adding to the drive to diversification; 30% of central banks surveyed noted that the so-called 'safe asset shortage' had impeded their ability to meet their desired strategic asset allocation. Fixed income assets provide a range of options, from supranationals to corporate credit, to move up the risk curve in gradual steps.

> 'The events of 2020 heightened awareness of the grave impact external shocks can inflict on the global economy and attention turned towards the next potential shock: climate change.'

EQUITIES GROW, BUT RISK APPETITE MIXED

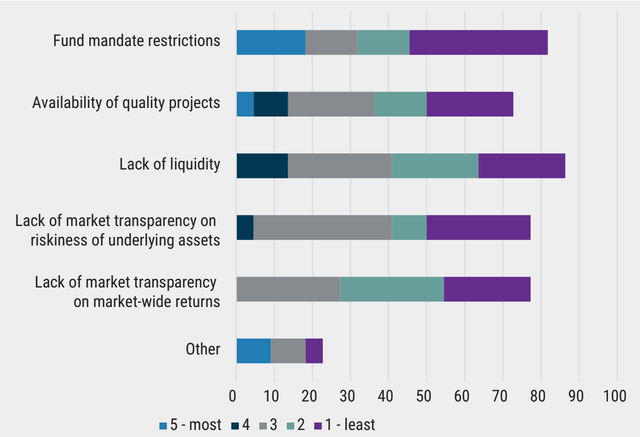
As explored in chapter 1, equities performed well as a reserve asset during the Covid-19 shock, providing medium-term bounceback and juicing returns. Central bank reserves managers seem to have absorbed the positive lessons of this experience: 20% of central banks said they would add to their equity holdings, up from 15% last year. The pressure of lower-for-longer appears to be encouraging continued asset class diversification.

European respondents in particular are keen to add to their equity exposure, with 39% of participants from the region indicating they would increase their holdings over the coming 12-24 months. Respondents from other regions expressed more scepticism. In addition, several respondents suggested that the Covid-19 shock had left their strategic asset allocation in a state of limbo. One central bank noted that they expect 'no major changes due to uncertainties surrounding the global recovery.'

This uncertainty around risk appetite and changes in asset allocation extends to the budding digital asset space as well. This has attracted significant investor attention over the past 12 months, with the prices of major coins rising

13. No significant barriers to invest in private debt investment for sovereign and public pension funds

How much does each of these factors hinder your allocation to private debt/direct lending?, % of total responses



Source: OMFIF GPI survey 2021

dramatically. Some sovereigns have begun linking them to their balance sheets, as the government of El Salvador announced on 9 June 2021.

Yet GPIs expressed more scepticism. Most identified lack of market transparency (73%), volatility (70%) and reputational risk (66%) as major hindrances to greater investment in digital assets (Figure 12). In the words of one pension fund, they are 'far too speculative'. Others highlighted that they 'lack fundamental valuation drivers' and 'are a disaster for the environment.'

More encouragingly for digital assets, the investment obstacle most selected by GPIs was 'regulatory uncertainty'. This is an easy one to surmount, especially as regulators such as the Basel committee flesh out their approach to the asset class. In addition, very few GPIs identified 'lack of available products' as a hindrance, suggesting that other variables are holding back investment.

This sentiment is reflected in other riskier investments, such as private debt. This year, 67% of surveyed sovereign and public pension funds responded that they incorporated the asset class in their portfolio. Examples of sovereign funds making significant investments in this asset class have made headlines. Last year, Abu Dhabi's Mubadala entered into two direct lending partnerships, which together amounted to $15.5bn. In February of this year, NBK Capital Partners announced Saudi Arabia's Public Investment Fund had become an anchor investor in their new $300m shariah credit fund.

The perception of obstacles to private debt investment has changed. In previous years, each of the factors mentioned in the survey were chosen by at least 25% of respondents as major obstacles to invest in direct lending. This year's findings reveal that most of these respondents no longer consider any single factor as a major barrier to their participation in private debt. The existence of fund mandate restrictions and the availability of quality projects were the only ones seen as a major obstacle for private investment, albeit by only 18% and 5% of respondents, respectively (Figure 13).

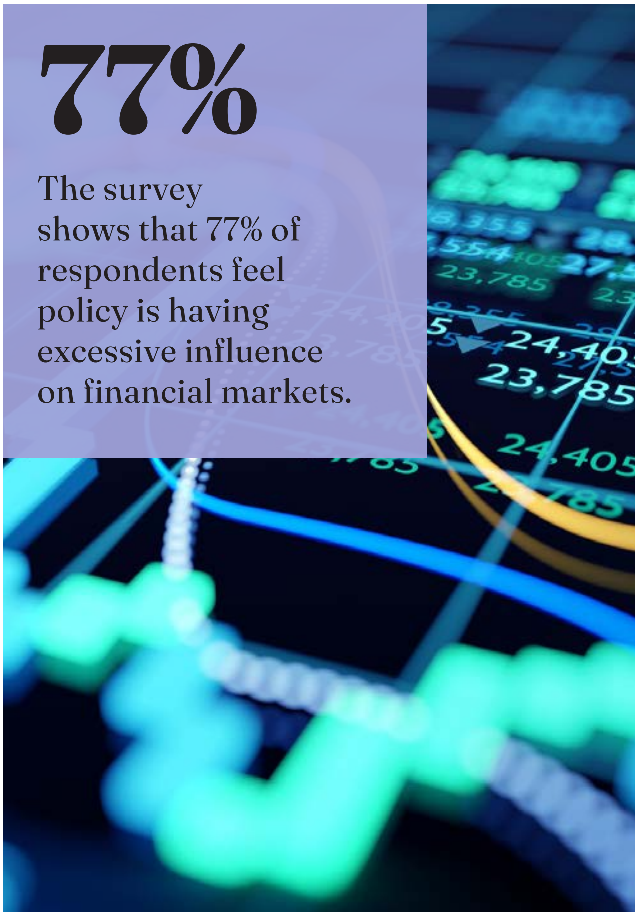
'A key theme emerging from the survey is a widespread appetite for Asian assets, particularly Chinese.'

SURGE IN ASIAN ASSETS EXPECTED

A key theme emerging from the survey is a widespread appetite for Asian assets, particularly Chinese. 'The interest to invest in China and China logistics is… everywhere. There's not a single investor I know who doesn't think it's a good idea,' George Agethen, senior vice-president, Asia Pacific, at Ivanhoé Cambridge, told the Financial Times. Echoing the sentiments of its peers, one central bank surveyed highlighted 'favourable rate differentials and growth prospects' of the Chinese economy as one factor behind this interest.

A year ago, things looked very different. At the beginning of 2020, Asia experienced massive portfolio outflows as Covid-19 cases started to appear first in this region. However, this trend shifted rapidly, and investments were re-directed to Asia as the region was able to rapidly control the spread of the virus.

Asia's resilience, combined with the prospect of higher yields in many of the region's economies, widened investor interest. This year's survey findings reveal an adjustment in public investors' plans to increase their exposure to different regions. According to last year's responses,



77%

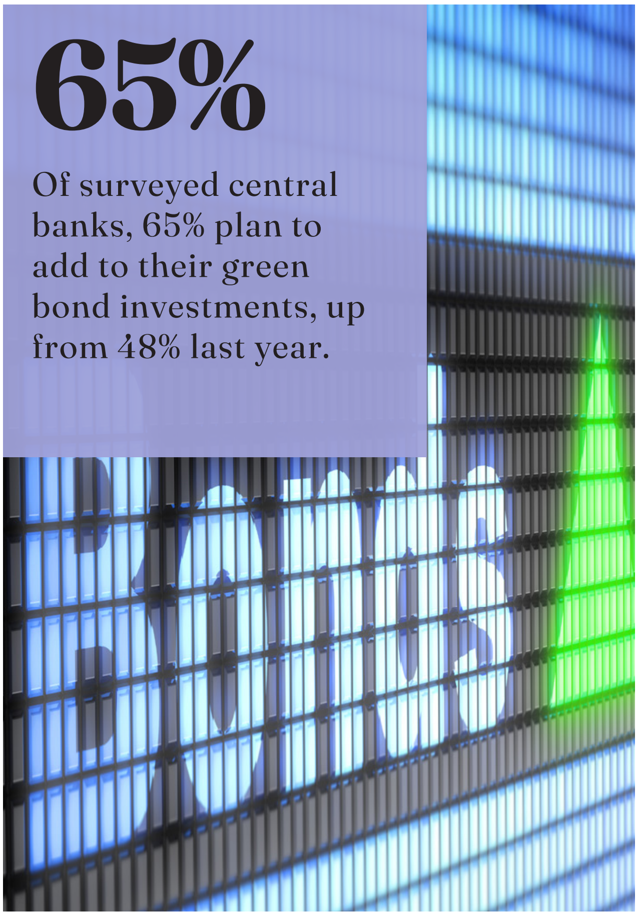
The survey shows that 77% of respondents feel policy is having excessive influence on financial markets.

25%

While 25% of surveyed central banks said they planned to reduce their government bond holdings, 29% said they planned to increase them.

30%

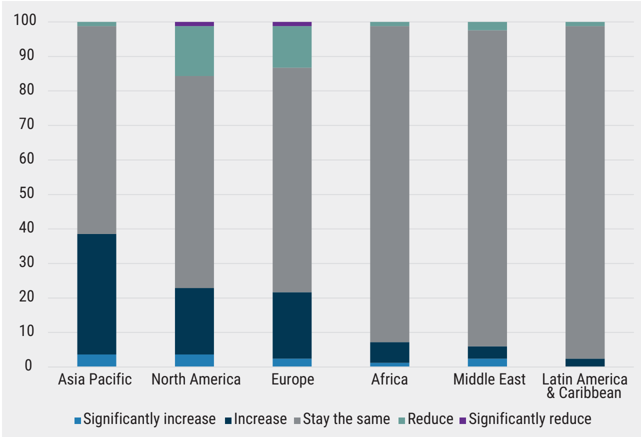
A stunning 30% of central banks plan to add to their renminbi exposure in the next 12-24 months, far higher than last year's figure of 10%.



65%

Of surveyed central banks, 65% plan to add to their green bond investments, up from 48% last year.

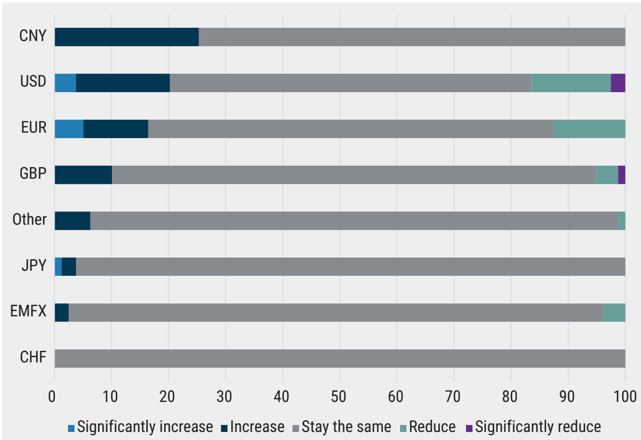
most institutions were looking to increase their portfolio allocation in North America, followed by Europe and then Asia. In 2021, Asia is at the top, with 40% of respondents revealing their plans to increase their exposure in this region in the next two years, followed by North America (23%) and Europe (22%) (Figure 14). In addition, 67% of respondents from Africa indicated their medium-term plans to add to their Asian investments, as well as 39% of Latin American survey participants.



14. Eyes on Asia

Over the next 12-24 months, are you planning to increase, reduce or maintain your exposure to the following regions?, % of total responses

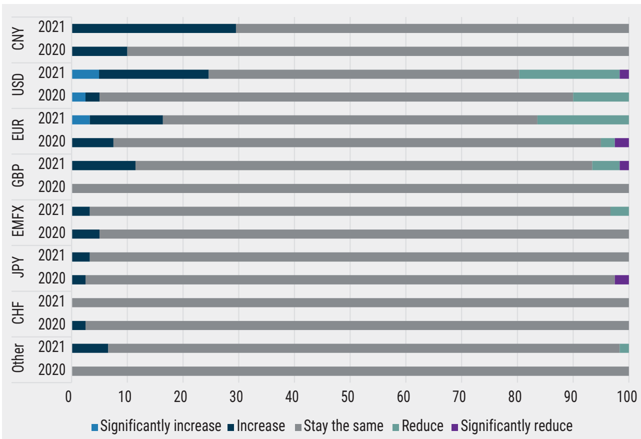
Source: OMFIF GPI survey 2021



15. Unanimous renminbi enthusiasm masks dollar and euro uncertainty

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

Source: OMFIF GPI survey 2021



16. Central banks back renminbi

Over the next 12-24 months, are you planning to increase, reduce or maintain your exposure to the following currencies?, % of total responses from central banks

Source: OMFIF GPI survey 2021

RENMINBI ACCELERATION

Interest in Asia has largely been driven by a leap in enthusiasm for China and the renminbi. A stunning 30% of central banks plan to add to their renminbi exposure in the next 12-24 months, far higher than last year's figure of 10% (Figure 16). This partly reflects China's relatively quicker recovery from the Covid-19 shock.

But even in the longer term, Chinese growth prospects make the renminbi an attractive currency, with 68% of central banks stating that they would become more involved over a longer horizon. It is clear that central bank holdings of the Chinese currency are slated to experience continued growth.

This appetite is strongest among African respondents, 50% of whom stated that they would increase their renminbi exposure over the next two years. This will come at the expense of euro and dollar holdings, which respondents stated they would reduce. This data point empirically corroborates reports of closer relationships between the African continent and Chinese trade and finance.

However, this enthusiasm for the renminbi is not shared across the sample. Several respondents identified regulatory and geopolitical reasons which discourage widespread adoption. One pension fund stated that '[President Xi Jinping's] approach to world politics suggests out of region adoption is limited.' Others identified China's lack of capital account openness as an obstacle.

However, regardless of the renminbi's coming prowess, it is clear that many respondents are relatively more bearish on the euro and the dollar. Central banks plan to reduce their holdings of euros and dollars by 16% and 18%, respectively (Figure 15). Even in Europe, 20% of respondents plan to reduce their euro holdings, while 23% of Latin American respondents plan to reduce their dollar holdings.

These surprising findings suggest a broad dissatisfaction with the existing currency system and that this dissatisfaction is growing. Compared to last year, central banks anticipate far more changes to the currency composition of their reserves portfolio, suggesting there may be volatility and uncertainty ahead (Figure 16). ■

IN CONVERSATION

Liquidity in times of crisis

Stefan Beiner, head of asset management and deputy CEO, PUBLICA – Switzerland's largest pension fund – discusses the advantages of holding gold and inflation-protected government bonds for a pension fund.

PIERRE ORTLIEB: What struck me in your most recent annual report is both the share of government bonds that you still hold and the relative performance of different sub-categories. What do you think about government bonds in the continuing lower-for-longer environments? What is their continued role, if any, in your strategic asset allocation?

STEFAN BEINER: We are just starting a review of our long-term investment policy. This has four elements. The first element is that we review or challenge our investment beliefs, which is done every four years. Then we analyse long-term trends, a process in which we consult experts on monetary and fiscal policy. We aim to come up with three to five long-term trends that could have an effect on our asset allocation. Third, we analyse five permitted asset classes and decide whether we should include them in our optimisation process. And the last point is setting the risk budget: we ask whether we should increase or lower it. There are arguments for both sides. We're trying to finalise this review by the end of October.

Within the long-term trends, there is also a question about the future of government bonds. Now, to give you my personal view: we are an asset liability manager with long-dated liabilities in the Swiss franc. Government bonds will always have a role in our portfolio. And even as a liquidity provider, we have a slightly negative cash flow every single month, compared to the average pension plan in Switzerland, which has a positive cash flow. We have a negative one due to the fact that we have quite a number of closed pension plans. And therefore, due to liquidity and diversification, and especially due to liability matching reasons, government bonds will have a role in the portfolio.

However, you're right: does it still make sense to have this allocation? It's quite large and we have to challenge that. Over the last eight years, we've reduced our investment in government bonds and invested 10% of that in private debt. Within private debt, one part is in infrastructure debt, one part is in real estate and the third is in private placements. So, the answer is yes, we will review it, but it will never be zero. It will be material – that's my guess – but most probably it will be lower than today.

PO: One thing that stood out to me in your annual report is the strong performance of inflation-protected government bonds. What is your thinking on inflation? And more specifically, the role of inflation-protected sovereign debt? Is that something that you envision playing a greater role in the future?

SB: Compared to other pension plans in Switzerland, we have a larger allocation to inflation-linked bonds, and we also have an allocation in gold and precious metals in general. I think it's kind of an all-weather allocation. It tilts to the liability matching side, but that's because our forecasting capabilities are quite

‘There was a period, a year ago, where it was hard for us and the investment community as a whole to sell US Treasuries for around seven working days. But we could sell gold every single day.’

limited. We want to be prepared for a higher-than-expected inflation environment, but also for a lower one. While it's an obvious answer, uncertainty around inflation has increased. We have this closer relationship between fiscal and monetary policy and huge policy measures, unseen in my lifetime, and there might be other pressures on inflation in the medium term – when we have reached full capacity, at least.

On the other hand, we have a huge amount of debt, and increased interest rates could trigger a kind of deflationary spiral. I truly believe that as we are coming out of a really disinflationary environment, the distribution of probabilities of higher inflation has widened compared to previous years. And therefore, going back to your question, yes, the role of inflation-linked bonds and real assets in general is very important going forward.

PO: How do you think about gold when constructing your SAA? I think it's relatively rare for a pension plan to hold that much precious metal.

SB: Within precious metals, our gold allocation is above 90%. We have gold and silver. Physical gold makes up two-thirds of the allocation and another third is over an excess return swap.

So why do we have gold in our portfolio? One reason is geopolitical risks: in an environment where geopolitical risk rises, it serves as a kind of safe haven. And there was a period, a year ago, where it was hard for us and the investment community as a whole to sell US Treasuries for around seven working days. But we could sell gold every single day. So, there's also a liquidity reason for holding gold, because over the last few crises, it has remained quite easy to sell gold.

PO: So, in times of stress, you find that gold is more liquid than even Treasuries?

SB: I wouldn't generalise that, or at least, I hope it's not true for the next crisis. Usually I sleep pretty well, but in that week in the middle of March where it was really tough to sell US Treasury bonds – well, it was a very exceptional week. But basically, gold is an additional source of liquidity. I wouldn't expect it to be more liquid than US Treasuries in a normal crisis, but it's quite liquid. And it's also a partial inflation hedge, depending on what kind of inflation we have.

> 'The experience of March 2020 showed the importance of holding more than just one asset class that's highly liquid.'

PO: You mentioned the episode in March, and the disruption in the Treasury market. Did that cast any doubt on the status of Treasuries as a safe asset for you?

SB: We do a liquidity analysis for our open and closed plans, as mentioned before. For the open plans, the liquidity analysis is very conservative, and we determine that 20% of the asset allocation needs to be in highly liquid assets. This highly liquid asset allocation is based on a matrix where on one axis, you would have common measures of liquidity levels, such as transaction costs and market depth. And on the other axis, you have what we call liquidity beta – the price reaction of the asset class in a liquidity crisis. Therefore, to us, large cap equity is not a highly liquid asset class, because for rebalancing reasons, we would have to buy and not sell them in a liquidity crisis.

The experience of March 2020 showed the importance of holding more than just one asset class that is highly liquid. For example, we have a 3% cash asset allocation, and obviously you can always ask if that makes sense from a return point of view. However, this illiquidity event proved that it's important to have cash as part of our asset allocation. G7/G10 government bonds remain important as well. We are less invested in Swiss government bonds in percentage points than other Swiss investors and I think that was shown to be the right choice, at least in this crisis.

PO: I noticed that you have quite a substantial allocation in emerging market sovereign debt, at least in the open plans. You've probably seen this thesis that, given dollar weakness, EM assets will be expected to perform quite well. What do you think about EM government bonds, and how are you approaching hedging for the asset class?

SB: The main reason why we are investing in EM bonds is return. Holding G10 bonds, hedged in the Swiss franc, we get a negative yield, but our required return for the open plans is around 2%. So obviously, we need to take risk. And that's one bucket where we add return.

At a very high level, we like local bonds in local currencies. We think, in general, the incentives are better: it's a large market and usually liquidity is better. But obviously, we have this currency risk, which is highly volatile. Up to now we have taken the strategic decision based on the fact that if a country increases its relative productivity, then it would also increase the relative valuation of the respective currencies. So there seems to be some indication based on this Balassa-Samuelson effect that, over the long term, the interest rate difference is higher than the depreciation of the currency. That's the main reason why we do not hedge EM currencies.

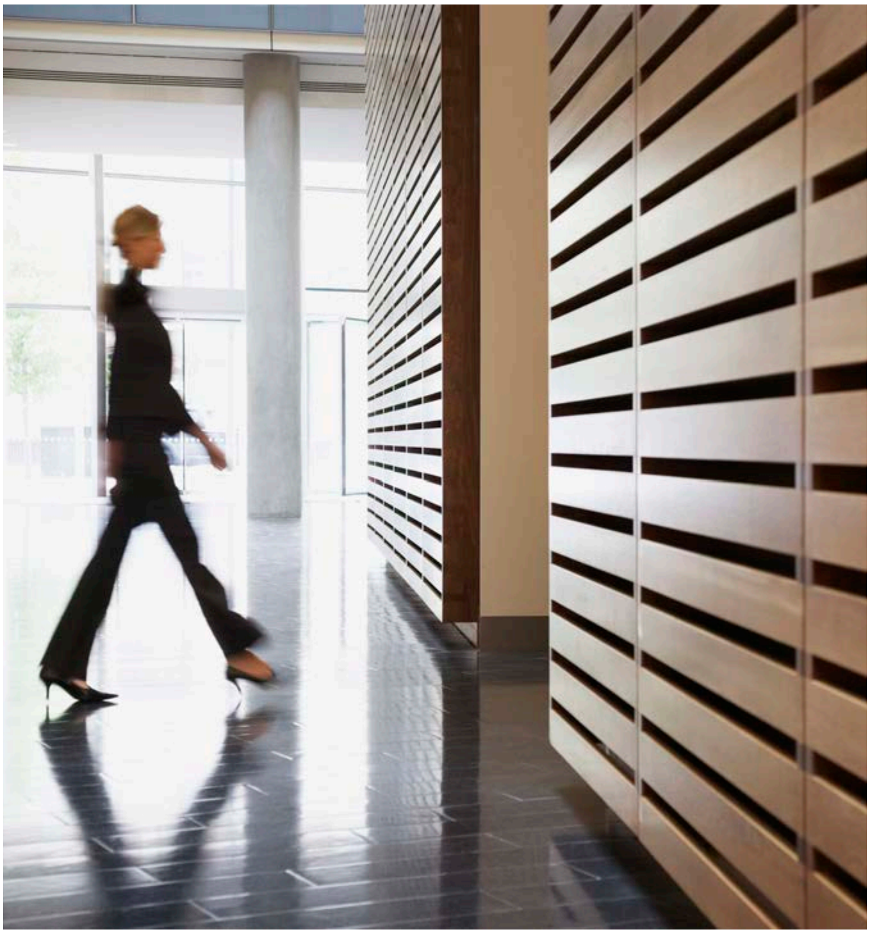
Having said that, we do realise that volatility is huge. And the Sharpe ratio for the currency part is quite low. We just started a project to review how we should deal with EM currency risk. We also include hard currency EM bonds – we like the diversification and the high yield pick-up. And we do hedge the hard currency back into the Swiss franc. ■

3

External managers

- Just 6% of central banks assets are allocated to external managers
- Almost 40% of sovereign and pension fund assets are managed externally
- Most GPIs employ external managers to access complex asset classes
- Nearly 30% of central banks using external managers use them for equities

Asset owners are turning to external managers for guidance in the post-pandemic environment as they navigate the difficulties of a prolonged low interest rate environment, geopolitics and sustainability.



Covid-19 pushes investors towards external managers

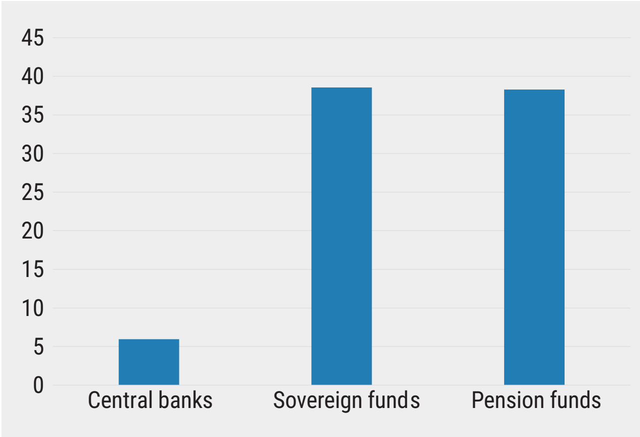
By Pierre Ortlieb

CENTRAL BANKS are becoming far more adventurous as investors, increasing their exposure to equities and experimenting with a broader array of asset classes, including relatively illiquid infrastructure bonds. As with sovereign and pension funds – their global public investor peers – this development requires forging close relationships with external managers.

According to the 2021 OMFIF GPI survey, central banks still only allocate a fairly low proportion of their reserve assets – just 6% – to external managers on average, compared with 38% for pension funds and 39% for sovereign funds (Figure 1). But by engaging some of the world's biggest fund management firms, those reserve managers gain access to new and more complex asset classes with the potential to outperform in a lower-for-longer environment.

The global pandemic has helped to drive even more GPI business the way of these large fund managers.

'There was a fear, at the beginning of the pandemic, that everything would collapse,' says Eric Dussoubs, who runs the official institutions group at Amundi, Europe's largest asset manager. He adds, though, that the 'new work organisation did quite well in the end.' Some central banks froze up, reducing operations to the bare minimum of helping



1. More adventurous investors make more use of external managers

Weighted average share of assets managed externally, %

Source: OMFIF GPI survey 2021

keep their economies afloat. This was especially true for smaller reserves managers burdened by a lack of strategic flexibility and infrastructure, with a low capacity to work from home.

But some central bank investors saw the Covid-19 crisis as an opportunity to buy equities relatively cheaply, while others increased their risk positions by wading deeper into corporate bonds. To do so, many of them turned to external managers. Max Castelli, head of strategy for sovereign institutions at UBS Asset Management, notes that the pandemic has 'accelerated' the 'desire for partnership'. What sovereign clients now seek, Castelli says, is more than just products. They want answers to meaningful questions such as 'How do we structure our portfolio?' and 'How do we compare to our sovereign investor peers?'

Few central banks dare to invest in exotic new asset classes without consulting external managers, sometimes hiring them to manage a mandate or construct an exchange-traded fund. The emergence of environmental, social and goverance criteria as a component of investment decision-making also influences these relationships. What is clear, however, is that the pandemic has accelerated these trends. For asset owners and asset managers, factors such as the deepening of external management relationships, asset class diversification and the integration of sustainability metrics are of growing importance.

MOVING UP THE RISK CURVE

Central banks headed into the pandemic on the back of an 11-year-long bull run, driven by loose monetary policy and a secular decline in interest rates. Over the course of a decade of stellar investment returns, the composition of reserves managers' portfolios shifted dramatically. For example, around the time of the 2008 financial crisis, few central banks invested in corporate credit, and even fewer held equities. But in 2021, a generic reserves portfolio

'Generally, for those that want and are able to, they've mostly all done the allocation to equities.'

Michael Cross
HSBC Asset Management

looks very different.

'Generally, for those that want and are able to, they've mostly all done the allocation to equities,' says Michael Cross, vice chair for institutional business at HSBC Asset Management and former head of the foreign exchange division and reserves management at the Bank of England. Not only does this improve the portfolio's efficiency, but it also makes it easier to preserve capital in an era of rock-bottom rates on traditional reserve assets such as government bonds. OMFIF's analysis (p.26) suggests that as much as 8.8% of the average reserves portfolio is held in equities, although the figure is skewed by the portfolio composition of a few large players, such as the Swiss National Bank and the People's Bank of China

It's not just equities that are proving attractive in a lower-for-longer environment. Moving up the fixed income risk curve has also proved a successful strategy. 'Generally, central banks' diversification efforts start with credit and then move into equities later, sometimes followed by alternatives,' says Isabelle Mateos y Lago, global head of official institutions at Blackrock. But it would be misleading to suggest that central banks have a narrow focus on equities and fixed income, Mateos y Lago adds: they have developed a voracious appetite for multi-asset strategies, eschewing the traditional binary approach. Adding higher-yield fixed income and stocks is fine, but at some point, central banks will have to decide whether they can stomach investing in less liquid assets such as real estate and hedge funds.

Some have already made that choice. But for many others, these alternative assets are potential future investments. They offer good returns, performed well during the pandemic and, importantly, they offer a partial hedge against inflation, serving to protect the real value of reserve assets – something that fixed income does not do as well as it used to. 'Government bonds with negative interest rates basically destroy the value of reserves,' says Dussoubs, adding that this is unlikely

The pandemic has 'accelerated' the 'desire for partnership'.

Max Castelli
UBS Asset Management

Raivo Vanags

Head of Market Operations, Latvijas Banka

The value of diversification

Outsourcing asset management is an effective and low-cost way to create value in a portfolio

SINCE LATVIA REGAINED its independence nearly three decades ago, Latvijas Banka has used external managers to build reserves management. At first, we used externally managed portfolios for both knowledge sharing and additional benchmarking as opposed to internally managed portfolios. We switched from the knowledge sharing approach to the value extraction approach 12 years ago, outsourcing asset management in areas where we either lacked competence or where it was not economical to use internal resources.

Our most extensive external portfolio management is in mortgage-backed securities (managed only externally). We started with three managers, but increased the allocated investment capital and the number of managers to six in 2016. The primary reason to have so many managers in one asset class is to ensure alpha diversification.

In the due diligence process, we selected the best MBS managers within similarly structured portfolios and categorised the managers according to their management styles. The MBS asset class is unique as homogeneous securities are issued by three agencies and most of the value added can be extracted by analysing the details of underlying loans. Frequently, when we talk to various asset managers, an industry-wide view on attractiveness of a debt of a particular country or corporate is not uncommon. But our experience in the MBS space has shown that asset managers have unique models and perspectives and there is not much of a 'group think'. It is quite common for our managers to have opposite positions, but they can still deliver a positive alpha on their respective holding periods.

The goal of alpha diversification is to smooth out the alpha of individual portfolios and produce an annual aggregate outperformance of all externally managed MBS portfolios. If there are different styles of management in our pool of external managers, it implies that in many cases there should be some managers who are outperforming the benchmark and some who are underperforming, or there should be a larger performance difference if managers are collectively experiencing either outperformance or underperformance. This is an important aspect to consider when evaluating managers, as it is natural for investors to want their managers to simultaneously outperform the benchmark on a short-term basis. But if that happens on a regular basis, it begs the question whether the selected managers really have different investment styles.

While we focus on alpha generation in MBS portfolios, we use a passive management approach in our developed markets equity portfolio. Given that the equity portfolio is managed passively, we use only one external manager there. The primary objective of this is to deliver low-cost index results with minimal tracking errors. Some organisations use exchange traded funds instead of external managers, but given the low management cost of the mandate, tax advantages and the fact that physical securities are in our custody account, a segregated mandate is the best way for us to have exposure to developed market equities.

The largest share of value is created at strategic asset allocation level and we search for the most appropriate vehicle to use for implementation. Internal investment management, external investment management and ETFs are all tools for implementing investment decisions. We are trying to find the best balance of various factors: assessment of our competency in the asset class, resource availability and effectiveness and operational aspects (such as custody account opening in developing countries). An investor engages with external managers or ETFs on a different level – they are not involved in securities selection but they manage a portfolio of portfolios. ■

'The primary reason to have so many managers in one asset class is to ensure alpha diversification.'

to change in the euro area given yield prospects. So even for central banks concerned with capital protection, these less liquid assets present a potential opportunity.

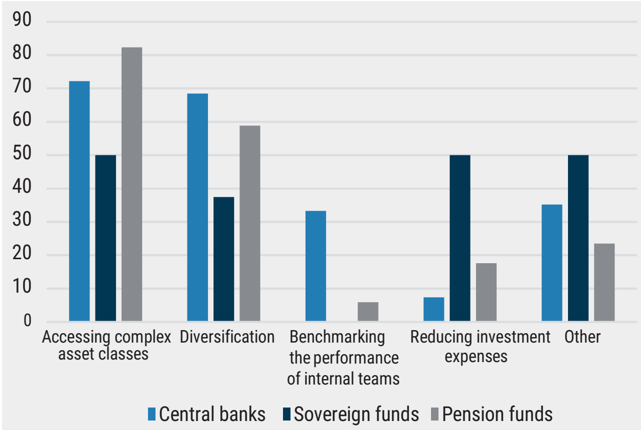
External managers will drive and inform this shift. The findings of the 2021 GPI survey revealed that roughly 70% of central banks use external managers for the explicit purposes of 'accessing complex asset classes' and 'diversification' (Figure 2). 'Some asset classes require specific knowledge and capabilities which can only be found efficiently with external managers,' said one survey respondent.

Of the central banks in our sample, nearly 80% of those that employ external managers use them for their government bond portfolio, 60% for corporate bonds and close to 30% for equities. Their peers in the pension fund industry are more likely to use external managers for investing in corporate bonds (80%) and equities (90%), whereas only 60% used external managers for their government bond portfolios.

But the trend is clear: the asset management community is playing a big role in fostering central banks' ability to diversify into riskier assets. 'This is not yet the end of diversification for central banks,' says Castelli.

Diversification is not the only reason for using external managers. Many central banks see the process of hiring and employing a manager as a way to learn about new types of investment. When adding a new asset class, central banks often lack the in-house expertise required for implementation. There is a critical trade-off between investing internal resources versus bringing in an external manager – although the two often go hand in hand. The decision may depend on different variables, most importantly the size of the fund in question, the complexity of what the GPI is trying to achieve and the institution's ability to attract professional investors.

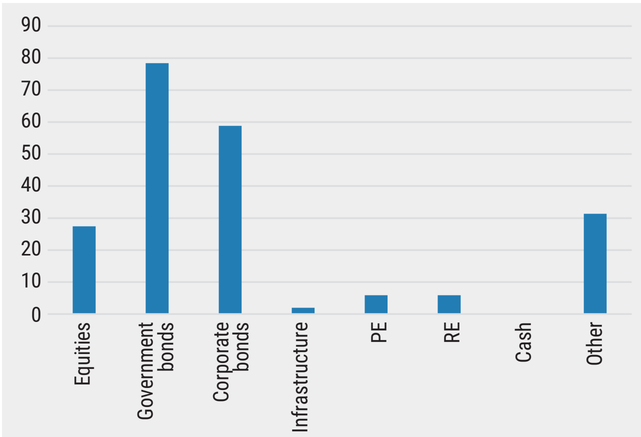
But most official institutions will decide to bring in an external manager at some point in the diversification process, initiating



2. Facilitating the diversification drive

Responses to, 'For which of the following reasons do you employ external managers?,' %

Source: OMFIF GPI survey 2021



3. Why central banks employ external managers

Response to 'If you use external managers, which asset classes do you use them for?'

Note: central banks only

Source: OMFIF GPI survey 2021

There can be 'tension between supporting the value of your currency and supporting ESG.'

Eric Dussoubs
Amundi

the long process of knowledge transfer, which can take five years or longer. They will 'watch everything the manager does, talk to them and eventually start investing internally,' says Cross.

Many central banks lack the internal expertise required to invest in alternatives. But the relationship will allow them to, for example, develop the requisite back office capacity for a real estate exposure, and it forms an important part of the service provided by external managers working for GPIs. However, this does not necessarily result in a kind of planned obsolescence for the external manager: typically, GPIs tend to continue with both the internal and external investment capacities for benchmarking purposes. 'We're kind of happy with that,' says Cross, 'and we've never lost a mandate where a central bank has decided to do something in-house.'

‘Generally, central banks’ diversification efforts start with credit and then move into equities later, sometimes followed by alternatives.’

Isabelle Mateos y Lago
Blackrock

As diversification accelerates in the wake of the pandemic, leading to greater use of external managers, it will encourage knowledge transfer and the development of internal expertise.

FROM PRODUCTS TO PARTNERSHIP

The importance of knowledge transfer between external managers and central banks is indicative of a broader shift in the GPI asset management business. Once upon a time, there may have been a tendency for some external managers to focus on ‘selling products,’ says Mateos y Lago, adding that this no longer suffices as ‘clients are increasingly looking for advice and whole-portfolio conversations.’ Blackrock’s biggest strength, she adds, is to ‘contextualise any conversation on the whole portfolio.’ Any chief investment officer will want to know the impact of any given change on the entirety of their institution’s portfolio, for example.

Castelli describes this as partnership, in which central banks ask profound questions about comparability, benchmarking and a number of other issues. The pandemic has accelerated this trend and has deepened the relationships between asset managers and asset owners. Managers need to be in a position to advise institutions on holistic portfolio construction issues, providing simulation advice and more.

Part of the challenge and reward of this, says Johanna Lasker, CEO, North America and head of central banks and official institutions at BNP Paribas Asset Management, is that sovereign clients face a distinct set of constraints, particularly during the pandemic. Given the public nature of these institutions, they face unique transparency and volatility pressures. ‘Institutional clients are more interested in investing precautionary savings at the moment, but GPIs are more interested in deploying cash to support economies,’ says Lasker. As a result, asset managers must take into consideration a broader set of variables and tread carefully.

Dussoubs says that Amundi advises official clients on precisely how to craft these solutions: ‘There’s been a dialogue with asset managers on what to do,’ he says. All of these advisory roles require a political sensibility, whether in terms of adding new investments or crafting public-private infrastructure partnerships.

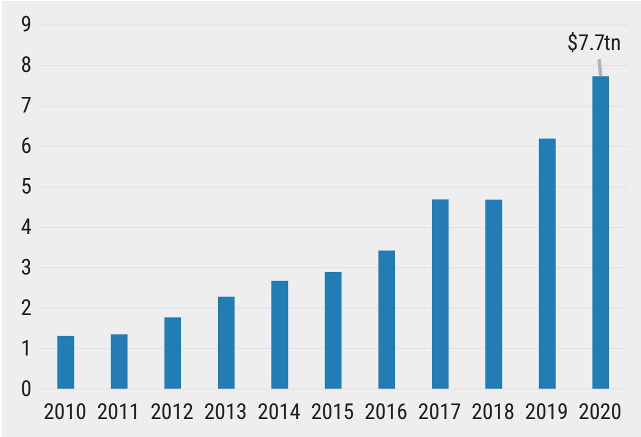
However, the heightened geopolitical tension of the past decade or so – the clear ‘return of political risk’ illustrated by the election of Donald Trump in the US and the UK's departure from the European Union – has had little impact on asset managers’ sovereign business. ‘You would think geopolitics would matter, but it doesn’t, really,’ says Cross, adding that HSBC has seen more interest in China over the past year than in the previous four years combined. Most clients ask about how best to invest in China, confirming that there is an enduring interest in the region. OMFIF’s GPI survey shows that there is a booming interest in Asia Pacific: the share of public investors seeking to add to their regional exposure has risen from 30% to 39%.

But while many GPIs are interested, or even 'adventurous' in their approach in China, as Cross puts it, others are taking a tougher stance, and external managers may find it tricky to straddle this divide. Sweden's AP7 recently blacklisted Chinese equities on human rights grounds. Norges Bank Investment Management, the world's largest sovereign fund, has heaped pressure on Chinese regulators recently because of inadequate corporate sustainability reporting requirements. So while some asset managers are firmly convinced that GPIs are underexposed to China, there are signs that members of the asset owner community are more sceptical. How geopolitics will shape the relationship between asset owners and asset managers is an open question, but it is becoming a more pressing one as interest in China surges post-pandemic.

EXCHANGE-TRADED FX RESERVES

The emergence of whole-portfolio relationships doesn't mean that discussions about products have become any less important. One of the key trends of the past few years among GPIs is the growing use of ETFs. 'The official institution sphere has been late to the ETF party,' says Mateos y Lago, but the asset class diversification of the past decade is evolving into instrument diversification as well. The fact that there was no major ETF disaster in the spring of 2020, when other vehicles such as money market funds faced significant stress, has added to their lustre (Figure 4).

What appeals to GPIs about ETFs as a means of achieving diversification is their operational and financial efficiency. They provide a particularly easy way to acquire new types of assets: for example, if a central bank wants to add equity exposure, it can buy ETFs. Similarly, a reserves manager with relatively strict credit rating



4. Sovereign investors late to the ETF party

AUM of global exchange traded funds, $tn, 2010-20

Source: Statista

guidelines may find that a corporate bond ETF provides higher yield relative to the underlying market, allowing the manager to enhance yield without compromising on the limits of their credit universe. Mateos y Lago adds that some central banks have also used ETFs to get exposure to mortgages.

ETFs are generally passive, allowing the central bank to reap the benefits of indexation at a relatively low cost. '[GPIs] generally ask for standardised solutions with low management costs,' says Dussoubs. They are also market-based, so public institutions can bypass the complex tender and on-boarding processes typically required when a mandate is used to implement an asset class, the other main option. This also means that they can serve as a good solution for liquidity management.

Another feature which makes ETFs a popular tool is the fact they can be customised. In the past, if a central bank wanted a tailor-made investment approach, it had to award a mandate to an asset manager. But as the level of customisation of ETFs has grown, they have become more accessible for GPIs, says Castelli. This has led to asset managers developing increasingly specific solutions for central banks, rather than more vanilla ETFs. Some critics have pointed to the limits of the ETF business model for GPIs: greater customisation could mean higher fees, and many central banks have limits on seeding new products, which means they can only shape their products so much. Others note that this approach is blurring the line between active and passive management.

'An important task is constructing benchmarks with a materially lower CO_2 footprint, which would be made more widely available to other asset owners.'

Sander van Stijn
PGGM

But these drawbacks do not yet outweigh the benefits on offer to official investors. And the use of ETFs will only grow, as they are increasingly becoming the preferred option for implementing sustainability policy in reserves management and sovereign investment.

MAKING RESERVES MANAGEMENT SUSTAINABLE

'ESG has gone from zero to 100,' says Lasker. While 'a few years ago, it wasn't a topic in discussions,' now, 'clients often start the ESG conversation with us.' The Covid-19 shock has led to growing awareness of sustainability considerations, especially among official investors, but their approaches have differed significantly, requiring asset managers to be nimble and focused.

As GPIs invest in corporate bonds, equities and real assets, it becomes more feasible to implement sustainability. When these assets grow as a share of sovereign investment assets, they will naturally lend themselves to 'greening'. But there has also been a significant shift in the intellectual climate. As Mateos y Lago notes, there has been 'an important qualitative change, with clients more focused and ESG fast becoming an anchor.'

The first sustainability tipping point for GPIs was the early involvement of public pension funds in response to pressure from members. PGGM, the second-largest Dutch pension fund, started excluding tobacco companies from its funds in 2013, and formally began impact investment in 2014. Now, things have gone much further, said Sander van Stijn, head of external management at the fund. This involves a whole suite of new implementation strategies, including better thinking about how to measure impact, standardising classification frameworks, and further reducing the CO_2 footprint of PGGM's portfolio. Even when selecting a manager, van Stijn and his team look at the organisation in a holistic manner, not just examining how sustainability criteria fit into their general investment philosophy and process, but also the external managers' voting behaviour.

Pension funds have also tried to apply their clout to ESG issues, particularly standardisation, van Stijn notes. 'You need certain standards so that investors can compare themselves,' he adds, hence their participation in groups such as the Global Asset Owners Forum, which brings together heavyweight pension funds to discuss progress towards sustainable development goals, for example. Other fora bring together both asset owners and asset managers, such as the Net Zero Asset Owners Alliance. These partnerships are likely to play an important role in fostering dialogue between pension funds

'To solve the problem of freezing, we keep expanding the universe of data sources in our platform.'

Rohan Singh
BNY Mellon

'With interest rates set to stay low for longer, diversification is more imperative than ever and official investors will turn to external managers and their product and advisory offerings for guidance.'

and external managers in the future.

While pension funds were early movers, central banks had a more difficult time figuring out how to respond to the issue of sustainability, but there has been 'significant acceleration over the past two years,' says Castelli. This is largely driven by a small group of institutions, such as the Swedish Riksbank, taking a leadership role regarding climate issues in their reserves portfolios. Outside this club is another group whose members are largely focused on climate as a financial stability risk and who are greening their own funds, such as the European Central Bank. For these central banks, there are several important, unanswered questions about the proper role of sustainability and how it can be integrated in reserves portfolios.

The first question has to do with exclusion policy, including how to design it and where to apply it. This is often the first step to integrating sustainability criteria. At this stage, the role of the external manager is to provide insights, guidance and technical assistance, including what Lasker describes as discussions around proprietary scoring methodology. Lasker gives the example of a coal-dependent country whose central bank wants to develop a sustainable exclusion list. These are the problems that external managers are asked to tackle when they are hired by GPIs.

Asset class diversification also limits the usefulness of exclusion lists. While the universe of sustainable government bonds is growing, it is still a relatively small market, so balancing the liquidity of the bond portfolio and sustainability is difficult for more traditional, conservative reserves managers. As Dussoubs puts it, there can be 'tension between supporting the value of your currency and supporting ESG,' as the market size of eligible ESG assets is very small compared to the large amounts mobilised by central bank policy interventions.

While some central banks may be limited in the scope of what they can achieve given their risk appetite and the size of eligible assets, Dussoubs notes that many other sovereign investors are increasingly committed to applying exclusionary criteria in more innovative ways, or to combining multiple ESG criteria to balance and reach sustainable objectives. He cites a 'just transition' fund recently launched by Amundi. This creates a portfolio built to reach the temperature objective from the Paris agreement on climate, and combines it with social key performance indicators to include socially responsible issuers to mitigate the social impacts of the transition towards a low carbon economy.

For those official investors making inroads into ESG investment policies, the question of benchmarking is also important.

'ESG has gone from zero to 100.'

Johanna Lasker
BNP Paribas Asset Management

For a central bank with limited ESG exclusion, this is a relatively easy task. But for funds which are CO_2-proofing their portfolios and impact investing, this is more difficult. Van Stijn says an important task is constructing benchmarks with a materially lower CO_2 footprint, which would be made more widely available to other asset owners. According to van Stijn, PGGM managed to reduce the CO_2 emissions of its equity portfolio with very limited tracking error, and made this available to other investors. But, he says, you have to be 'sensible about the trade-off between returns and climate impact.'

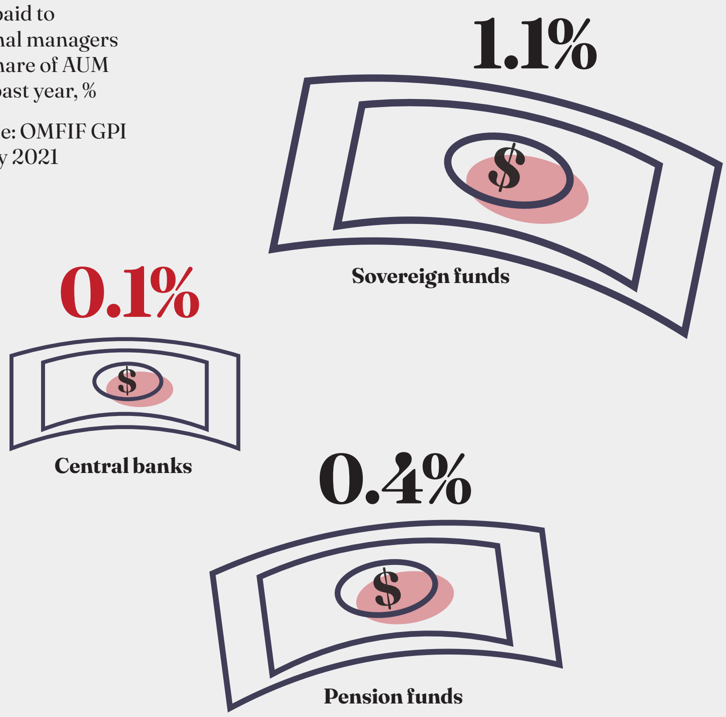
Van Stijn's ambition strikes at the heart of some of the most important sustainability-related tasks for asset managers in their relationships with GPIs: provide leadership, solve methodological problems and drive cutting-edge initiatives. According to Lasker, now that some central banks have 'jumped a few steps' in their ESG journey thanks to the pandemic, a lot of them have asked for help in understanding BNP's proprietary ESG scoring methodology, for example.

As Mateos y Lago puts it, 'the ESG ecosystem is evolving so rapidly that freezing the system now to design reporting almost makes no sense.' But the message from asset managers is clear: they are investing in technology and working on their own flexibility to stay as up to date as possible. BNY Mellon's head of asset owners, Rohan Singh, describes this endeavour as a kind of crowdsourcing: 'To solve the problem of freezing, we keep expanding the universe of data sources in our platform,' he notes, continuously bringing in new data from a variety of sources. Investment in digital infrastructure will prove key to facilitating ESG integration and reporting.

5. Central banks lowest fee payers

Fees paid to external managers as a share of AUM over past year, %

Source: OMFIF GPI survey 2021



COMPETITION DRIVING FEES DOWN AND AUM UP

The problem with the massive investment in data needed is that it requires scale. Asset managers have experienced competitive pressures for decades, but these pressures are particularly intense in the institutional business where fees are squeezed and a lot of 'pro-bono' work is required of the manager.

'Further consolidation is inevitable,' says Lasker. There is a sense that the trends shaping the official institutions asset management business at the moment are contributing in direct ways to this outcome. ESG integration will require enormous data investment. The sophistication of ETFs, and the execution risk this creates for sovereign investors, drives a flight to safety whereby central banks and other sovereign investors take refuge in big-name asset managers. GPIs want a range of services from their external managers that require a lot of work and investment. Castelli describes the conferences and training sessions that UBS put together for official clients as an example of what is required to stay competitive. In some sense, he says, asset managers are replacing former consultancies, but can also provide guidance on where investment trends are heading given their role in the market. This adds to their responsibility but also means that scale becomes ever-more critical.

OMFIF's 2021 GPI survey shows that fees differ greatly across the GPI sector. While the central banks surveyed pay an average of 6 basis points of their AUM in external management fees, pension funds pay 42bp and sovereign funds pay 112bp. This reflects the greater complexity of their investment strategies. One respondent pointed to the role of private market exposures in driving up fees. There were also significant differences between regions, with African respondents paying 6bp in fees, compared to 30bp for Latin American respondents, on average.

ACCELERATING THE INEVITABLE

'When a central bank asks you to manage their reserves, it's a huge responsibility,' Lasker says. The nature and complexity of these responsibilities has evolved over the decades, but the pandemic accelerated and energised some of the inevitable changes. With interest rates set to stay low for longer, diversification is more imperative than ever and official investors will turn to external managers and their product and advisory offerings for guidance. As 'building back better' becomes a hopeful catchphrase for the post-pandemic global economy, diversification, sustainability and geopolitics will influence overall strategy.

External managers have had to adapt to this new pace of life, which shows no sign of slowing. ■

4

Active ownership

- More than 50% of central banks now engage in shareholder dialogue and exercise voting rights
- Time and cost are the biggest constraints for public pension funds in adopting active ownership
- Over 90% of central banks have green bonds in their ESG portfolios
- 25% of GPIs expect to increase their holdings of green/sustainable equities

Global public investors moved faster and further in integrating ESG criteria in their decisions and investments this year.

Turning values into value

By Danae Kyriakopoulou

IN A SINGLE day on 26 May this year, the world witnessed how societies' values can affect financial value. Three of the biggest publicly traded oil and gas companies suffered a climate backlash.

A Dutch court ruled in favour of climate campaigners, ordering Royal Dutch Shell to lower its emissions faster than planned by 45% by 2030. On the other side of the Atlantic, ExxonMobil shareholders elected two new climate-conscious board members proposed by small activist hedge fund Engine No. 1, defying management opposition. The same day, shareholders at Chevron's annual meeting supported a proposal to cut Scope 3 emissions, again in opposition to the company's directors. And a court in Australia concluded that the government has a duty to protect young people from climate change.

Policy-makers and investors should not be surprised by such rulings or decisions. Even though they are radical and mark a 'tipping point', it is clear that momentum for change has been building.

Investors can expect to see more and similar action in the courts and at shareholder meetings. This year's survey of over 100 global public investment institutions – central banks, sovereign funds and public pension funds – reveals that GPIs are serious about environmental, social and governance factors.

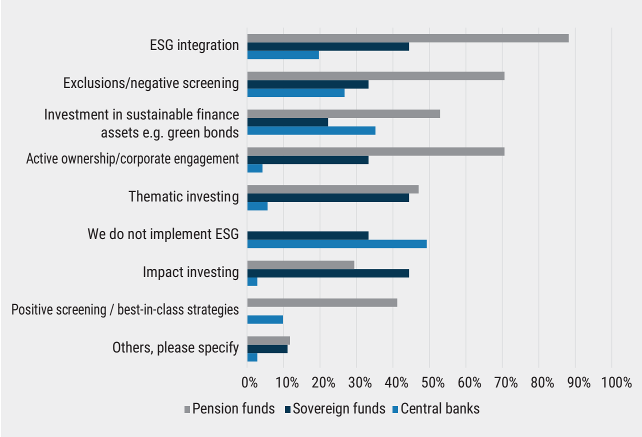
Readers may think there is nothing new here – this publication has been documenting the gradual incorporation of ESG thinking in investment decisions for at least five years.

In some ways, it is correct to interpret this year's results as a continuation of a longstanding trend. But while the motivations and direction of travel are within the realm of the expected, the scale and speed stand out. The sophistication of investors' answers to our questions on their thinking around ESG has also developed dramatically. Three years ago, most respondents skipped the question when we asked, 'What restrictions or challenges do you face when investing in sustainable assets?' Even those who answered did so in vague terms: 'regulatory issues' said one European sovereign fund, 'greenwashing, sometimes' was the answer of a European pension fund. A North American pension fund cited 'lack of info' while a pension fund from Asia Pacific worried about the 'potential for lower returns'.

In contrast with 2018, investors in this year's cohort were much more informed and specific. They revealed how they are actively looking to overcome barriers. A central bank from Europe citing 'lack of liquidity in the secondary market' explained that 'We are running portfolios with short modified duration and most ESG bonds have longer maturities dates.' It revealed that it is studying 'the best way for further integration of ESG, like hedging the interest rate exposure.'

Among those worrying about the potential for lower returns, a central bank from Europe highlighted that 'ESG-labelled products and services come with higher costs, which requires careful considerations of the benefits.' They warned that this is a difficult task due to 'lack of high-quality data and consistent market practice.'

Still, perceptions vary on how far the industry has moved. A North American pension fund warned that 'Greenwashing the status quo is the real thing. Managers all seem to have ESG policies now, though cultures, approach and strategy do not appear to have changed that much.'



1. Pension funds lead on ESG, deploying greatest variety of strategies at scale

In which of the following ways do you implement ESG investment?

% of total responses by institution type

Source: OMFIF GPI survey 2021

MOST INVESTORS IMPLEMENT ESG CRITERIA

To establish how much strategies have changed, we first asked participants if and how they implement ESG criteria. For the first time, the majority in all three categories of GPIs stated that they implement ESG in some way. This differed widely between types of institution, with all pension funds implementing ESG criteria, compared with around two-thirds of sovereign funds and just over half of central banks (Figure 1).

ESG integration, exclusions and active ownership were the most popular strategies among sovereign funds and pension funds, with over a third of the former and over 70% of the latter implementing them. For central banks, sustainable investments such as green bonds are the most popular strategy, practised by over a third of institutions.

Several funds observed that implementing ESG is not seen as an intentional, mission-orientated strategy, but happens almost naturally within existing frameworks.

In the news

ESG continues to make headlines in 2021

Source: Reuters, Wall Street Journal

Chevron shareholders approve proposal to cut customer emissions

BREAKING

Activist Wins Exxon Seats After Opposing Its Climate Strategy

Upstart investor Engine No. 1's victory in one of the most expensive proxy fights ever is an unprecedented setback for Exxon and its CEO, Darren Woods. 22 15 minutes ago

Shell Ordered by Dutch Court to Cut Carbon Emissions

The court ruled Shell is partially responsible for climate change and ordered it to reduce carbon emissions 45% by 2030, a first-of-its-kind ruling that adds pressure on oil companies already under scrutiny from governments and investors. 428

Frank Scheidig
Global Head of Senior Executive Banking, DZ BANK

New giant enters green bond market

The Covid-19 crisis has brought the European Commission into the capital market, hoping to fund a green recovery and new post-pandemic economy

ALTHOUGH THE European Commission has long been able to issue bonds, it has been a rather rare guest on the capital market. In 2020, everything changed.

During crises, it is important to steer financial flows in the right direction. Public capital alone is not enough. The financial market has a special role to play in mobilising private capital in the fight against Covid-19 and its consequences.

The capital market's response was not long in coming. Many supranational issuers successfully issued bonds to support countries, industries and populations hard hit by Covid-19. These bonds proved themselves suitable instruments in the fight against the economic impact of the pandemic.

And so it was that bonds came into focus as part of the European Union's fourth financial aid programme – the Support to mitigate Unemployment Risks in an Emergency programme – and made the Commission one of the largest social bond issuers overnight.

However, that was only the beginning. SURE was just a test run for a much more ambitious funding project, Next Generation EU.

> ‘Covid-19 must not be used as an excuse to ignore the environmental challenges still facing us.’

There is much to do on the sustainability front. We must continue to address the issues defining the future of Europe and the planet and build a more sustainable economy.

Covid-19 must not be used as an excuse to ignore environmental challenges. This would have consequences that are irreversible and far more serious than those resulting from the pandemic.

This is where the so-called green recovery comes into play. The EU’s long-term budget, coupled with NGEU, will be the largest stimulus package ever financed in Europe. A total of €1.8tn will help build a post-pandemic Europe. The European green deal is a growth strategy for a more sustainable, resilient and future proof economy.

NGEU can raise up to €800bn through bond issuances. The centrepiece of NGEU is the recovery and resilience facility, an instrument to offer grants and loans to member states, with a total value of €723.8bn in current prices.

To finance NGEU, the Commission will borrow on the capital markets. The borrowing will be concentrated in 2021-26. All borrowing will be repaid by 2058. The size of borrowing translates to roughly €150bn per year.

The Commission will seek to raise 30% of funds through green bonds. This will help access a wide range of investors, in particular ESG-focused ones, and cement Europe’s leading role in sustainable finance markets. Green bonds will also help support Europe’s economic transition on advantageous financial terms. The green bond market also stands to benefit, with others following the Commission’s example. Finally, it provides portfolio managers with a safe green asset to help diversify their portfolio.

The recovery agenda must be seen as an opportunity to build a more sustainable future rather than simply a return to the past. We must repair the short-term damage from the crisis in a way that also invests in our long-term future.

We have no stronger asset to meet this challenge than the single market. After its successful entry into the social bond market in 2020, the EU will also become a giant in the green bond market. The planned issuance would more than double the volume of European green bonds.

Given the complexity of the borrowing, the Commission is putting forward a debt management policy on a par with that of some of the most advanced EU sovereign borrowers. This will mean issuing across the entire yield curve, from short-dated bills to bonds with maturities of up to 30 years.

Furthermore, the issuance activity will attract investors to Europe, bolster the international role of the euro and demonstrate the cohesiveness and robustness of the euro area. ■

'Central banks across Asia Pacific, Europe, Africa and Latin America answered that while they do not undertake corporate engagement strategies directly, they often do so through external managers.'

A central bank from Europe said that 'While we continue to work on developing a more explicitly defined ESG framework, there are already some exclusions taking place in our externally managed equity portfolio; in addition, we have some limited investments in green bonds.'

Others explained that ESG integration is related purely to returns and does not exist as a stand-alone strategy. A central bank from Africa stated that 'We do have some ESG bonds within our portfolio. But its allocation is related to returns and not to ESG criteria.' And another from Europe affirmed that 'We currently do not implement ESG criteria in screening our bond investments. We have investments in ESG bonds, but the decision was based purely on economic merits.' Similarly, a sovereign fund from North America explained that 'Our mandate is for total returns without a secondary mandate to promote ESG considerations. We invest in ESG themes to the extent that they are viewed as contributory to our return objectives.'

Implementing ESG through the choice of external managers was another popular option for GPIs. A common first step for asset owners who want to build up their capabilities in ESG is to partner with managers who can provide competence and expertise. Central banks across Asia Pacific, Europe, Africa and Latin America answered that while they do not undertake corporate engagement strategies directly, they often do so through external managers. Meanwhile, a pension fund from Europe stated that 'ESG integration takes place directly when we invest at the asset level, as well as part of external manager due diligence.'

Looking ahead, many GPIs who do not yet implement ESG criteria confirmed that such policies are under review or that they intend to do so in the future. A central bank from Europe stressed that 'The implementation of ESG criteria is being analysed under the strategic asset allocation review.' A sovereign fund in Asia Pacific explained that it is 'conducting an observation and assessment of the current options of the strategic integrations of ESG, taking into account our mission and objective.'

Some also highlighted that ESG integration is not just about environmental criteria, despite the disproportionate attention this agenda has received. One central bank from Asia Pacific revealed that it is practicing 'exclusions related to counterparties and issuers located in tax havens.'

ADDRESSING CLIMATE RISK

Looking more closely at central banks, a running theme of this publication has traditionally been how their decisions as monetary policy-makers have impacted their investment strategies as reserves managers. Chapter 3 examines how central banks' accommodative monetary policy stance has pushed their reserves management practices towards venturing into riskier asset classes. As this report has documented over the years, this has generally not been received as a positive by most central banks' reserves managers. They have felt pushed out of safe assets and have reluctantly invested in training in-house teams to develop new capabilities or else engaged external managers as partners.

A similar parallel can be drawn in the tension between central bankers' reserves management responsibilities and their roles as regulators and supervisors. Central banks' interest in the climate agenda began primarily in the supervision and financial stability teams. 'Climate-related risks are a source of financial risk. It is therefore within the mandates of Central Banks and Supervisors to ensure the financial system is resilient to these risks,' said the Central Banks and Supervisors Network for Greening the Financial System, in October 2018, in its first comprehensive report.

In three years, the NGFS has grown from eight founding members to over 100, representing the vast majority of the central banking community. As with monetary policy, the supervisory actions of central banks also affect their colleagues in the reserves department. As central banks – through the NGFS and in individual statements – have set expectations of how supervised financial institutions should address climate risk exposures in their portfolios, many in the financial system are demanding central banks to lead by example and do the same in their own portfolios.

Last year we reported on the Sveriges Riksbank's decision to divest from carbon-intensive Australian and Canadian municipal bonds. In a speech on 31 May this year, Danmarks Nationalbank Governor Signe Krogstrup revealed that the central bank is examining 'how to measure whether the corporations in which the foreign exchange reserve is invested are transitioning in alignment with the Paris climate accord.'

The word 'transitioning' is key here. An emerging theme in sustainable investment strategies has been the gradual shift from managing ESG risks in a static way to a more dynamic approach. The former relies on measures such as carbon intensity, which are relatively straightforward in terms of standardising and comparing.

For example, an investor can set thresholds of carbon intensity of its portfolio and decide to divest from companies A and B that emit higher than the threshold. However, such approaches fail to capture the potential of companies to transition. In this example, using a static approach of measuring climate risk would mean that the investor is not able to differentiate between companies A and B where company A is putting no effort into transitioning to a more sustainable company, while company B is.

MERITS AND CHALLENGES OF ACTIVE OWNERSHIP

The static approach has its merits. It is relatively straightforward and unsophisticated, making it easier both to implement and communicate. It arguably has the greatest potential for minimising headline risk for the lowest possible level of effort. But as investors' motivations to integrate ESG become more centred around actual portfolio risk management and less around reputation and headline risks, they are shifting away from the strategies that are most popular and easy to communicate to the strategies that are most effective.

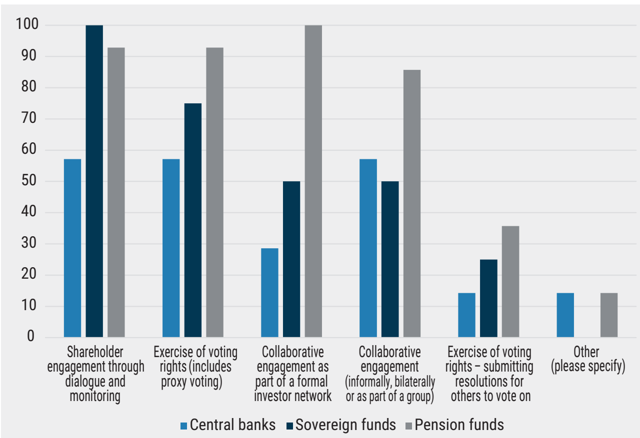
As Sandy Kaul, global head of business advisory services at Citi, told an OMFIF panel late last year, 'The whole approach around exclusions and integration of blended ESG scores is resulting in unclear linkages between the allocation of capital and the actual impacts on corporate behaviour that capital is helping facilitate.' Developments in disclosure requirements and data technology are underpinning the growth of more sophisticated approaches, enabling investors to influence corporates towards more effective lower-carbon business models.

GPIs played a role in both the ExxonMobil and Chevron cases, following the more popular active ownership strategies. The New York State Common Retirement Fund was one of the institutions that backed the activist campaign against ExxonMobil. Commenting on the outcome, Liz Gordon, executive director of corporate governance, said that 'This reflects a broad sea change. Political leaders, business leaders and clearly investors are all stepping up to address the climate emergency.' Aeisha Mastagni, portfolio manager at CalSTRS said that 'This is a historic vote that represents a tipping point for companies that are unprepared for the global energy transition.' She noted that while 'the board election is the first for large US companies focusing on the global energy transition… it certainly won't be the last.'

Active ownership strategies are more common among pension funds and sovereign funds in our sample (Figure 2). Among those with active ownership strategies, the most popular choice is shareholder engagement through dialogue and monitoring, practised by 84% of respondents. The exercise of voting rights, including by proxy, was the second most popular at 80%. Collaborative engagement policies, either formally or informally, were selected by over 70% of GPIs with active ownership strategies.

Submitting resolutions was the

'All pension funds are implementing ESG criteria, compared with around two-thirds of sovereign funds and just over half of central banks.'



2. Which active ownership practices do you follow?

% of total responses from institutions that use active ownership strategies by institution type

Source: OMFIF GPI survey 2021

8%

Only 8% of respondents have a benchmark for ESG investments

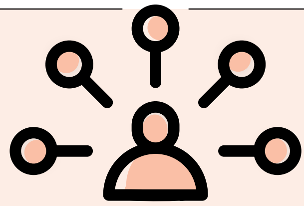
1/3

For central banks, sustainable investments such as green bonds are the most popular strategy, practised by over a third of institutions

31%

31% of central banks stated that ESG criteria do not fit with their investment strategy and a further 16% said that they face legal and regulatory restrictions

Shareholder influence



Stephen Gilmore
Chief Investment Officer, New Zealand Super Fund

AT THE NEW Zealand Super Fund, one of our foundational investment beliefs is that environmental, social and governance considerations are fundamental to long-term risk and return. We also acknowledge the wider beneficial impact on corporate practice, regulatory standards and the healthy functioning of capital markets from active, constructive asset ownership.

Our approach to active ownership varies by asset class. Given engagement can be resource-intensive, and our portfolio of listed stocks is so large (more than 6,500 holdings), we employ an engagement service provider, the Bank of Montreal, to engage on our behalf. We participate in numerous collaborative engagement initiatives, recognising that coordination with other asset owners is more likely to create the conditions for change.

Closer to home, our in-house team takes a substantial interest in the management of governance and ESG issues with companies in which we have a significant stake. We also engage with and exercise our voting rights across the New Zealand market, where our influence as an investor is greatest. As we cannot turn our minds to every individual voting opportunity, we rely on guidance provided by international standards and our proxy voting agency, Institutional Shareholder Services, to implement an automated but customised approach to global voting.

Our NZD2bn of domestic-listed equity investments are managed via both local external investment managers and an in-house team of investment professionals. As shareholders, we aim for our votes to reflect good governance: long-term strategy, board respect for shareholder rights, business ethics and appropriate remuneration. Views from all our New Zealand active listed equity managers are sought on votes, with our team making the final decision.

While important, it can be difficult to achieve measurable impact through voting alone. In 2015, we co-founded the New Zealand Corporate Governance Forum. Made up of institutional investors with long-term exposures to the New Zealand market, the forum has been instrumental in helping to promote global best practice in governance to drive the longer-term health of New Zealand's capital markets.

> 'Coordination with other asset owners is more likely to create the conditions for change.'

Our in-house team seeks to supplement our influence as a shareholder through proactive engagement efforts. We monitor, identify and engage with companies where we have reason to believe they have breached international standards of good practice, in particular the United Nations Global Compact. We have four priority areas to help us narrow our focus and decide on which companies to engage. These are: human rights and safety (child labour, work safety, operations in weak states); business ethics (bribery and corruption); severe environmental damage; and climate change.

Over the past few years, our engagement efforts have focused on leading a collaborative engagement initiative with the world's three largest social media companies. The initiative was started in the aftermath of the 2019 terrorist attack on two mosques in Christchurch, New Zealand, where 51 people died. It calls for Facebook, Alphabet (YouTube) and Twitter to strengthen controls to prevent the live-streaming and distribution of objectionable content. The initiative, which has 102 global participants, has sought to achieve its objectives through both voting and engagement.

Another focus has been our involvement in the One Planet Sovereign Wealth Funds initiative, where we have been able to make a wider contribution to systemic industry change at a global level. We led the early establishment of the initiative, which encourages large asset owners to integrate climate change risks in their investment management, and have provided technical leadership throughout. This is generating a ripple effect across the financial community, mobilising other large pools of capital towards assets and industries that will promote long-term value creation and sustainable market outcomes.

Driven in part by increasing public awareness, the expectations of asset owners globally continues to grow. Standards of best practice in active ownership are changing, and we are committed to evolving alongside our peers in response. ■

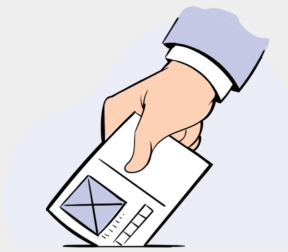
‘This reflects a broad sea change. Political leaders, business leaders and clearly investors are all stepping up to address the climate emergency.’

Liz Gordon, Executive Director of Corporate Governance, New York State Common Retirement Fund

Preferred active ownership strategies

84%
Shareholder engagement

80%
Exercising voting rights



70%
Collaborative engagement policies

First green bond issuance

2007
European Investment Bank

2017
Poland and France

2019
Netherlands

2020
Germany

2021 (end)
UK and Spain

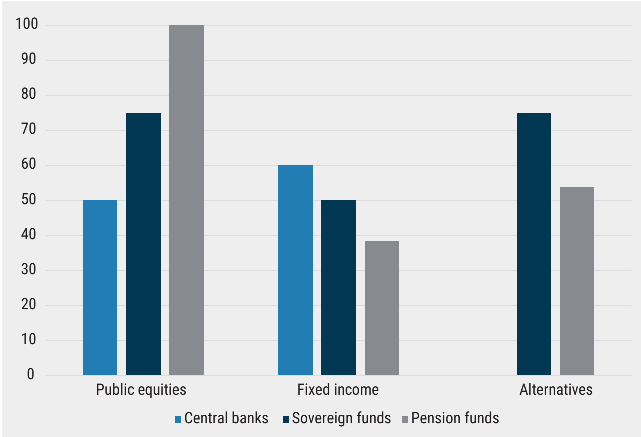
least popular approach, with one respondent commenting that 'The filing or co-filing of shareholder resolutions is very rare and would only be undertaken in extremis where engagement and preceding escalation strategies had failed.' Many respondents also commented that they were not in a position to give details on which active ownership strategies were followed and how often, as this was done mainly through their external fund managers.

The exact choice of strategy may also depend on the asset class and ownership structure of each investment, according to a North American sovereign fund. When asked about which asset classes they engage in active ownership for ESG purposes, public equities was the most popular choice, with most respondents across all three types of institutions selecting it (Figure 3). Fixed income and alternatives were also popular, particularly with sovereign funds. Sovereign funds mentioned specifically green infrastructure, private equity, real estate and private credit. Many respondents also highlighted that active ownership is conducted mostly indirectly through the fund managers of the externally managed funds.

DATA CHALLENGES AND COMPLEXITY

In implementing active ownership strategies, the big discrepancy between central banks on the one hand and sovereign and pension funds on the other is largely down to their legal mandates. For central banks who prioritise liquidity and safety over returns, active ownership strategies are simply not an option for fixed income, which makes up the bulk of their portfolios (see chapter 2).

Among sovereign funds and pension funds, time, complexity and difficulty of measuring results were the most commonly cited challenges (Figure 4). A pension fund from Asia Pacific highlighted that 'Our active managers have to weigh the performance benefits and this is costly.' A European sovereign fund explained that 'It is costly to train investors and administrators internally, and train and coach the management of portfolio companies and fund managers.'



3. Which asset classes do you engage in active ownership for ESG purposes??

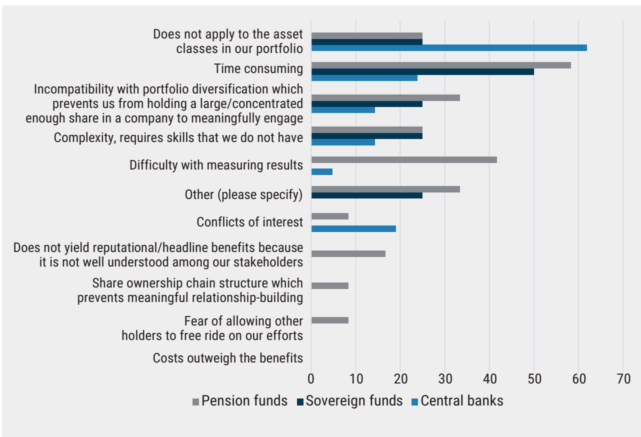
% of total responses from institutions that use active ownership strategies by institution type

Source: OMFIF GPI survey 2021

> 'Greenwashing the status quo is the real thing. Managers all seem to have ESG policies now, though cultures, approach and strategy do not appear to have changed that much.'
>
> North American pension fund

GPIs across all three institution types also noted their size as a potential challenge in implementing active ownership. While the cohort of investors covered in this report includes the 750 largest GPIs, these range from very large investors with trillions of dollars in assets under management to much smaller ones with just a few millions of dollars.

Composition of assets is also an important determinant, as central bank portfolios as a whole are only 8.8% invested in equities (where active ownership strategies are more possible). A North American pension fund and a central bank from Europe both commented that 'We are not large enough to have meaningful influence.' This echoed comments from a sovereign fund



4. What are some of the obstacles/ barriers you face in adopting active ownership?

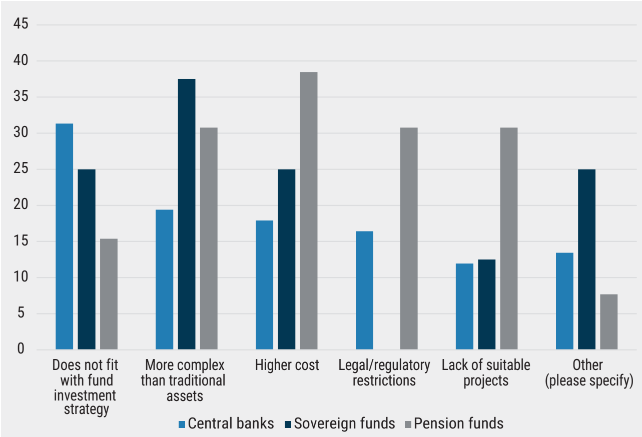
% of total responses by institution type

Source: OMFIF GPI survey 2021

5. What do you see as the barriers to ESG adoption/ further integration in your asset management?

% of total responses by institution type

Source: OMFIF GPI survey 2021



from Asia Pacific who stated that 'We are ultimately a small stock holder, a long way from some of the markets where we might want to do more engagement.'

Given this complexity, an important precondition for active ownership strategies to work effectively is the availability of comprehensive, timely and relevant data and information. As one European pension fund explained, 'Effective active ownership requires good data to highlight where risks may lie. Such data may not exist or be of poor quality, particularly in private markets.'

When asked in our survey whether they rely on existing benchmarks or ratings indices for ESG investments, around 60% of respondents said they did not. A third rely on external benchmarks, with most referring to Bloomberg's classification. Only 8% have a benchmark for ESG investments, although two sovereign funds and one pension fund revealed that they are in the process of constructing their own custom ESG benchmarks. This is a relatively novel trend that wasn't mentioned in previous editions of the survey.

The views on challenges particular to active ownership strategies are in line with the broader concerns GPIs face when looking to adopt or scale up their ESG strategies (Figure 5). Again, 31% of central banks stated that it does not fit with their investment strategy and a further 16% said that they face legal and regulatory restrictions. One central bank from Europe explained that this is largely due to the types of assets dominating their portfolios: 'Central banks need government bonds for liquidity, and they don't have alternatives. Therefore, a large part of the portfolio is actually not in our hands as regards ESG.'

> 'Climate-related risks are a source of financial risk. It is therefore within the mandates of Central Banks and Supervisors to ensure the financial system is resilient to these risks.'
>
> NGFS report, October 2018

Central banks also expressed concerns around reputation, with some thinking that the pendulum has swung too far and that integrating ESG in reserves management could damage their independence and credibility. A central bank from Latin America cited 'reputational risk' as a key barrier to investing in ESG.

Banque de France Governor François Villeroy de Galhau, speaking at the Bank for International Settlements' Green Swan conference in June, acknowledged that while greening finance may have been considered the 'new frontier for the 21st century' for central bankers three years ago, the challenge now 'could almost look inverted'. Central banks have gone from the risk of doing 'too little, too late' to the criticism by some of 'too many doing too much'. His conclusion, however, was: 'No, we are not doing too much' and that 'we are never too many.'

GREEN BONDS: SMALL BUT GROWING FAST

A less commonly cited challenge, but one that is becoming increasingly relevant as more investors move into this space, is the lack of supply to meet growing demand. A central bank from Africa explained that 'Green bonds as a share of traditional bonds still have a very small market cap while liquidity is still considered challenging due to the buy-and-hold nature of investors.' This was echoed by a central bank from Europe who stated that 'Green bonds issued by highly rated sovereigns are very limited and we currently cannot invest into corporate bonds or equities in reserves portfolios.'

Green bonds remain the most popular sustainable asset class for GPIs, followed by sustainable equities (Figure 6). Respondents

'Green bonds as a share of traditional bonds still have a very small market cap while liquidity is still considered challenging due to the buy-and-hold nature of investors.'

African central bank

SRI in reserves management

Franz Partsch

Director, Treasury Department, Oesterreichische Nationalbank

RESPONSIBLE INVESTMENT, CLIMATE-RELATED risks and environmental, social and governance integration have gained relevance for all types of investors in recent years, including central bank reserves managers. The Oesterreichische Nationalbank (OeNB) has committed itself to gradually integrating socially responsible investing into its reserves management strategy and processes, as have many other central banks.

The OeNB has diversified portfolios in its currency reserves, its own funds and its staff pension fund, including non-traditional reserve assets such as equities, corporate bonds, convertibles and emerging market assets, both bonds and equities. For the management of these non-traditional asset classes we employ more than 40 external managers. These external managers play an important role in our step-by-step implementation of SRI. These are some of our experiences in this process.

The most important step is integrating a comprehensive set of SRI criteria into the selection process to ensure a consistent application of the SRI strategy in the OeNB's mandate. At company level we look at the SRI commitment and introduce SRI-related staff training. In the investment approach we analyse the scoring methodology to see whether it is externally verified. Another important aspect is the source of our data, and whether internal data are complemented by independent external data sources.

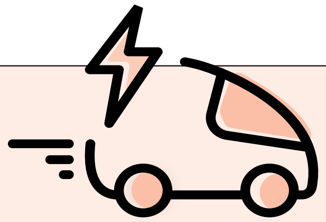
'A comprehensive approach with the different aspects is extremely important to select the best SRI manager for a specific portfolio.'

Next, we analyse how ESG scores and their sub-scores are integrated into the portfolio construction and the portfolio management tool. We check that the relevant ESG information is available to portfolio managers for decision-making. Then we look at the performance indicators used to assess the alignment of the portfolios with the SRI strategy. An important element here is how these indicators can be mapped to market standards to ensure a consistent application across portfolios and asset classes.

Finally, we look at the integration of the ESG scores into the risk management function. The focus here is how sustainability risks of portfolios are reported and how compliance with ESG criteria is ensured.

We apply these selection criteria to several asset managers. Although nearly all eligible asset management firms place great emphasis on the development of their SRI capabilities, we still observe major differences between their approaches regarding the criteria we apply. Therefore, a comprehensive approach with the different aspects is extremely important to select the best SRI manager for a specific portfolio. Equally important is consistent monitoring of the application of the SRI criteria. Here we focus on the reporting and the risk and performance attribution.

Our comprehensive approach has not only enabled us to select the right external portfolio managers but also informs and supports us in the future integration of SRI elements into our internally managed portfolios. ■



ESG drives long-term value

Andrew Gray
Director, ESG & Stewardship, AustralianSuper

AUSTRALIANSUPER ACTIVELY STEWARDS the capital it manages on behalf of its beneficiaries. We have a long-standing programme of integrating environmental, social and governance considerations into decision-making and stewardship activities. We believe this integration will increase investment returns for beneficiaries.

Managing more than $210bn on behalf of 2.5m members, AustralianSuper is Australia's largest superannuation (pension) fund. More than 40% of assets are currently managed by our in-house investment team. This is expected to rise to 50% over the next few years. With this growth has come an increase in our ownership responsibilities and ability to influence ESG outcomes.

We view ESG integration as a driver of long-term value and not as a separate strategy. ESG factors are integrated into our key value driver investment framework for listed equities and our due diligence programmes for unlisted assets, where companies are assessed based on material ESG risks as part of the decision of whether to invest.

There is a representative from the ESG and stewardship team involved in every major unlisted asset transaction. They undertake an ESG due diligence assessment of the opportunity. The output is a report highlighting ESG issues that may impact value and/or that will need to be managed once we own the asset.

For example, AustralianSuper part-owns a network of Australian road infrastructure assets. The location of these assets makes them susceptible to physical changes in the environment, so we assess the plans and adaptation measures of the assets to manage these risks. Changing weather events could also impact road access and usage, and put the safety and wellbeing of workers and road users at risk. We assess the alignment of company strategies and reporting for a net-zero economy by 2050 and monitor progress towards these goals. This includes monitoring operational reductions in direct emissions and indirect emissions, like those generated by the vehicles that travel on the roads.

> 'We view ESG integration as a driver of long-term value and not as a separate strategy.'

The ESG and stewardship team works closely with the internal investment teams to develop ownership programmes, which detail how we manage ESG issues once we own an asset. For example, we develop ownership plans for the companies held within our internally managed domestic equities portfolios. These plans aim to capture the key considerations for the company under review, including performance on ESG factors. They enable us to better engage with each company to address high-priority issues that can impact long-term value for members.

AustralianSuper has been awarded an A+ rating by the United Nations-backed Principles for Responsible Investing for our overarching approach to responsible investment strategy and governance and listed equity-active ownership. We are committed to advancing progress on ESG issues and adopting responsible investment practices to deliver the best investment outcomes for members. ■

also mentioned social bonds, sustainability bonds and shariah-compliant bonds, as well as investments in infrastructure, sustainable impact private equity and venture capital funds, and real assets like renewables, infrastructure and private equity. Others highlighted that they do not treat sustainable assets as a separate asset class.

A sovereign fund from North America said that 'From time to time, we may own assets that fall into these categories, but they aren't tracked in this way.' A central bank from Africa explained that 'Our guidelines are mute on ESG investing, but if a bond fits both the ESG definition and the investment guidelines it can be included in our investments.'

The market for such bonds, while fast growing, is still small. Since the European Investment Bank issued the first green bond in 2007, several sovereigns have issued green bonds. In September 2020, Germany raised €6.5bn from its first green bond. The UK and Spain are also preparing to launch their first green bonds by the end of the year. These developments follow green sovereign bond issuances in Poland, France and the Netherlands, among others.

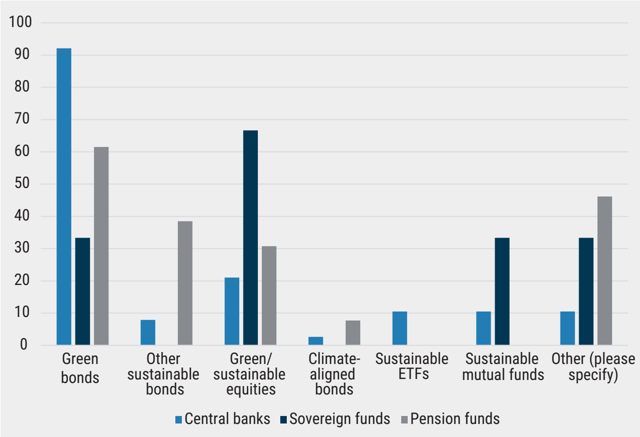
POST-PANDEMIC OUTLOOK

This year's GPI survey confirms the expectation that ESG considerations are becoming more important during this second year of the Covid-19 pandemic. GPIs plan to expand their allocations to ESG investments even further (Figure 7). Most respondents revealed that they expect to increase allocation to green bonds in their portfolios, although this is conditional on supply. This is an important caveat, with one central bank from Latin America highlighting that, while it aims to increase its exposure to green bonds, it faces challenges in doing so. These include having 'a limited dollar amount outstanding and issued regularly, as well as liquidity concerns.' Other central banks expect to broaden their

6. Green bonds and sustainable equities dominate GPIs' ESG portfolios

Which sustainable assets do you invest in?

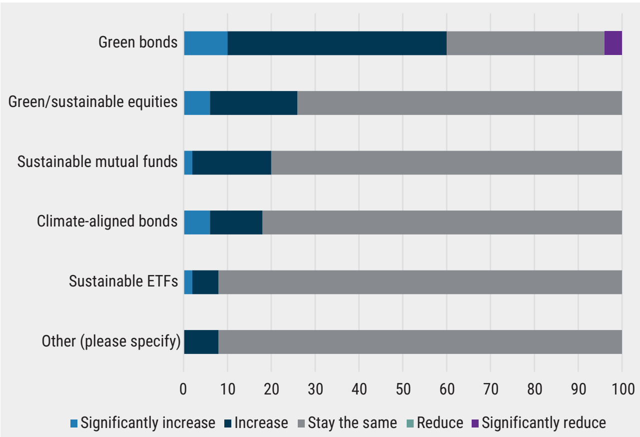
Source: OMFIF GPI survey 2021



7. Healthy appetite for ESG expansion among GPIs

Are you planning to increase your allocation to 'green' asset investments over the next 12-24 months?

Source: OMFIF GPI survey 2021



investment universe to be less dependent on green bonds and are looking to transform their externally managed mandates into formats that explicitly take ESG into consideration.

Five themes look set to dominate the direction of ESG integration by GPIs in the year ahead and broader post-pandemic environment.

First, a rethink of central banks' roles and responsibilities. The NGFS continues to move at great speed and several options are on the table for what central banks can do to provide clearer answers in 2021. These include deploying targeted green lending programmes and integrating sustainability in prudential policies.

Second, climate will remain centre stage in the run up to COP26 in Glasgow in November but biodiversity and nature-related investments are increasingly being recognised as the next frontier. The launch of the Task Force for Nature-related Financial Disclosures and the Convention on Biological Diversity (COP15) in Kunming, China in October will be important milestones for this year.

Third, developments in data and underlying framework infrastructures such as taxonomies are making more sophisticated ESG strategies possible. In June, G7 finance ministers stated their support for 'moving towards mandatory climate-related financial disclosures' in their joint communique. Apart from disclosures, technology developments to leverage direct data are also gathering speed. This includes a rising focus on 'forward-looking data' and a shift from thinking about portfolios in a static way to a more dynamic approach.

Fourth, the investment landscape for ESG is shifting in line with broader macroeconomic shifts. The paradigm of markets in the driving seat and public-private partnerships to drive the green transition is still dominant. But governments are taking a more central role, as shown by US President Joe Biden's more traditional public investment infrastructure plan and the European Commission's plans for the green transition.

Finally, policy-makers, regulators and investors are paying increasing attention to the need for the transition to not only be 'green', but also 'just and fair'. This stems from the growing awareness that we are all in the same climate storm but not all in the same boat, and that while we are all transitioning to the same end goal, the starting points are different (see the June 2021 edition of OMFIF's Sustainable Policy Institute journal). There is growing emphasis on the role of developing economies, potential social repercussions of the climate crisis – including stranded jobs and climate refugees – and on how standards and metrics can be adapted to reflect local needs, balanced against calls for more harmonised global approaches. This will have important repercussions for the way ESG investments are deployed. ■

> 'Effective active ownership requires good data to highlight where risks may lay. Such data may not exist or be of poor quality, particularly in private markets.'
>
> European pension fund

Call to action

Norway's Government Pension Fund Global should join Net Zero

Economists and experts' statement

FOR THE WORLD to successfully mitigate climate change, decisive action by governments and the private sector is essential. Large institutional investors, such as pension funds, insurance companies and sovereign funds, will need to reduce their total portfolio carbon emissions towards net zero by 2050 or sooner.

Through membership in the United Nations-convened Net Zero Asset Owner Alliance, 42 institutional investors, representing $6.6tn assets under management, have committed to doing so, with the first intermediate targets set for 2025. Meanwhile, 128 asset managers, representing $43tn assets under management, have joined the Net Zero Asset Managers Initiative, to support investing aligned with net zero emissions by 2050 or sooner.

The Norwegian Government Pension Fund Global's total asset holdings are about three times the size of Norway's gross domestic product. The GPFG equity portfolio carbon footprint of 107.6m tonnes of CO_2 equivalents ($MtCO_2e$, 2019) is more than twice the amount of Norway's annual total emissions, and triple when excluding Norway's emissions during oil and gas extraction. Despite this, GPFG does not have specific emissions targets and has focused primarily on climate risk rather than climate impact. Country-level measurement of greenhouse gas emissions, which is standard under international agreements, significantly understates Norway's climate impact.

The Norwegian economy, due to its concentration in the oil and gas sector, is highly exposed to climate transition risk. A share of GPFG's portfolio assets is emissions-intensive and therefore highly exposed, increasing the overall transition risk to Norway's productive and financial assets.

GPFG, which represents $1.3tn assets under management, owns on average 1.4% of the world's listed companies. This makes GPFG one of the world's largest investors, and its adherence to the Net Zero Asset Owner Alliance would be a significant step towards achievement of the objectives in the Paris agreement. GPFG is also a highly influential investor, and its adherence would set an important precedent for other sovereign funds.

As leading economists and experts from around the world, we have come together to urge the Norwegian government and parliament to sign up the GPFG to Net Zero. Guided by sound economic principles, we are united in the following policy recommendations.

- For Norway to be consistent about its climate ambitions, GPFG's investments should be in line with Norway's climate goals. This would require the establishment of concrete and ambitious emissions targets for GPFG.
- GPFG exists to safeguard Norway's extracted petroleum fortune for future generations. Its investments should contribute to the conservation of the climate that these generations will live in.
- Norway can provide GPFG with a climate-aligned mandate, while also maintaining its independence as a commercial investor.
- Norway can reduce its overall exposure to climate transition risk by bringing down the greenhouse gas emissions intensity of the GPFG portfolio.
- In accordance with the Paris Aligned Investment Initiative, Norges Bank Investment Management, which manages the GPFG, should prioritise engagement and stewardship as the primary mechanism to drive climate alignment, with portfolio construction and selective divestment as complementary tools.
- As one of the world's most influential investors, NBIM should align its global voting guidelines with the objective of reducing total portfolio carbon emissions to net zero by 2050 or sooner.

We urge the Norwegian government and the Storting (parliament) to take the opportunity of COP26 to announce the GPFG's membership of the Net Zero Asset Owner Alliance. ■

> 'We urge the Norwegian government and parliament to take the opportunity of COP26 to announce GPFG's membership of the Net Zero Asset Owner Alliance.'

SIGNATORIES

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Håvard Halland, author and organiser of this statement

Key sustainable investment developments involving public institutions in 2020-21

Source: OMFIF analysis

Institution	Description	Date
G7 countries	Leaders of G7 economies backed a proposal to make climate risk disclosures mandatory. New Zealand was the first country to introduce mandatory TCFD disclosures in September 2020.	June 2021
Central Banks and Supervisors Network for Greening the Financial System	NGFS membership has grown to over 90 members, including the US Federal Reserve and the Reserve Bank of India, which both joined in 2021. NGFS published the first report of its workstream on bridging the data gaps in May and an updated climate scenarios report and portal in June.	June 2021
Norges Bank Investment Management, AP2, ABP and PFZW	Norway's sovereign fund divested from two Israeli companies in its portfolio due to concerns over violations of rights in war or conflict. NBIM also divested from a Japanese clothing company with garment factories in Myanmar over 'systematic violations of human rights'. Swedish pension fund AP2 divested from Korean firm Posco over its links to Myanmar. Meanwhile, Dutch pension funds ABP and PFZW have been criticised over their $2bn investments into companies with links to Myanmar.	May 2021
Network of Regulators for Sustainable Development (REDES)	Regulators from Latin America and the Caribbean launched the REDES to support the development of national sustainable finance strategies and rules in the region.	May 2021
US pension funds	The New York State Common Retirement Fund and California's CalPERS and CalSTRS were among the coalition of investors led by activist hedge fund Engine No. 1 that elected two new climate-conscious directors on the board of ExxonMobil.	May 2021
Temasek	Singapore's sovereign fund announced a partnership with Blackrock committing $600m through a series of late-stage venture capital and early growth private equity investment funds focusing on advancing decarbonisation solutions.	April 2021
Canada Pension Plan Investments	CPP Investments created their sustainable energies group, a new investment group with $18bn in AUM to invest in the sustainable energy market.	April 2021
National Bank of Belgium	Law firm ClientEarth launched a lawsuit against the Belgian central bank 'for failing to fulfil environmental protection and human rights requirements' in its corporate asset purchases as part of the ECB's quantitative easing programme.	April 2021
UK government and Bank of England	Chancellor of the Exchequer Rishi Sunak confirmed plans for the UK to issue its first green gilt in 2021 and updated the Bank of England's remit to include the transition to a net-zero economy. The BoE has also announced it will make corporate climate risk disclosures mandatory by 2025.	March 2021
European Central Bank	In January the ECB began accepting sustainability-linked bonds as collateral for Eurosystem credit operations and outright monetary policy-linked purchases. It also set up the Climate Change Centre and announced plans to invest in the Bank for International Settlements' green bond fund. In March it published the preliminary results of its economy-wide climate stress tests. Back in July 2020, the central bank also announced it is switching to low-carbon equity benchmarks for its staff pension fund.	January-March 2021
Norges Bank Investment Management	For the first time NBIM, the world's largest sovereign fund, divested from seven companies because of lack of transparency regarding their tax practices.	February 2021
Bank for International Settlements	The BIS launched a second green bond fund for central banks, this time denominated in euros.	January 2021
New York pension funds	The New York City Employees' Retirement System and the New York City Teachers' Retirement System voted to divest their fossil fuel securities, estimated to be worth around $4bn.	January 2021
Government Pension Investment Fund	Japan's GPIF announced a combined $12bn investments in two ESG equity indices: MSCI's ACWI ESG Universal Index and Morningstar's Gender Diversity Index.	December 2020
New York State Teachers' Retirement System	In contrast to most other NY public pension funds, NYSTRS increased its investments in coal companies to $300m in 2020, facing pressures to divest.	December 2020
AP2	Swedish pension fund AP2 made changes to align its portfolio with the Paris Aligned Benchmark, exiting from 250 companies and cutting its carbon footprint in equities and bonds by over 70%.	December 2020
Federal Republic of Germany	Germany issued its first green sovereign bond, raising €6.5bn with a 10-year deal. Proceeds are aimed at improving sustainable infrastructure and environmental protection.	September 2020
Sveriges Riksbank	Sweden's central bank began purchasing corporate bonds in September and is working to develop methods to measure and report on greenhouse gas emissions from its portfolio and incorporate sustainability criteria in its choice of bonds.	September 2020
Banco Central do Brasil	Brazil's central bank added a sustainability dimension to its strategic agenda including measures to embed climate considerations in its policies, reserves management, stress tests and lending criteria.	September 2020
Banco Central del Ecuador	Ecuador's central bank launched a coalition between the public, private and academic sectors to promote sustainable finance, backed by the UN PRI, UNEP FI and other bodies.	August 2020

5

Global flows

- NIIPs climbed from 21% to 25% of GDP in 2020
- Cumulative current account surpluses and deficits are at their highest level since 2012
- Most of the US deficit last year was absorbed by China's surplus

After world-beating US stimulus widened imbalances in 2020, further US-led reflation could be a game changer for global financial markets.

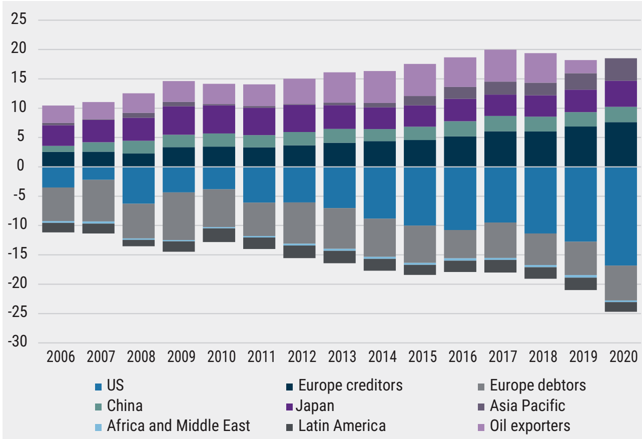
US to lead global recovery

By Chris Papadopoullos and Natalia Ospina

GLOBAL INVESTMENT IMBALANCES widened in 2020 and look likely to do so again this year as the US leads the global economic recovery. The cumulative debtor position of countries with net international investment position deficits climbed to 25% from 21% of global gross domestic product. An economy's NIIP is the difference between its domestic holdings of foreign assets and foreign holdings of liabilities. For example, a non-US sovereign fund, pension fund or central bank acquiring US assets such as equities or Treasuries raises the surplus of their country (or reduces its deficit) and increases the US NIIP deficit.

This was the main story in 2020 as a strong fiscal response in the US led to extra debt issuance and robust growth towards the end of the year, increasing the US current account deficit. When a country runs a current account deficit, it accrues liabilities against the rest of the world, which in this case meant the rest of the world acquired US liabilities, such as Treasuries.

The widening of NIIPs was partly due to the denominator – global GDP – shrinking by 4% and was partly the result of an increase of NIIPs in dollar terms (Figure 1). The US NIIP deficit climbed to 67% of GDP from 52%, the largest rise among major debtors. Spain's also rose, with mixed results among other countries (Figure 2). Ireland's NIIP is



1. US drives widening NIIP imbalances

Global NIIPs, % of global GDP, by region

Note: Creditor/debtor positions do not exactly balance due to differences in data. 2020 data are Q3, other years' are end-year. Data for the oil exporters cohort run to end-2019

Source: IMF

	NIIP, $bn		NIIP % of GDP		GPI top 850 ranking 2021		
Country	2020	2019	2020	2019	Assets $bn	% of top 850	No. of GPIs
US	-13,950	-11,051	-67%	-52%	8730	20.4%	214
Spain	-1,060	-1,034	-85%	-74%	90	0.2%	2
Ireland	-706	-696	-177%	-175%	24	0.1%	3
France	-698	-625	-27%	-23%	602	1.4%	6
Australia	-670	-655	-50%	-47%	1110	2.6%	26
UK	-668	-836	-25%	-30%	848	2.0%	109

2. Largest debtors

NIIPs, % of GDP, top six debtor economies

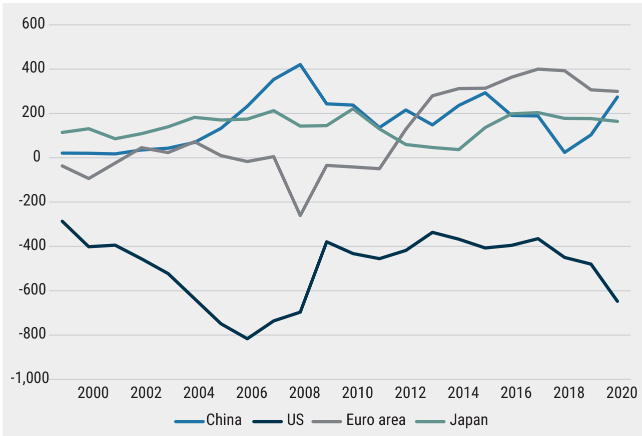
Source: IMF

disproportionately impacted by the location of multinational corporates for tax purposes.

There was a sharp widening in the US current account deficit in 2020, which was absorbed mostly in China's surplus, rather than the other two major surplus areas – Japan and the euro area (Figure 3). This widened cumulative current account surpluses and deficits to their highest levels in dollar terms since 2012 (Figure 4).

Current account deficit and surplus are flows that add to the stocks of NIIPs. The stock of NIIPs can also change in value due to changes in asset prices and the dollar exchange rate. In 2020 the main cause of valuation change was equity prices.

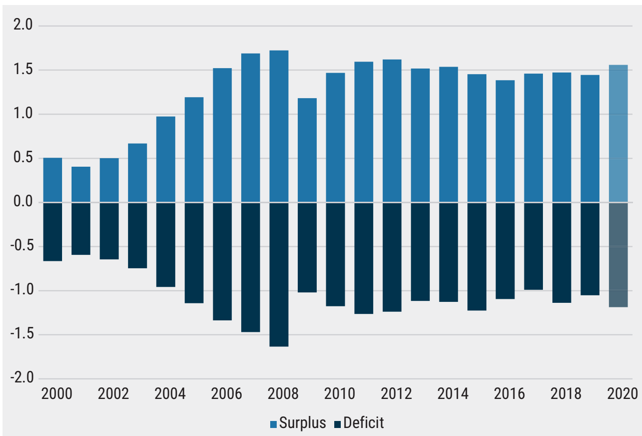
The US S&P 500 recovered quickly from the initial pandemic shock and finished 2020 up by 15% on the year. Other regional indices failed to recover with as much gusto, with the Europe-focused S&P 350 falling by 10% over 2020 and only recently recovering to pre-pandemic levels.



3. US deficit and Chinese surplus grow

Selected economy current account balances, $bn

Source: China State Administration of Foreign Exchange, US Bureau of Economic Analysis, Eurostat, Bank of Japan



4. Global current account surplus and deficit broadened

Aggregate current account surplus and deficit, $tn

Note: 2020 full-year data are IMF estimates.

Source: IMF

Tobias Adrian, Director,
Rohit Goel, Financial Sector Expert; **Sheheryar Malik**,
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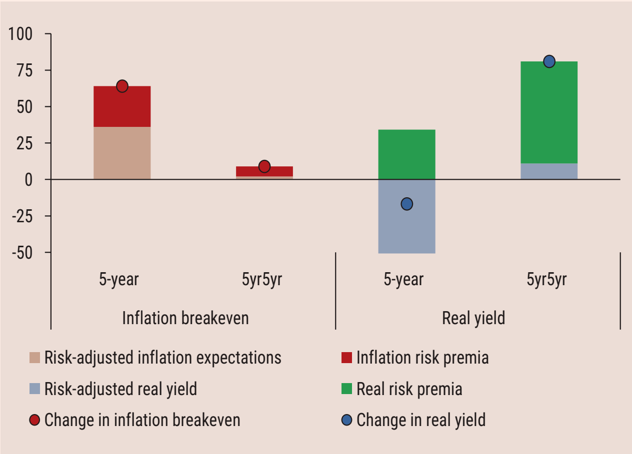
Global macrofinancial concerns

Understanding the rise in long-term US rates

GLOBAL BOND YIELDS have risen sharply this year, with the increase in long-term US interest rates becoming a particular focus of global macrofinancial concerns. The nominal yield on the benchmark 10-year US Treasury has increased by around 70 basis points this year. This is likely to be a reflection of the accelerating economic recovery from the Covid-19 crisis, aided by strong monetary and fiscal support.

But other factors, like the actual and anticipated increase in the supply of the US treassuries and investors' uncertainty about the economic and policy outlook, may also be playing a role in driving rates higher. Since US Treasury yields form the basis for asset pricing and affect most global securities, a rapid and persistent increase can have global spillovers – resulting in a sharp tightening in financial conditions and disrupting the economic recovery.

As different factors may be at work in the short- and longer-term, the 10-year nominal yield can be segmented into two different time horizons: the '5-year yield', and the '5-year-5-year forward', which covers the second half of a bond's 10-year maturity.



Drivers of the change in US 10-year nominal treasury yields

Basis points

Source: Bloomberg and IMF staff calculations

The rise in the 5-year yield this year has been driven primarily by a steep rise in breakeven inflation. At 2.60%, 5-year breakeven inflation is closer to historically high levels. Both expected inflation and inflation risk premia have moved higher. Such an increase is consistent with a sharp rise in commodity prices as well as the Federal Reserve's reiterated intention to maintain an accommodative monetary policy stance to achieve its objectives.

By contrast, the increase in the 5-year-5-year forward is primarily due to a rise in real yields, pointing to an improvement in growth outlook, with longer-term breakeven inflation appearing to be well-anchored. Importantly, the sharp rise in the longer-term real yield is mainly due to a higher real risk premium, pointing to greater uncertainty about the economic and fiscal outlook, as well as the outlook for asset purchases by the central bank.

Monetary policy remains highly accommodative, with sharply negative real yields expected in coming years. A gradual rise in US longer-term yields, reflecting the expected strong recovery, is healthy. It would also help to contain unintended consequences of the unprecedented policy support such as higher financial vulnerabilities and stretched asset prices. However, the longer end of the yield curve is also affected by asset purchases. Hence the rise of real risk premia at the 5-year-5-year forward horizon can be interpreted as a reassessment of the outlook for and risks surrounding asset purchases, taking into account the expected increase in Treasury supply related to fiscal support in the US.

While the path of short-term interest rates appears to be well understood at this point, there is a wide range of views among market participants about the outlook for asset purchases, especially after recent data releases in the US. It is therefore crucial that the Fed provides clear communication about the pace of future asset purchases to avoid unnecessary volatility in financial markets. ■

The FTSE 100 was down by 15% at the end of the year. The Nikkei 225 was the only other major regional equity index to match the US, up by 15% over 2020. The outperformance of US equities over other regional indices causes NIIPs to widen as foreign holdings of US equities increase in value along with US liabilities to the rest of the world.

Bond prices can have a similar impact, but US bond prices were little changed at the end of the year compared to where they were at the start of it. The dollar had a volatile year but ended up just 3% weaker over the period, according to the Federal Reserve's broad effective exchange rate. A weaker dollar generally decreases the US NIIP deficit position by lifting the value of US foreign assets by more than the value of its liabilities.

Of the surplus countries, Japan's NIIP surplus increased the most, to 75% of GDP from 66% (Figure 5). This would partly have been due to its continuing current account surplus and valuation effects, as US assets held by Japanese investors climbed in value. A slightly different story occurred in the Netherlands, where the NIIP surplus climbed to 118% from 90%. The pandemic barely dented its current account surplus, which remains at around 8% of GDP. The main foreign assets it accrued were in foreign direct investment. Unlike Japan, the Netherland's international investment position is dominated more by FDI than portfolio flows.

US DIVERGENCE AND REGIME CHANGE

The US is on course to be the biggest spender among major economies again in 2021, with the International Monetary Fund's latest fiscal monitor projecting a deficit of 15% of GDP this year (Figure 6). Like 2020, this will initially cause a widening of NIIPs as more US Treasuries are issued and fiscal support bolsters the US recovery, creating a larger current account deficit. That said, while some widening will occur in dollar terms, imbalances could ultimately shrink relative to the size of the global economy as GDP bounces back sharply.

With the US on course to lead the recovery much as it did from the 2008 financial crisis, inflation and interest rates are likely to rise there first. In last year's report we discussed how higher inflation globally would, at least in the short term, be a net benefit to debtor countries and net cost to surplus countries. This is because debtor countries such as the US have a smaller proportion of fixed income in their foreign assets than in their foreign liabilities, so the capital losses from higher inflation and interest rates tend to lift their NIIP. The reverse tends to be true of surplus countries. The effect will be more pronounced if the US leads global reflation.

Over the longer term, while extra holdings of Treasuries outside the US will widen NIIPs, higher interest rates in the US than elsewhere would partly counteract this. More difficult to assess are equities and the value

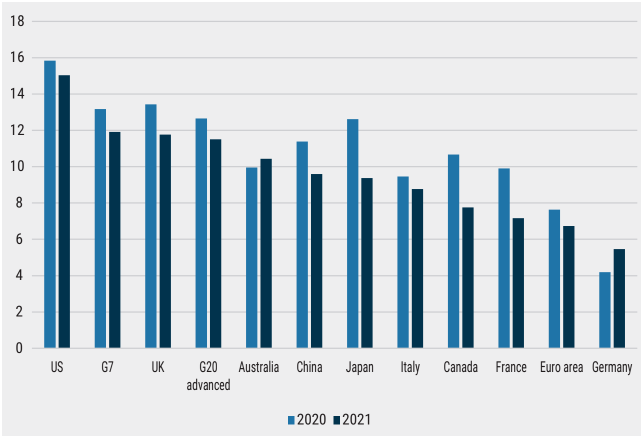
	NIIP, $bn		NIIP % of GDP		GPI top 850 ranking 2021		
Country	2020	2019	2020	2019	Assets $bn	% of top 850	No. of GPIs
Japan	3,675	3,339	75%	66%	3532	8.3%	7
Germany	2,870	2,777	76%	72%	440	1.0%	4
China	2,154	2,124	14%	15%	4963	11.6%	3
Hong Kong	1,942	1,579	569%	432%	509	1.2%	3
Taiwan	1,343	1,343	211%	220%	725	1.7%	4
Netherlands	1,047	819	118%	90%	1066	2.5%	10

5. Largest creditors

NIIPs, % of GDP, top six creditor economies

Note: Taiwan data are lagged by one year.

Source: IMF



6. US leading the fiscal effort

Budget deficit, actual and IMF projections, % of GDP, selected major economies

Note: 2021 data are IMF estimates.

Source: IMF

±

Global indices performance as of end of 2020:

US S&P 500: ↑15%

Europe S&P 350: ↓10%

FTSE 100: ↓15%

Nikkei 225: ↑15%

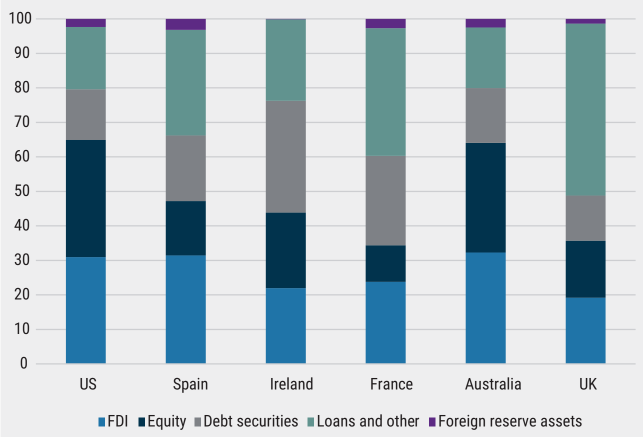
15%

The US is on course to be the biggest spender among major economies again in 2021, with the IMF's latest fiscal monitor projecting a deficit of 15% of GDP this year.

of the dollar, with financial markets currently discussing the possibility of an inflation regime change. This could bring inflation back into the macroeconomic environment for the first time in three decades, and would alter the relationship between equity prices, bond prices, exchange rates and economic fundamentals.

Throughout the 2010s the regime was relatively straightforward. Inflation was nowhere to be seen and central banks kept policy rates low and conducted asset purchases to flatten yield curves. The result was that both bond prices and equity prices tended to rise and in tandem. However, if inflation, growth and interest rates rise, this may change.

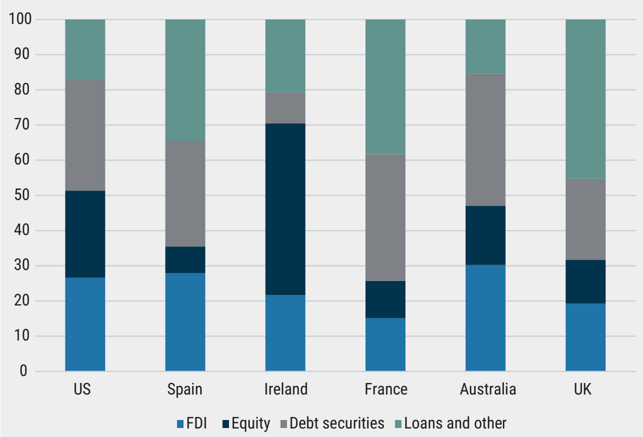
Central banks are likely to tolerate above-target inflation for a time to support the economic recovery, as the Fed has signalled with its average inflation target framework. This means that signals of easy monetary policy are likely to depress bond prices rather than spur them on, as bond investors seek to avoid inflation eating away at their returns. Unlike bonds, there is no set way for equity prices to respond to a higher inflation environment. Higher input costs can chip away at corporate earnings, higher consumer prices can boost them and a weaker currency and higher consumer prices can weigh on real returns. The situation is even more complicated if there are strong regional divergencies.



7. Debtor countries invested in high-returning assets

Composition of external assets, % of external assets, largest NIIP debtors

Source: IMF



8. Debtors' liabilities tilted toward fixed income

Composition of external liabilities, % of GDP, largest NIIP debtors

Source: IMF

RISING RISKS TO DEBTORS

The large debtor positions of countries such as the US have so far not proved to be much of a problem, but they are not without risks. One feature of international investment balances in recent decades has been the ability of debtor countries to generate positive income from their NIIP deficits. This is due to the weighting of their assets towards high-return investments such as FDI and equities, and the weighting of their liabilities towards low-return investments like fixed income (Figures 7 and 8).

The difference between returns on equities and returns on fixed income will be a long-term factor that determines the success of the debtor countries in maintaining their surplus income. A fall into negative income would, if substantially negative, generally lead to a weakening of a debtor country's currency. Such currency falls are self-regulating, as a fall in the value of an economy's currency raises the value of its external assets relative to its liabilities, reducing its NIIP deficit.

'If US inflation and interest rates rise, while US-held foreign assets underperform, the US could easily find its net income balance turning negative.'

This is where US divergence plays another role. If US inflation and interest rates rise, while US-held foreign assets underperform, the US could easily find its net income balance turning negative. The key will be real GDP growth. If the US can keep producing high real GDP prints, its negative investment income will be nothing more than an inconvenient statistic, rather than a real economic concern. The real currency pressures – or capital flight pressures for countries in a single currency bloc – may accrue for debtor countries where growth is less impressive. ■

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Financial globalisation and China

Huge potential for acceleration in global economy

GLOBALISATION HAS NOT always been linear. In history, periods of rapid economic, financial and technological integration have been followed by a slowdown or even reversal in the movement of goods, capital and people. Such a reversal seemed to happen following the end of the hyper-globalisation that started in the early 1990s.

Hyper-globalisation meant international trade grew faster than the world economy, with exports increasing to 26% of global gross domestic product in 2008 from around 13% in 1990.

The 2008 financial crisis led to a phase of deglobalisation. The Covid-19 pandemic is likely to exacerbate this trend as policies look inwards and global value chains shorten.

Increasing protectionism among western economies has been an important factor in deglobalisation, but technological development and the increasing reliance of emerging markets on domestic consumption to support growth are also important. In 2020, trade growth slowed and exports slipped to 23% of GDP. The post-pandemic recovery is having a positive impact on trade growth, but all these factors point to a prolonged period when trade intensity is likely to remain stable at best and eventually fall further.

‘The increased role of emerging markets in the global economy has not translated yet into an increase of their integration in global financial markets.’

In terms of capital movements, financial globalisation has been a fundamental feature of hyper-globalisation. The strong rise in foreign direct investment built up global value chains and cross-border holdings of securities soared as institutional and private investors' portfolios internationalised. Global FDI reached its peak in 2007 at nearly 4% of GDP, before dropping dramatically during the financial crisis, stagnating at around 1% in 2018-19, and falling to an expected 1% of GDP in 2020.

The FDI slowdown shows that global value chain shortening is a long-term trend reflecting the changing structure of the global economy. Cross-border financial globalisation has not suffered to the same extent. Cross-border ownership of gross portfolio assets and liabilities reached over $160tn by the end of 2019, according to estimates by Rhodium Group.

Foreign portfolio flows into emerging markets recovered quickly after the financial crisis and over the last few years have remained well above pre-crisis levels. Even during the pandemic, cross-border portfolio flows held up relatively well despite increased volatility as investors diversified away from the low yields prevailing in most advanced economies.

Most of the policy actions being undertaken by western countries against foreign investments concern Chinese investments. The goal is to protect sensitive sectors such as technology and large holders of digital data. Chinese FDI into the US and other western economies has slowed over the last few years.

The measures launched by President Donald Trump in 2020 and recently updated by President Joe Biden, such as increased scrutiny of US pension funds investing in Chinese securities and bans on investments in certain Chinese stocks, do not appear to have dented the growing interest of foreign investors in domestic Chinese assets. Portfolio flows into China are steadily rising as investors take advantage of higher yields and positive growth differentials and readjust their portfolio to the increased weight of China in the global economy.

Despite the recent rise in financial flows into China and other emerging markets, financial globalisation in terms of cross-border securities investment has largely been a story for developed economies. The increased role of emerging markets in the global economy has not translated yet into an increase of their integration in global financial markets. While China accounted for about 17% of global GDP in 2019, its share of global cross-border investment assets and liabilities was less than 4%. The full integration of China into global financial markets would be transformational for the global economy and would dramatically accelerate financial globalisation. ■

9. Breakdown of NIIPs

Top 25 economies by sum of foreign assets and liabilities, 2020

Note: Data are up to Q3 2020.

Source: IMF

	Assets, $bn							Liabilities, $bn				
	Total foreign assets, $tn	Total foreign liabilities, $tn	FDI	Portfolio – equity	Portfolio – debt securities	Loans and other	Foreign reserve assets	FDI	Portfolio – equity	Portfolio – debt securities	Loans and other	Total foreign assets & liabilities, % of GDP
US	29.4	43.4	8,316	9,125	3,948	4,853	621	10,852	10,135	12,879	6,973	350
UK	15.8	16.5	2,309	1,984	1,574	5,985	168	2,462	1,598	2,933	5,789	1,223
Luxembourg	12.6	12.5	5,504	2,448	2,836	1,587	1	4,679	5,284	1,073	1,313	36,558
Netherlands	11.1	10.0	6,698	1,102	1,139	1,454	53	5,345	1,101	1,668	1,406	2,385
Germany	12.0	9.1	2,697	1,488	2,476	3,984	266	1,963	701	2,535	2,824	557
France	9.5	10.2	1,981	884	2,159	3,082	221	1,350	944	3,206	3,419	771
Japan	10.9	7.2	2,017	1,945	2,932	2,166	1,384	382	1,773	1,850	2,785	369
Ireland	7.5	8.2	1,611	1,602	2,376	1,735	7	1,743	3,918	708	1,666	3,916
China	8.2	6.0	2,164	481	291	1,934	3,281	3,107	892	615	1,388	95
Switzerland	5.7	5.0	2,105	827	713	930	1,016	1,991	1,299	161	1,419	1,506
Hong Kong	5.9	4.0	2,041	1,280	702	1,345	453	1,991	428	75	1,381	2,904
Canada	4.6	3.7	1,815	1,500	485	674	90	1,040	565	1,306	775	516
Singapore	4.3	3.4	1,074	718	762	1,344	327	1,718	190	57	1,316	2,281
Italy	3.5	3.5	721	1,096	727	662	209	609	258	1,254	1,232	380
Spain	2.7	3.7	797	400	483	778	80	1,006	270	1,081	1,242	513
Australia	2.1	2.8	607	599	298	331	46	773	429	958	393	372
Belgium	2.4	2.2	938	444	439	525	32	894	189	541	512	903
Sweden	1.8	1.7	575	533	154	380	57	504	355	431	323	650
South Korea	1.8	1.3	461	398	235	252	419	240	497	278	197	193
Norway	1.9	0.9	232	915	439	217	73	187	98	304	280	750
Denmark	1.4	1.2	316	367	243	223	72	204	299	300	209	761
Russia	1.5	1.0	448	14	85	376	583	483	135	79	252	169
Brazil	0.9	1.3	401	40	10	69	357	688	215	156	221	158
Austria	1.0	1.0	296	161	226	333	29	254	64	408	269	473
Finland	1.0	1.0	213	246	150	288	12	147	176	315	277	740

6

Strategic assets

- 63% of sovereign funds plan to increase their exposure to private equity
- 50% of public pension funds will buy more infrastructure assets
- 39% of GPIs expect to invest more in Asia Pacific over the next 12-24 months
- Nearly 80% of pension funds can invest in infrastructure with no limits

Covid-19 has hit returns from traditional sectors, while alerting investors to new assets in healthcare and digital.

Funds seek out new alternatives

By Kat Usita

THE COVID-19 CRISIS has given rise to new investment opportunities, while raising doubts about the viability of some existing ones. Faced with a low-yield environment, global public investors continue to search for alternative investments, whether in infrastructure and real estate, or more novel ventures in technology. Even though these areas are relatively illiquid, their importance in driving economic activity not only makes them attractive to investors, but also stokes worries about their vulnerability to foreign control and influence.

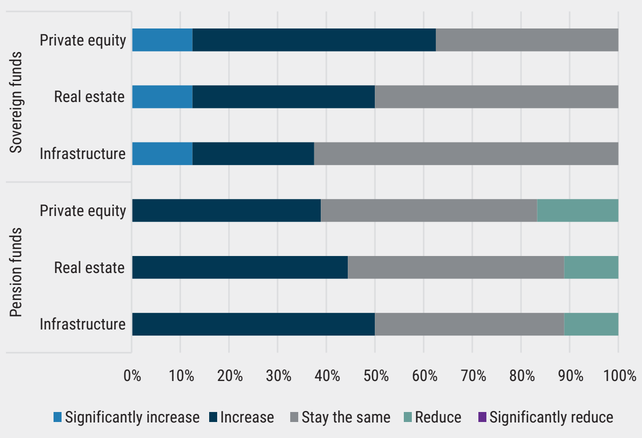
GPIs are still bullish on alternative assets: overall, survey respondents say they want to increase or maintain their allocations (Figure 1). The 2021 GPI survey, conducted between February and March, captures the mood of asset owners one year into the pandemic. Significant numbers of sovereign fund respondents plan to increase their investments in private equity (63%), real estate (50%) and infrastructure (38%). Not a single sovereign fund in the sample said it would reduce allocations to these asset classes. Pension funds are similarly optimistic, although in this group of investors, a small percentage indicated that they will reduce allocations to all three classes.

Certain types of infrastructure and real estate – particularly airports, retail, office and hospitality-related real estate – took a big hit as Covid-19

1. Sovereign funds aggressive in alternatives

In the next 12-24 months, do you plan to increase, reduce or maintain your allocation?, % of responses

Source: OMFIF GPI Survey 2021



led to lockdowns, social distancing measures and travel restrictions. The International Civil Aviation Organisation estimates that cross-border air passenger traffic in 2020 was down 60% from pre-pandemic projections for the year. The United Nations World Tourism Organisation calculates losses from international tourism to be as much as $1.2tn.

Public investors generally have long-term outlooks, so they are less inclined to react to demand shocks affecting real estate assets, especially if a recovery in the sector seems likely. Domestic air travel in markets such as China and Russia has picked up again. Even with lower passenger traffic, airports have stayed open to allow the movement of cargo and ease pandemic response measures, including vaccine distribution. ICAO estimates that air cargo accounts for 35% of global trade by value, and that the number of cargo flights globally in 2020 increased by 2.7% from the previous year.

There are ways in which public investors, some of which are important strategic investors in infrastructure such as airports, can influence this sector.

Canadian and Australian funds, which are prolific investors in infrastructure, are among the most exposed to airport investments. Ontario Teachers' Pension Plan owns Bristol Airport, as well as other airports in England and Europe. London's Heathrow Airport is owned by an international consortium that includes Caisse de Dépôt et Placement du Québec, Qatar Investment Authority, China Investment Corporation, GIC and the Universities Superannuation Scheme. The question is whether any of these public investors will reduce their exposure to airports. So far, the trend has been for peers to follow their example by investing in similar assets.

In early 2020, Japan's Government Pension Investment Fund and Australia's TCorp acquired minority stakes in Brussels Airport. Saudi Arabia's Public Investment Fund is reportedly studying the possibility of building a new airport in Riyadh and investing in a new airline focused on business travel. The newly established Indonesia Investment Authority (INA) has a mandate to attract co-investors for an array of infrastructure projects, including airports.

Sovereign funds have also played a role in extending government support to airlines. When Singapore Airlines struggled to raise funds through rights offerings that were undersubscribed, existing shareholder Temasek stepped in to pick up the remaining shares. The Ireland Strategic Investment Fund, meanwhile, extended a €150m loan to flag carrier Aer Lingus.

Even with what appears to be continued interest in airports and air travel, disruption in traditional sectors has been costly. Norges Bank Investment Management, handler of the largest sovereign fund in the world, reported a return of minus 5% on real estate at the end of 2020: its listed investments returned minus 14.9% while its unlisted investments returned minus 0.1%. The numbers are hardly surprising given that office space holdings make up over half of the fund's unlisted real estate investments. However, the share of logistics in NBIM's unlisted portfolio grew to 26% from 21.9% in 2019. The increasing significance of logistics in NBIM's portfolio reflects a wider shift among large investors.

Both NBIM and the Abu Dhabi Investment Authority have longstanding partnerships with logistics specialist Prologis, through which they have invested in industrial real estate. Prologis' own research reports that warehousing for e-commerce requires triple the space needed by brick-and-mortar retail, as there are no store shelves to hold inventory. GLP, another global logistics developer and investor, has a long list of sovereign and pension funds among its past and present partners, including CIC, CPP Investments, GIC, Temasek, Korea Investment Corporation and South Korea's National Pension Service.

Online retail sales soared during the pandemic, suggesting that demand for warehouses will continue to grow, and funds are taking note. QIA, which owns shares in luxury hotels and retailers, said in June that it will invest more in warehouses and data centres. Smaller funds, such as Lothian Pension Fund, have caught up with the trend: Scotland's second-largest fund for government pensions acquired a local warehouse in March.

VACCINE VENTURES

Covid-19 unveiled new opportunities for acquiring strategic assets and influence. Sovereign funds with a record of direct investment were well-positioned to take advantage of these. Unlike smaller rainy-day funds that support fiscal response, larger funds could focus on strategic areas that urgently need support.

One of these areas is vaccine development. The Russian Direct Investment Fund backed the production of Sputnik V, the

Nick Ashmore
Director, Ireland Strategic Investment Fund

Flexibility in crisis

Shifting focus and changing priorities to manage Covid-19

THE 2008 FINANCIAL CRISIS resulted in a major withdrawal to recapitalise key banks in Ireland, leaving the National Pensions Reserve Fund no longer suited to its original purpose of helping to meet public sector pension liabilities. In 2009, the minister for finance decided to use assets from the National Pensions Reserve Fund to assist in dealing with the financial crisis.

The Ireland Strategic Investment Fund was established following this period and a move to stabilise the Irish banking sector saw investments in Allied Irish Bank and Bank of Ireland. A revised mandate was born: to focus on commercial investments that would benefit from economic growth and employment. Following trial investments from 2011-14, new legislation was passed which enabled the assets of the NPRF to be transferred to ISIF upon its establishment. The fund was live from the start of 2015.

Through its global portfolio, ISIF ensures that cash is available to fund existing and future Irish investments as they materialise. By design, the global portfolio is a relatively low-risk, multi-asset class and multi-strategy investment approach. It invests across cash, fixed income, credit, equities, multi-strategy solutions and absolute return mandates through quality external global asset managers.

The Irish portfolio consists of mostly alternative assets, invested across the economy in a mix of local funds and international funds, across debt and equity and in direct debt and equity investments. ISIF works in close partnership with fund platforms in both venture and growth equity to identify high-potential businesses where a direct investment from ISIF could anchor the company in Ireland and drive continued growth.

In July 2018, the minister for finance announced that ISIF would focus on priority themes that support Project Ireland 2040, regional development, housing, indigenous businesses, climate change and sectors adversely affected by the UK's departure from the European Union.

More recently, the Covid-19 crisis called for a rapid shift in focus. Following a review by the minister for finance, ISIF proved its flexibility and transitioned to set up and deliver a €2bn Pandemic Stabilisation and Recovery Fund. The PSRF makes investments in medium- to large-scale businesses impacted by the pandemic, designed to help stabilise such businesses and help them grow and recover from the hiatus in the economy.

Over €400m of commitments were made in 2020, which is a clear demonstration of the value such a flexible but skilled commercial investment platform offers to the state.

ISIF has been successful across a number of fronts since its inception. In its overall investment performance, it has an annual return of 3.5% with over €1.7bn in investments gains since 2015. It has attracted co-investment from private sector and third-party investors in ISIF-backed projects – bringing total investment commitments in Ireland arising from ISIF's investments to €13.6bn. And it has helped to advance policy agendas around issues such as climate action.

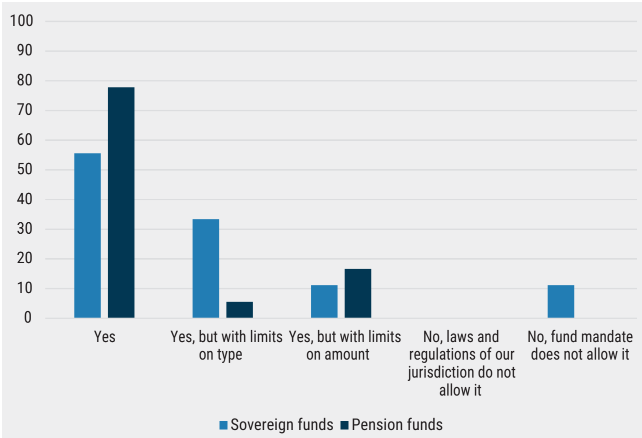
As one of the original signatories to the United Nations-backed Principles of Responsible Investment, ISIF has established a leadership role as a responsible investor. It has continuously reviewed, adapted and enhanced its approach to responsible investment in support of both mandate and strategic changes. ISIF embeds environmental, social and governance factors across the whole of the fund using key tools, including capital allocation, integration, active ownership and exclusions.

ISIF has become a model of sovereign development fund investment, crowding in capital and investing in a way that enhances the local market, ecosystem and economy and delivering a strong commercial return on investment for the taxpayer. ■

'Over €400m of commitments were made in 2020, which is a clear demonstration of the value such a flexible but skilled commercial investment platform offers to the state.'

Limits to investment

Although many large sovereign and pension funds already invest in infrastructure, some are still constrained by certain limits. A third of sovereign funds that responded in the GPI survey said that they face limits on the type of infrastructure investment they can make, while 11% say that the amount of investment is capped. Only a very small proportion of sovereign funds remain unable to invest in infrastructure assets based on their mandate. All of the pension funds that responded are allowed to invest in infrastructure assets, with less than a quarter hampered by limits.



2. Pension funds can easily invest in infrastructure

Are you allowed to invest in infrastructure?, % of responses

Source: OMFIF GPI survey 2021

vaccine developed by the Gamaleya National Research Institute of Epidemiology and Microbiology. The vaccine is authorised for use in over 65 countries, but was still pending approval by the European Medicines Agency in July. Sputnik V is not RDIF's first foray into health and pharmaceuticals. Previously, it had invested in an insulin producer, private hospitals and a network of cancer diagnosis and treatment centres.

Mumtalakat, Bahrain's sovereign fund, is a long-time co-investor in RDIF projects. Together with Binnopharm, the two funds plan to build a vaccine production facility in Bahrain to distribute Sputnik V across the region.

A Temasek-led group of investors injected $250m into BioNTech, Pfizer's partner in vaccine development. The German firm plans to open a vaccine manufacturing facility in Singapore in 2023. The new site, which is expected to hasten vaccine rollout in Southeast Asia, will have a percentage of its output allocated to Singapore.

QIA invested an undisclosed amount into CureVac, another German vaccine developer. The European Investment Bank also extended a €75m loan to support vaccine development and large-scale production. Unlike the Pfizer and Sputnik V vaccines, CureVac's shot has not yet been approved for public use, achieving only 47% efficacy in late-stage trials. CureVac shares plummeted by nearly 50% after results of the trial were announced in June, but the company plans to continue analysing its findings and investigating how the vaccine can be used despite the weaker results.

Investments in vaccine development hastened the worldwide effort to protect as many people as possible from Covid-19, but these examples show that countries with sovereign funds ready to direct resources gain a strategic advantage.

DIVING INTO DIGITAL LEARNING

Many investors were attracted by digital and technological solutions to overcome the challenges of social distancing and remote working during the pandemic. This could lead to renewed focus on technology investments in private markets, an area where sovereign fund interest had waned in recent years. Education technology (or edtech) offering alternative forms of learning during school and university closures is one area of interest to sovereign and pension funds.

GIC and Temasek, leading investors in technology, have been expanding their edtech portfolios. In October 2020, both invested in Yuanfudao, a Chinese education start-up that operates online tutoring services. Founded in 2012, Yuanfudao saw a surge in users – and in investor interest – in early 2020 as physical schools closed across China and teaching shifted online. The company's financing rounds throughout the year raised a total of $2.2bn.

Temasek is the first external investor in upGrad, an Indian company that has been offering online graduate and post-graduate courses, which until this year had been entirely self-funded by its co-founders. GIC invested in Aixuexi Education Group, another Chinese online education company that provides courses to primary and secondary school students. CPP Investments and QIA were early, pre-pandemic backers of edtech, having invested in India's Byju in 2019.

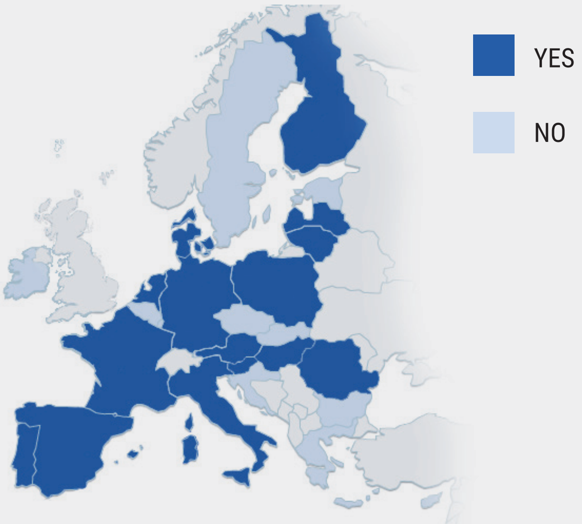
Apart from investing in edtech, GPIs seem intent on integrating a different kind of digital learning into their operations. ADIA is building up its quantitative research and development by hiring artificial intelligence experts, software developers and data scientists. Other funds, such as GIC and CPP Investments, are taking a similar approach (see p.94). By leveraging AI and data science, funds can develop new strategies and processes for decision-making and investment selection.

3. Half of EU member states already scrutinise FDI closely

Member states with national investment screening mechanism

Source: European Commission

- Austria
- Denmark
- Finland
- France
- Germany
- Hungary
- Italy
- Latvia
- Lithuania
- the Netherlands
- Poland
- Portugal
- Romania
- Slovenia
- Spain



STRATEGIC SCRUTINY

The emergence of new strategic opportunities coincided with growing scrutiny of foreign direct investments. This was exacerbated by supply-chain pressures from the pandemic, increasing the urgency of investment-screening mechanisms in developed economies.

In October 2020, the European Union's regulation on FDI screening came into effect. The regulation, first adopted in early 2019, establishes a framework for a coordinated approach to investment screening, aimed at mitigating potential threats to security or public order, especially when they may affect more than one member country or the whole EU.

The regulation requires member states to adopt investment-screening mechanisms or to reform existing ones in line with uniform guidance, as well as to share information on inbound investments when requested. Transparency and coordination are important tenets of the regulation, enabling both the European Commission and member states to express concerns about foreign investments in any EU country.

Investments covered are those that could affect what the Commission classifies as critical infrastructure, critical technology, critical inputs and sensitive information, particularly if these are at risk of being controlled or influenced by non-EU governments. Although the regulation had been in the works before the pandemic hit, its implementation in 2020 put the focus on the importance of securing healthcare assets, medical equipment and other supplies during a global public health crisis.

As a result, even countries with existing screening mechanisms have tightened their FDI regimes to align with EU guidance (Figure 3). Germany, which has had foreign investment controls since 2004, expanded the scope of screening to include new sectors such as AI, satellite systems and quantum mechanics. France temporarily lowered its investment screening threshold for non-EU/EEA voting rights to 10% from 25%.

Shortly after the EU regulation came into effect, the UK enacted its own FDI screening law that enables the government to scrutinise foreign investment and reject any that it deems a threat to national security. At the start of the pandemic, Australia reduced its screening threshold for all foreign investments to zero, which meant that all inbound investment was subject to screening. This reverted to previous thresholds in 2021, with the exception of investments in what it considered national security businesses, for which the threshold remained zero.

The wave of stricter FDI regimes can be traced back to the expansion of screening powers granted to the Committee on Foreign Investment in the US. CFIUS was created in 1975 with a broad mandate to review foreign investment, but its powers to scrutinise investments has grown much more since. Previously focused on safeguarding military and defence assets, the Foreign Investment Risk Review Modernisation Act of 2018 expanded the scope of CFIUS to prevent foreign entities from acquiring control of critical technologies, critical infrastructure and sensitive data. This development was viewed largely in the context of US-China tensions, fuelled partly by concerns over the growth of Chinese tech companies.

It remains to be seen whether stronger investment-screening mechanisms will have a striking impact on sovereign investment. When asked if they have ever been discouraged from investing in public infrastructure overseas because of foreign ownership restrictions, an overwhelming majority (88%) of respondents to the GPI survey said no (Figure 4).

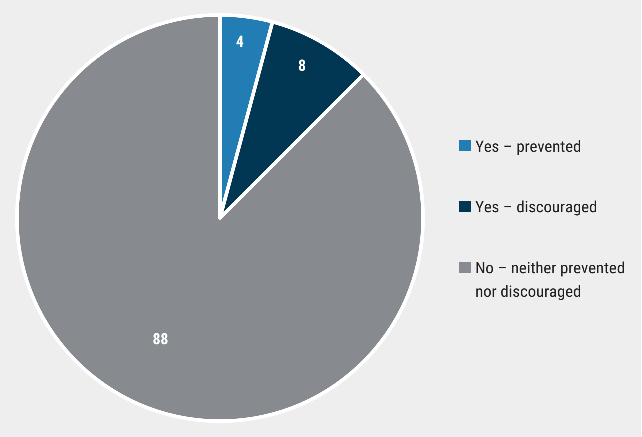
Tougher FDI rules do not necessarily mean that more investments will be rejected. However, with more investments needing to undergo the process, the investment cycle will probably take longer, especially if the recipient country is still building up its internal screening capacity. In the case of the EU, where multiple governments can have an influence on the acceptance of an investment, the process is likely to put off investors who are unwilling to wait. For GPIs with long investment horizons, the cost of time – and additional due diligence – may be acceptable, but they may reconsider where they channel their capital.

OPEN SHOPS

Tighter restrictions in jurisdictions mentioned above contrast sharply with the determination of emerging markets to draw in investment, especially to fund big-ticket infrastructure projects. In recent years, India's foreign investment policy has become even more welcoming to sovereign funds and pension funds, granting tax incentives to those that invest in infrastructure projects. Its own infrastructure-focused sovereign fund National Investment and Infrastructure Fund was established in 2015 to encourage investments with institutional investors keen to bet on India's large infrastructure needs. Since then, NIIF has partnered with Middle Eastern, Canadian and Singaporean investors in various strategic projects.

Similarly, Indonesia's INA, which began operating this year, was created specifically to enable co-investment with foreign institutional investors. It has already partnered with some of the biggest funds in the GPI top 850 ranking – APG, ADIA and CDPQ – to form an investment platform for toll road projects in Indonesia. In February, Malaysia's Employees' Provident Fund launched a sharia-compliant private equity fund. With an initial allocation of $600m, the fund will execute direct investment and co-investment activities, enabling EPF to partner with other entities pursuing sharia-compliant mandates. Because of a shared interest in sharia-compliant assets, EPF is expected to partner with other Asian and Middle Eastern funds through this vehicle.

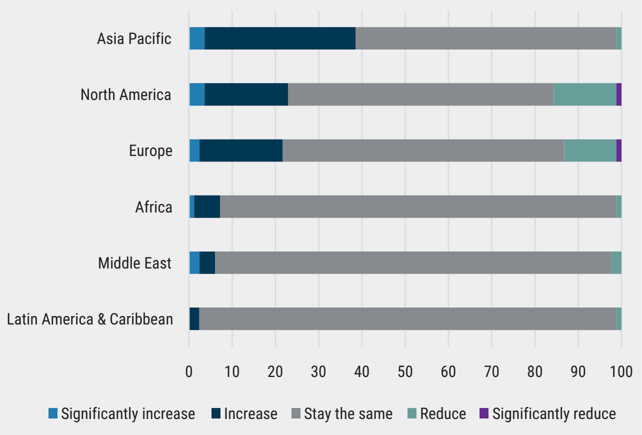
India, Indonesia and Malaysia, as with other emerging markets, have limited fiscal capacity to fund large-scale infrastructure projects and rely on FDI to fill the gap. Geopolitical pressures are unlikely to change this, especially since global interest in Asia as an investment destination



4. GPI investment in critical infrastructure appears unaffected – for now

Have you ever been prevented or discouraged from investing in public infrastructure overseas because of restrictions on foreign ownership of public utilities in certain jurisdictions?, % share of responses

Source: OMFIF GPI survey 2021



5. Asia is open for business, and GPIs are looking

Over the next 12-24 months, are you planning to increase, reduce or maintain your exposure to the following regions?, % of responses

Source: OMFIF GPI survey 2021

> 'Investments in vaccine development hastened the worldwide effort to protect as many people as possible from Covid-19, but these examples show that countries with sovereign funds ready to direct resources gain a strategic advantage.'

remains strong. In the GPI survey, 39% of respondents say they intend to increase their exposure to the region (Figure 5). Although regions that have countries with stricter FDI screening remain attractive to over a fifth of the respondents, there are also those planning to reduce allocations.

Whether or not tougher screening regulations have a chilling effect on sovereign funds and pension funds in the long term remains to be seen. The protectionist shift may be temporary, at least when viewed in the context of multi-decade projects and programmes. In the short term, it could certainly encourage interest in emerging markets. GPIs, with the range and reach of their investments, will continue to be at the forefront of identifying strategic opportunities that secure their long-term success and benefit the public they serve. ■

IN CONVERSATION

Taking advantage of disruption

Judy Wade, managing director and head of San Francisco, CPP Investments – one of the world's largest pension funds – explains why we should be excited about technology investment trends that have the potential to disrupt the system.

KAT USITA: What trends in technology investments and opportunities from disruption are you most excited about? How have these trends evolved over the last few years?

JUDY WADE: Just to set the context, we opened the San Francisco office for several reasons. First, we are excited about opportunities for investing. Second, we wanted to understand what kind of technology might further enable our investment theses and drive improvements in our portfolio companies. Third was to gain awareness of disruptions or big changes driven by technology that we should be taking advantage of. Finally, for our own operations, we want to identify technology solutions and data that can improve our ability to generate alpha.

One area that cuts through all four things is machine learning and artificial intelligence. In the last few years, the promise and actual real opportunity are coming together. That is because of the venture capital funding, experience, computing power and actual data that are available, all of which companies can take advantage of. We've invested in Databricks and Signifyd, a data engineering and analytics platform and an ecommerce fraud protection platform, respectively. There are other things that we have not necessarily invested in but are excited about, like Aero Technology, which uses AI in core operational decisions such as supply chains of consumer-packaged goods.

Climate change is another area. There is a lot on the defence side of climate change, but there are ways we can further transition to a carbon-neutral world through our investments. We are doing that both in our thematic investing group and our newly formed sustainable energies group, where we have invested in everything from electric vehicle company ChargePoint to a new company that uses concrete to sequester carbon.

Our sustainable energies group came together from two sides of our real assets group: energy and resources, and power and renewables. We have created one group focused on opportunities around sustainable energy and the energy revolution. Renewable energy company Pattern Energy is an investment on that side. We also believe that we have to invest in technologies that will help traditional energy industries become more carbon-efficient. We need to help them transition rather than ignore them and think that they're going to disappear.

I would also highlight fintech. It started out with firms picking pieces off larger financial institutions. But you're starting to see those fintech companies rebundle and offer multiple services. Lastly, we're excited about education as well. Covid-19 has really brought the future faster, exposing socio-economic disparities in education that we think technology can help solve.

KU: Are asset owners and asset managers moving quickly enough to take advantage of these opportunities?

JW: Machine learning and AI are definitely priorities for many CEOs and investors. For large enterprises, it's one thing to identify these tools. But actually translating that through the organisation, getting people to adapt and using it for investment decision-making is a challenge. Broadly, that's probably the same challenge for asset managers as it is for large enterprises. Tech and data is a big priority for us, but we are still in the early stages of identifying opportunities and driving them fully through all of our investment and asset management processes.

KU: What are CPP Investment's key priorities for the San Francisco office?

JW: I led some research on tech ecosystems and one of the insights I got from it is that capital is not really a differentiator in tech ecosystems. These ecosystems are awash in capital, so the real differentiators are bringing expertise and connections. One priority for us is to build strategic relationships in the ecosystem, and not just with companies we invest in. More broadly, we want to bring our global expertise, our values and our own insight to other partners within the ecosystem, so that they will also be willing to share what they are seeing and doing.

Second is using those strategic relationships, along with our own research, to identify super early trends that might not be right on the horizon for investment departments but might bring the next level of disruption or opportunity. There are a lot of

'Diversity is part of our investment-only mandate because diverse opinions and experiences, as well as avoiding groupthink, help us identify new opportunities for the fund.'

interesting things happening with quantum computing, for example. The jury is still out on when it will be deployed at scale, but the potential to drive exponential innovation in drug discovery, the chemical industry and in reducing our carbon footprint, to name a few, is enormous.

Third is to make CPP Investments into a bit of a culture lab, if you will. Tech companies have pushed the envelope for how organisations work. We want to bring some of the new ways of working back to the fund, especially around collaboration and agility.

KU: How is CPP Investments able to leverage its global presence to find strategic opportunities in different regions?

JW: One way is through early signals from one region to another. Seeing things play out in one region can create investment opportunities in others. To give you an example, there are 'super apps' in Asia that combine multiple apps, whether it's banking, shopping or connecting with your friends. We have not seen that happen in Europe or the US. You can take a step back and think about why that is the case. What is that going to mean in terms of opportunity? What is translatable, and what is not?

Second, relationships we build in one region can really drive opportunity for us in others. We just invested in Loft, a Brazilian unicorn that is now among the most highly valued start-ups in the region. They are basically a residential marketplace for buyers and sellers of homes. Loft originally came through our credit team and relationships in São Paolo. We then brought in our venture capital team to do a co-investment with one of our general partners here in Silicon Valley. That ability to fluidly work across both investment departments and regions to bring opportunities to the table is a second thing that drives advantaged deal flow for us.

The third way is around shared learnings between regions. I am the co-sponsor of a virtual education team doing research on structural shifts and how the future has come much faster for this sector. It's really interesting to compare how education is evolving in Southeast Asia, China and Europe versus the US, and what that means for investment opportunities. We are investors in Nord Anglia, which operates brick-and-mortar private schools. That investment was done out of our Asia offices. Since Nord Anglia was keen to bring themselves into the digital world, we connected them with Learn Capital, one of the lead investors in education technology, here in Silicon Valley. We were able to make that cross-region introduction because of our global presence, and through sharing our learnings in the virtual team.

'We also believe that we have to invest in technologies that will help traditional energy industries become more carbon-efficient. We need to help them transition rather than ignore them and think that they're going to disappear.'

KU: Diversity and equity are important issues across the investment community, more so in the past few years. How does CPP Investments think about tackling this issue in Silicon Valley, and ensure it is bringing and welcoming diverse perspectives to the table? How does that fit with your investment-only mandate?

TM: You need to have a solid foundation, and CPP Investments has done a really great job with gender parity. Our senior management team is 36% female. We have achieved gender parity in hiring, with women representing 46% of our global workforce. We use our proxy votes to advance diversity on boards. For boards in North America, developed Europe and Australia, we will oppose the election of the chair of the board committee responsible for director nominations if the board has fewer than 30% female directors. With our own houses in order, we can use our capital, our influence and our position to nudge our partners along that path.

With that as the foundation, you can then broaden diversity and inclusion to include diverse ethnic backgrounds. Despite all the focus on race this last year because of George Floyd, VC funding to diverse entrepreneurs went down, which was not even very big to begin with. The tech ecosystem is particularly susceptible to the cognitive biases you would see in behavioural economics that affect who you hire and who you fund. Entrepreneurs are much more likely to exhibit overconfidence bias than the average population, which could be a good thing in creating new companies. The dark side of that includes anchoring bias, gambler's fallacy and other biases, which tend to mean that you hire people that look like you and have the same path as you.

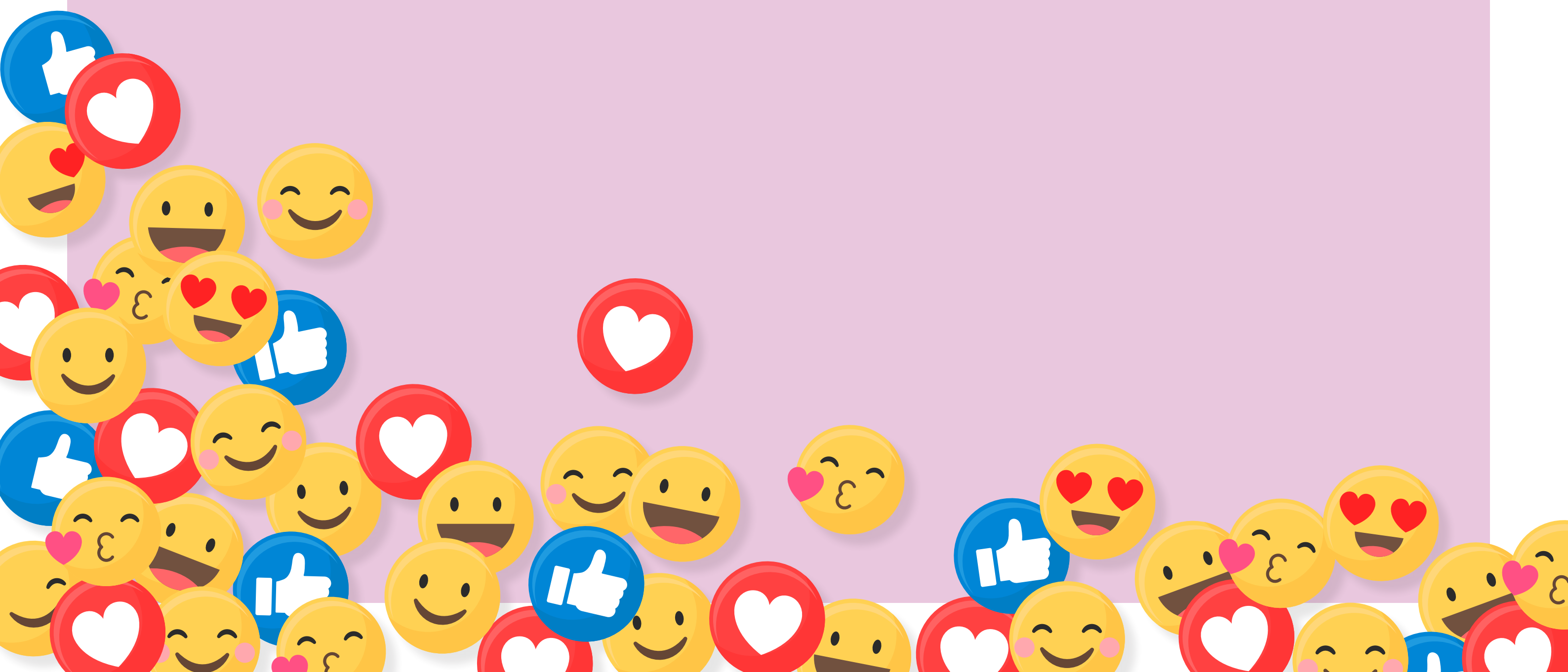
We have been investing in a project to de-bias investment decision-making, which is a relatively new field. We all have cognitive biases, which are there to help us make decisions more efficiently. We need to recognise when they're positive, and when they can cause you to make investment decisions you probably shouldn't make. For example, with loss aversion, you might hold on to an investment longer than is rational because you are worried about the loss. With regret aversion and herd mentality, you might invest in something because everyone else in investing in it.

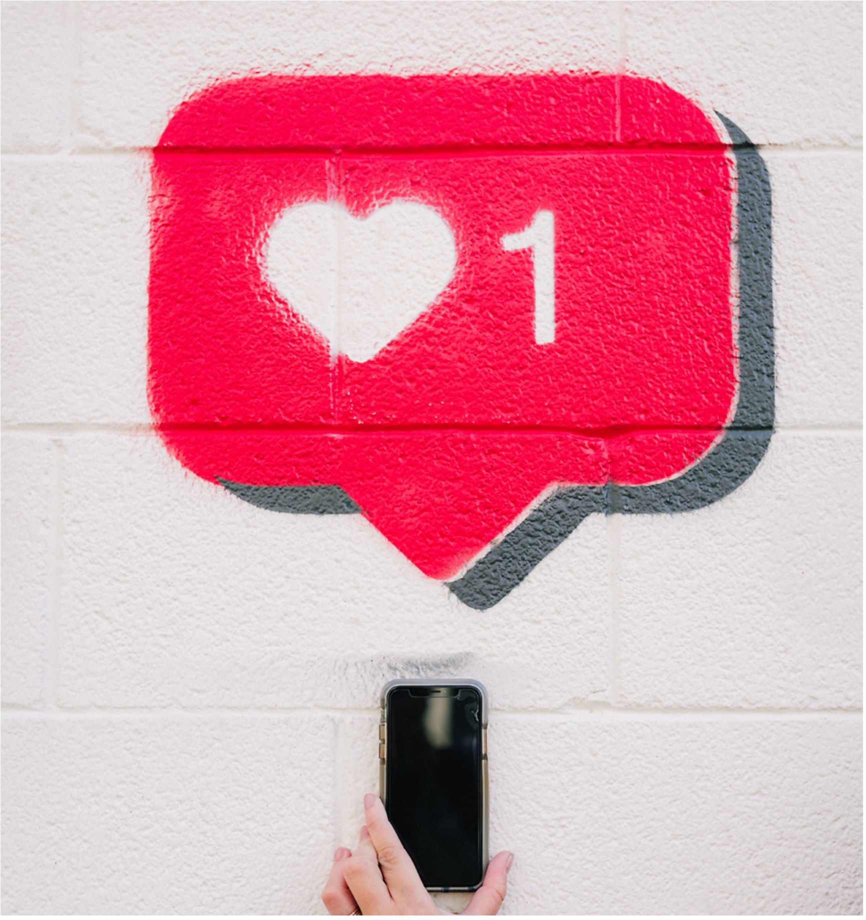
Here in the Valley, people tune out a bit when you talk about unconscious bias because they may not realise how it affects who you fund and who you hire. Diversity supports our mandate to maximise returns because diverse opinions and experiences, as well as avoiding groupthink, help us identify new opportunities for the fund. We want to address cognitive biases to improve our investment returns, and hopefully, through our own experience, help others look at diversity and inclusion in a slightly different way. ■

7

Social media

- ECB President Christine Lagarde has nearly 700,000 Twitter followers, more than any other central bank governor
- Minneapolis Fed President Neel Kashkari has tweeted almost 10,000 times
- Over 3 million people follow the People's Bank of China on Weibo
- 132 central banks globally have LinkedIn accounts





Social media has transformed the way central banks communicate with the public – especially during the pandemic – enabling them to reach larger and more diverse groups

Central bank communications more potent than ever

By Levine Thio and Kat Usita

All social media statistics are as of March 2021

AS UNCERTAINTY GRIPPED the global economy at the start of the pandemic, much attention was focused on central banks and the actions they were taking to maintain financial stability. Regulators had to clearly communicate how they were working to prevent a financial crisis while mitigating the effects of a worldwide economic slowdown. Announcements of response measures were amplified on social media. The ease with which content can be shared on online platforms – with a mouse click or tap of a finger – enabled wide and instantaneous dispersal of information.

Central bank communications have become more powerful and potent than ever. It's not always an easy process for institutions to navigate – a misplaced tweet could be as damaging as a misspoken word in terms of moving markets, as many central bankers have discovered to their cost. But central banks have been more in the eye of the general public than perhaps at any time in their history.

The European Central Bank's tweet in March 2020 announcing its €750bn pandemic emergency purchase programme was shared over 3,200 times. In the same month, the Federal Reserve's announcement of new measures was its most retweeted post of the year, shared by 931 users. A similar post from the Bank of England had 503 retweets. The Central Bank of Nigeria's most popular post on Instagram is a video encouraging small businesses and households to use its credit facility for those affected by the pandemic, viewed 15,000 times.

Online channels have broadened the reach of central banks. Out of 187 central banks tracked in this research, 136 are present on Twitter, with over 10m users following the content shared by monetary authorities. 'Credibility and trust are essential elements for monetary policy to be effective,' said Governor Gabriel Makhlouf of the Central Bank of Ireland during a speech at the German Institute for Economic Research in February. Clear lines of communication help to manage expectations, which in turn contribute to maintaining price stability.

In the same way that social media has changed how news is broadcast and consumed, it has also fundamentally altered how central banks interact with the general public. Key statements are now released on Twitter, briefings are livestreamed on YouTube and crucial information is presented in visually compelling ways on Facebook, Instagram and LinkedIn. A handful of central banks have also started publishing blogs and podcasts.

Online platforms have enabled central banks to engage with the public more on matters of financial literacy and security, as well as new areas of focus. This has forced central banks to innovate to capture and hold the attention of a digital audience.

DEMOCRATISING ACCESS

Traditionally, central bank communication has focused on conveying information to a specific segment of the public, such as market participants, journalists and academics. Social media has created space for a wider, two-way engagement with the public that did not exist before, enabling users to quickly react and respond to content released by central banks. Interactive features of social media, such as user polls, Q&As and quizzes, enable new forms of participation for citizens and stakeholders in the policy-making process.

Central banks typically hold formal public consultations to give market participants and other stakeholders an opportunity to comment on new policies and regulations. With social media, the scope of informal participation has expanded to include users who might not otherwise be motivated to engage.

In October 2020, ECB President Christine Lagarde launched ECB Listens, a consultation programme that forms part of the central bank's ongoing monetary policy strategy review. The programme's first event was broadcast live on the ECB's Twitter and YouTube channel, with combined viewership of around 23,600. During the event, representatives of civil society organisations were able to pose questions directly to Lagarde and Philip Lane, a member of the executive board in charge of economics. Euro area citizens were also able to participate by answering an online questionnaire, which received nearly 4,000 responses. Around the same time, a similar public consultation was held on a potential digital euro, garnering double the number of responses.

Share and share and liked

Olli Rehn
Governor, Bank of Finland

Communication is crucial in times of crisis

Central banks have stepped up their engagement with the general public during the pandemic

WE LIVE IN a world where people face a constant and rapid flow of information on digital platforms. The internet is increasingly the main source of information for many, and young people in particular rely on social media for their news and information.

In the past decade, increasing use of the internet has challenged how central banks inform citizens about their policies, but it has also opened up new possibilities for dialogue. While traditional media remains an important channel for engaging with financial market participants, professionals and the general public, central banks can improve their communication with both expert and non-expert audiences through new channels.

Maintaining citizens' trust in a central bank requires a high degree of transparency, as well as a certain level of knowledge among the general public about what a central bank is responsible for. Communication is essential in making monetary policy as effective as possible by influencing the expectations of consumers and households.

All major central banks introduced new policy tools in the aftermath of the 2008 financial crisis, which has increased the complexity of monetary policy-making. Now, the vast and necessary crisis response to Covid-19 has further inflated central bank balance sheets. This calls for an even higher degree of transparency in central bank operations.

> 'Successful communication uses targeted messages – it takes into account the different needs of various stakeholders and adapts the messages accordingly.'

Successful communication uses targeted messages – it takes into account the different needs of various stakeholders and adapts the messages accordingly. The same message needs to be expressed in different ways for different groups of people. Professionals and academics need more detailed information on monetary policy decisions and the rationale behind them than the general public do.

Since 2015, the Bank of Finland has applied layering in its digital publications. The Bank of Finland Bulletin is a dedicated publications website (www.bofbulletin.fi) that also contains blog posts written by experts. The content is layered, so different users are served by a single publication. For readers who glance through, there are accessible summaries and infographics. For those seeking specific information, there are landing pages on each topic and downloadable charts. Longer articles are provided for expert audiences. The summaries, blog posts and infographics aim to explain monetary policy decisions and issues related to financial stability for the general public.

Each bulletin is supplemented by extensive use of social media channels, which enables messages to be tailored to different users. About 20% of Bank of Finland staff are also active on social media on work-related topics, which enhances engagement with the public. In normal times, these channels are complemented by school visits and university lectures that also make the central bank more accessible.

Central banks are analysing communication methods with the general public so that they can be improved. Bank of Finland research has shown that central banks could manage the expectations of consumers and households more effectively by focusing their communication on policy targets instead of instruments. Central banks have also successfully introduced new measures with the aim of increasing the financial literacy of the general public.

Enhancing communication – and especially the general public's understanding of monetary policy – is a key part of the European Central Bank's strategy review. Recent listening events that were organised across the euro area showed the importance of educating citizens about monetary policy decisions that affect millions of people in Europe. The review will be completed in the autumn.

The need for clear and simple messages is evident in times of crisis. Over the years, central banks in the Eurosystem have increased the use of social media, visual content and explainers in delivering key policy messages. Digital platforms provide opportunities for delivering messages effectively and measuring success. Central banks, as active members of society, have been wise to embrace digital communication to its full extent. ■

Authorized for publication in June 2021

ECB executive board members Isabel Schnabel and Frank Elderson have conducted live Twitter Q&A sessions in which, over the course of an hour, they responded to questions posted by users with the hashtag #AskECB. Aside from solicited input, the ECB also uses replies to announcements and posts to gain some understanding of public sentiment. The ECB monitors online activity and employs an external provider to collect and analyse data to help inform its communication strategy.

Due to Covid-19, the Bank of England's public consultations, previously held in person, have shifted to online platforms and can be tracked on Twitter with the hashtag #boecitizenspanel. Sessions are location-based, with residents of different UK regions able to join by signing up online. Recent consultations have focused on soliciting citizens' views on how the pandemic is affecting them economically and financially.

Social media brings individual central bank officials

Closer contact

We need to listen to our audiences

Wolfgang Proissl
Director General Communications, European Central Bank

CENTRAL BANK COMMUNICATIONS have become an integral part of monetary policy. Policy-makers are recognising that this is an important part of accountability. It is no longer enough to solely target markets and speak in jargon. Good communication makes monetary policy more effective.

If the general public can understand how the European Central Bank is likely to respond in a given situation, they can form reasonable expectations about future monetary policy. This way the ECB can influence interest rates and steer broader financial conditions.

In recent years, unconventional measures have made policies more difficult to understand. The ECB has become more explicit in its communications. Maximising the impact of communications has been made an integral part of the ECB's strategy review.

Young people are more likely to hear of the ECB online than in traditional media, such as newspapers or the radio. We have increased our ability to reach people by using the social media channels of the ECB and President Christine Lagarde. We have almost 4m followers across various platforms. We use a variety of methods to engage people, including poetry about forward guidance, quizzes or video explainers.

We look at how we communicate our policies and how we can more effectively listen to our audience so that the general public understands us. We follow online conversations about the economy and feed learnings into our communications to address those issues. We correct misconceptions about our role and tasks when they emerge. This is important as more people think that the ECB controls foreign exchange rates or finances governments in trouble than are aware of its mandate of keeping inflation stable.

In the coming years, we seek to ensure that our communications serve the European public more effectively. The strategy review survey showed that people expect simple language and concrete examples from us. We take this to heart. ■

1. Lagarde holds largest Twitter audience

Source: Twitter

Central bank governor	Twitter handle	No. followers (k)	No. tweets
Christine Lagarde European Central Bank	@Lagarde	690.1	2,102
Patrick Njoroge Central Bank of Kenya	@njorogep	287.7	1,051
Shaktikanta Das Reserve Bank of India	@DasShaktikanta	163.1	1,170
John Rwangombwa	@rwangombwajRW	82.4	1,321
Şahap Kavcıoğlu Central Bank of Turkey	@sahapkavcioglu	62.8	3,788
Neel Kashkari Federal Reserve Bank of Minneapolis	@neelkashkari	44.6	9,783
Lesetja Kganyago South African Reserve Bank	@kganyagolesetja	39.5	339
Ajmal Ahmady Da Afghanistan Bank	@aahmady	30.9	2,469
Olli Rehn Bank of Finland	@ollirehn	22.1	4,755
Mario Centeno Banco de Portugal	@mariofcenteno	21.3	856

closer to the public. At least 32 central bank governors have a Twitter account. Among these are Federal Reserve bank presidents Raphael Bostic, Mary C Daly and Neel Kashkari. Lagarde, one of the most active central bankers on social media, has the greatest number of Twitter followers with close to 700,000 and maintains Instagram and LinkedIn accounts as well. Her strong presence on social media is partly due to the following she amassed while head of the International Monetary Fund. Kashkari has tweeted the most with nearly 10,000 posts at the time of this research. Abdolnaser Hemmati, the former governor of the Central Bank of Iran who quit to run for president in elections in June 2021, was one of the few central bank officials on Instagram, and his posts on the platform have been quoted in news reports.

The greater access and transparency afforded by online channels help build trust between central banks and their communities. Speaking at the 2020 Jackson Hole symposium in August, Bank of Canada Governor Richard Macklem stated, 'Diversifying our engagement improves our capacity to make better policy decisions and enhances our legitimacy as public institutions.' Schnabel echoed the sentiment in a speech on the importance of public trust in December: 'Transparency and clear explanation of monetary policy measures are essential for a high degree of trust.'

Despite the benefits of transparency and engagement, social media platforms come with risks. In the early days of the pandemic, Lagarde found herself in hot water after stating that the ECB is 'not here to close spreads' when asked about widening gaps in euro area sovereign bond yields. Her remarks, livestreamed on Twitter and YouTube, inadvertently sent Italian bond yields soaring and triggered a sell-off bigger than anything the country had seen in a decade. As the ECB's Twitter account was live-tweeting her remarks, the unscripted comment was also posted as a tweet. This was shared over 1,000 times and elicited hundreds of replies, most of which were negative and highly critical of Lagarde. At the time of this research, the tweet remains posted.

In 2018, US President Donald Trump infamously used Twitter to criticise Federal Reserve Chair Jerome Powell in an attempt to undermine central bank independence. Trump posted multiple tweets about the country's top central banker and the Fed's series of policy rate increases. In one tweet, Trump referred to Powell as an 'enemy'. Fed Communications Director Michelle Smith took screenshots of the series of tweets and sent them to then Vice Chair Richard Clarida, to which he replied, 'Ugh ugh.' A copy of the correspondence was obtained by the New York Times through a Freedom of Information Act request. Clarida's response, although likely intended to be private, demonstrates frustration within the Fed at the president's determination to use his social media presence to encroach on monetary policy.

Trump's tweets had a discernible negative effect on users' view of the Fed. A 2020 study by Brookings found that his tweets about the central bank generated responses favourable to him and amplified discussions about the Fed on Twitter. On average, these tweets were shared and liked more than those about other topics, suggesting that many users agreed with his negative comments about the institution. Tweets about the Fed, whether in direct response to Trump or not, increased during periods he was posting about it. The study also found that Twitter users' discussions about the central bank tended to be negative compared to those about other US regulatory agencies.

Trump was later blocked from the platform after his tweets about the Capitol riot in January were found to be in violation of Twitter's policy against the glorification of violence. However, his attacks on the Fed – which have been removed from the platform as part of the banning of his account – illustrate how social media activity can potentially risk eroding trust in a central bank. While social media can help enhance a central bank's reputation, it can also serve as a channel for publicly undermining the institution.

GREATER PRESENCE

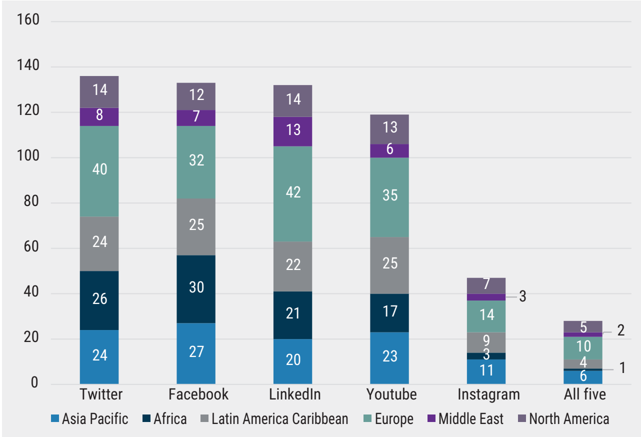
Central banks' social media presence is strongest on Twitter, with 136 active accounts. Since OMFIF's 2019 report on central bank communications, 22 more central banks have joined the platform. The Reserve Bank of India was the first to gain over 1m followers on Twitter, growing by 173% to 1.1m since 2019. It remains the only central bank to surpass this milestone. It had the greatest increase in number of followers in absolute terms, gaining over 714,000 during this period. The Bank of Ghana's followers increased the most in percentage terms, growing by 575% to nearly 11,000 from just over 1,627.

Banco de México and Bank Indonesia follow the RBI in number of followers, with around 800,000 each. The Federal Reserve Bank of St Louis is the most active, posting nearly 40,000 tweets since it first joined the platform in 2009. The Bank of Jamaica's Twitter activity increased the most in percentage terms, growing by 1,903% to 5,300 posts from 265 in 2019.

Facebook and LinkedIn are used nearly as much as Twitter, with 133 and 132 central banks maintaining accounts on the platform, respectively. Banco Central de Reserva del Perú has the most popular Facebook page with 1.2m likes, far ahead of runner-up Bank of Thailand with 670,000 likes. There are 119 central banks with YouTube channels. Instagram is the least used, although the number of central bank accounts has almost doubled to 47 from 24 in 2019. Only 28 central banks are present on all five platforms, of which 10 are North American institutions.

While all platforms can be used to disseminate information, each has a slightly different function and target audience. Twitter, a microblogging site, serves as a tool for information sharing. It is suitable for shorter text, photos and video clips, with links to longer announcements and releases. Market participants and journalists watching central bank actions are likely to be more active on this platform, which reflects its role as a widely accessible virtual press room.

Facebook and Instagram, platforms typically used for non-professional networking activities, tend to feature content curated for the broader public. Central bank posts on LinkedIn, a professional



2. 134 central banks are tweeting

Number of central banks with social media accounts, by platform

Source: Social media platforms

Central bank	Twitter handle	No. followers	No. tweets
Reserve Bank of India	@RBI	1.1m	18k
Banco de México	@banxico	810k	26k
Bank Indonesia	@bank_indonesia	786k	29k
Federal Reserve	@federalreserve	723k	6k
Central Bank of Nigeria	@cenbank	661k	3k
European Central Bank	@ecb	616k	16k
Banco Central do Brasil	@BancocentralBR	405k	7k
Banco Central de Venezuela	@BCV_ORG_VE	371k	9k
Banco de la Republica Colombia	@bancorepublica	354k	16k
Bank of England	@bankofengland	327k	10k

3. Reserve Bank of India reaches 1m followers

Most followed central banks on Twitter

Source: Twitter

Central bank	Absolute increase (k)	Central bank	% increase
Reserve Bank of India	714	Bank of Ghana	575
Central Bank of Nigeria	431	Nepal Rastra Bank	538
Federal Reserve System	211	Banco Central de Cuba	483
Banco de México	176	Bank of Zambia	417
European Central Bank	146	Seðlabanki Íslands (Iceland)	416

4. Millions more following central banks

Biggest increase in followers from 2019

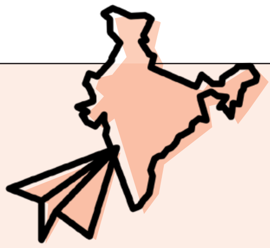
Source: Social media platforms, OMFIF analysis

Platform	Central bank	Handle	Reach
Facebook	Banco Central de Reserva del Perú	@bcrpoficial	1.2m likes
Instagram	Bank Indonesia	@bank_indonesia	576k followers
LinkedIn	European Central Bank	European Central Bank	286.6k followers
Youtube	Reserve Bank of India	Reserve Bank of India	75.4k subscribers

5. Peru's central bank most popular on Facebook

Most followed central banks, by platform

Source: Social media platforms



Reaching India's population

Yogesh Dayal
Chief General Manager, Department of Communication, Reserve Bank of India

COMMUNICATION IS KEY to the functioning of any modern central bank. The Reserve Bank of India places great emphasis on transparency and accountability, and strives to continuously improve public understanding and engagement.

RBI tailors its communication to different audiences. To create awareness of banking facilities, RBI carries out regular public awareness campaigns using social media platforms, as well as through traditional media, such as newspapers and television.

During the Covid-19 lockdown, RBI launched a public awareness campaign using Twitter and Facebook. Structured communication was supplemented by informal, unstructured communication. This was done by layering messaging for target groups and using a range of multimedia. Transparency, simplicity and proactiveness in communication reinforced public trust.

Digital banking in India saw a massive boom during the pandemic. To ensure that the public was aware of new types of payment fraud, RBI created interesting and topical social media campaigns on the safe use of digital payment methods. RBI aims to create awareness of good banking practices, regulations and initiatives for enhancing customer protection.

RBI's main Twitter account (@RBI) is used for sharing circulars and press releases. Its followers are mainly bankers, journalists and other interested members of the public. Using this account to communicate public awareness campaigns would increase the number of tweets posted, which followers may not appreciate, so RBI decided to create a separate Twitter account (@RBIsays) for these issues. Tweets have included messages from popular film and sports personalities, graphics, polls and music videos.

Social media has been an effective and low-cost way to reach out to a younger and wider audience. RBI's awareness campaigns can reach over 600m people – over half of the country's population – and 90% of India's geographical area, making them among the largest public awareness campaigns undertaken by any central bank. Such communications bring in greater engagement with the public and make it easier for central banks to achieve their goals in cost-effective manner. ■

networking site, lean towards corporate communications and organisational activities. YouTube, primarily a video streaming site, serves as a repository of longer audio-visual content, such as recordings of press briefings and public service announcements. Social distancing measures prompted by the pandemic have turned these channels into necessary – rather than simply complementary – tools for communication.

All central banks in North America are active on Twitter: the Bank of Canada, the Federal Reserve System and each of the 12 regional Fed banks are on the platform. In contrast, only half of Middle Eastern central banks are on Twitter. The pattern is similar across different platforms, except on LinkedIn, where 87% of central banks in the Middle East are present.

Twitter activity varies across regions. On average, North American central banks have posted over 12,000 tweets each. African accounts are the least active, averaging just 1,000 tweets per central bank. Overall, tweets from Latin America and the Caribbean represent the greatest share of central bank posts (29%) with around 720,000 tweets in total, averaging 8,600 per institution in the region.

On Instagram, where posts tend to be more creative and colourful because of the platform's focus on images, Asia Pacific central banks are most active. Accounts from the region average around 650 posts each. These account for 36% of around 20,000 central bank posts on the platform. Bank Indonesia is the most followed account in the region, with nearly 580,000 followers. Africa and the Middle East have the lowest number of central banks on the platform, with three each. African accounts create the least content, averaging only around 100 posts per central bank.

The ECB has the most productive YouTube channel with over 1,300 videos. These include press conferences, speeches and interviews of ECB and Eurosystem officials, and video explainers about the various functions and programmes of the central bank. The RBI has the most followed channel, with over 75,000 subscribers.

Notably absent across all these platforms is the People's Bank of China. Instead, the central bank engages with citizens on Chinese social media platforms Weibo and WeChat. Over 3m users follow the PBoC on Weibo, a microblogging site similar to Twitter. On the WeChat social networking platform, the PBoC's most popular post is a summary of its annual work conference held in January. The post, viewed over 100,000 times and liked by 450 users, reviews the PBoC's actions in 2020 and outlines its plans for the coming year.

POWERFUL CONTENT

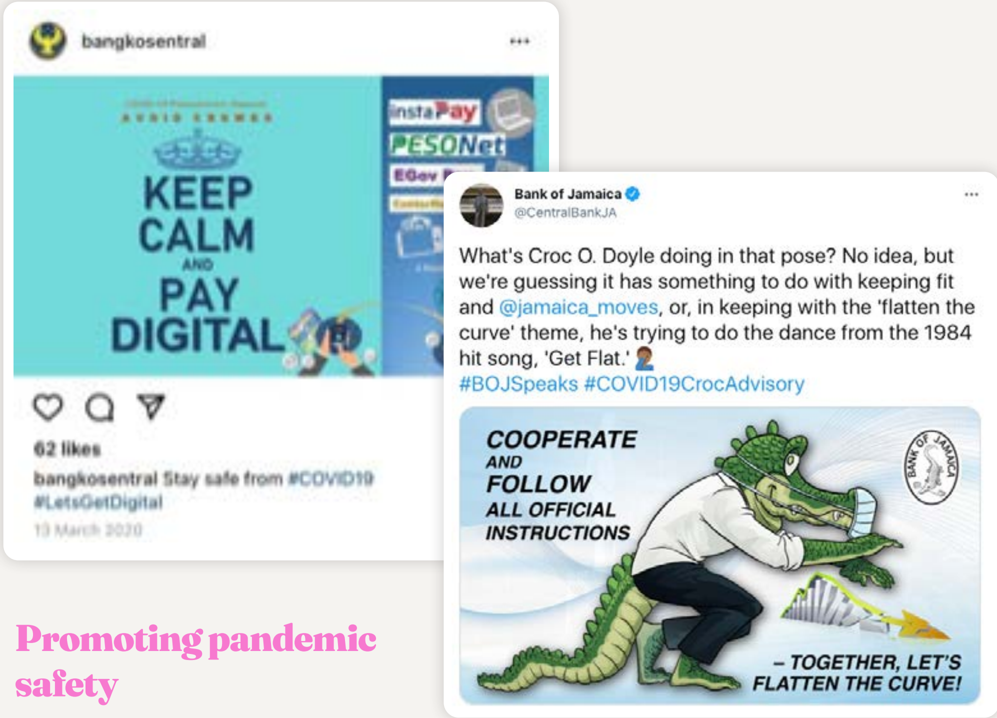
The discursive power of social media, as well as the ability to present content with images and sounds, enables central banks to convey important messages to the public effectively. Their posts reflect key priorities and new areas of focus. Beyond announcing monetary policy actions, central banks use these platforms to encourage financial literacy and dispel misinformation. New topics high on central banks' agendas also feature prominently,

32

At least 32 central bank governors have a Twitter account

>1m

The Reserve Bank of India was the first to gain over 1m followers on Twitter



Promoting pandemic safety

as demonstrated by posts on sustainability and digital finance.

The Fed regularly tweets under the hashtag #FedFAQ where it shares basic information about its mandate and activities. Alongside their official accounts, the RBI, the Federal Reserve Bank of Dallas and the Saudi Arabia Monetary Authority have additional Twitter handles dedicated to financial education: @RBIsays, @Budget2Save and @SAMAcares. On Instagram, the ECB regularly posts a series of stories or 15-second videos that break down economic and financial concepts in simple language. One such series explains Target2, the Eurosystem's real-time gross settlement system. For Valentine's day, the central bank used flowers to illustrate how supply and demand affect the price of goods.

Central banks also use social media to encourage the general public to transact safely, particularly during the pandemic. Two days before the Philippines entered lockdown, the Bangko Sentral ng Pilipinas urged followers to use digital payment platforms with the hashtag #LetsGetDigital. On the same day, Banco de México reminded the public to wash their hands after touching money.

The increased use of digital payments and online transactions has also prompted more posts about fraud and cybercrime prevention. Bank Negara Malaysia's most retweeted post, shared over 4,000 times, warns against financial fraud and scams. The Banco Central do Brasil's Linkedin post on open banking and personal data protection is one of the most engaged with, receiving over 900 reactions. Commonly used hashtags include #beaware, #stopcyberattacks and #slamthescam.

Central bank initiatives around developing digital currencies have received significant attention on social media, with posts receiving high levels of engagement. The Reserve Bank of Australia's tweet announcing its partnership with Commonwealth Bank, National Australia Bank, Perpetual and ConsenSys Software for a potential wholesale central bank digital currency gained more than 200 retweets and was liked over 700 times. Out of the Hong Kong Monetary Authority's 10 most shared and liked tweets, seven were related to fintech or CBDCs.

The Bank of Canada's video clip explaining the potential benefits of a digital currency was viewed 1,200 times on YouTube, while the corresponding tweet was shared 80 times and liked 127 times. The ECB's most popular Instagram post, viewed 7,000 times, is a video of Lagarde talking about the possibility of a digital euro. The Bank of Lithuania tweets about the topic regularly, reflecting the country's growing reputation as a fintech hub. It has used the hashtags #fintech, #lbcoin #blockchain, #cbdc and #regtech a combined total of 69 times. The Central Bank of the Bahamas, meanwhile, uses the hashtag #sanddollar in posts about its digital token, the first CBDC deployed fully for public use.

Social media posts reveal central banks' growing focus on sustainable finance, and online platforms serve as a repository of relevant content. The Banque de France, a founding member of the Central Banks and Supervisors Network for Greening the Financial System, regularly tweets about its responsible investment initiatives. The BdF's first tweet with the hashtag #climate announced the formation of the NGFS during the One Planet Summit in December 2017, a time when central banks were much

Trending themes

less vocal on sustainable finance.

From eight founding institutions, NGFS membership has since grown to over 90, and its Twitter account frequently retweets members' posts related to sustainability and green finance. Aside from the BdF, other central banks it regularly shares content from include the ECB, De Nederlandsche Bank, the Monetary Authority of Singapore, Deutsche Bundesbank and Banco de España.

The ECB's Elderson, who chairs the NGFS, has been on Twitter since 2011 when he was part of the DNB's governing board. His account only features tweets posted since he was nominated to the ECB's executive board in December 2020. At the time of this research, 16 out of 82 tweets include the word 'climate'. His most retweeted post, shared 50 times, announced the establishment of the ECB's climate change centre.

On Instagram, sustainability-themed posts of the HKMA, a founding member of the NGFS, tend to be more popular than others. Its post about stranded assets in a low-carbon economy was liked 275 times, and other posts related to green finance gain a similar level of reaction. Posts on other topics rarely do as well, with few reaching 100 likes. On LinkedIn, one of the ECB's most popular posts is a video of Lagarde describing how the central bank can tackle climate change while remaining focused on its mandate. The post received over 92,000 views, 800 reactions and more than 40 comments.

Diversity and inclusion is another prominent theme in online engagement, especially during March when some central banks commemorate International Women's Day and Women's History Month. The ECB's podcast featuring Lagarde and European Commission President Ursula von der Leyen, released on this year's IWD, was retweeted nearly 1,000 times in total from both women's accounts and the ECB's. On the same day, the Reserve Bank of New Zealand posted on LinkedIn about the country's $10 banknote featuring Kate Sheppard, a suffragette who was instrumental in New Zealand becoming the first country in the world to give women the vote. The post received nearly 400 reactions.

The Federal Reserve Bank of St Louis has a podcast on Women in Economics that it promotes on its social media channels. With each episode, the series spotlights female central bankers and economists. In its secondary account @FedHistory, the regional bank notes key events in the Federal Reserve System's history, including appointments of women to crucial roles.

Central banks' more prominent online presence has forced them to become more creative and innovative in the content they release. This includes using simplified messages and relatable references that audiences can appreciate.

Whether conveying important and relevant messages or simply entertaining the public, central bank communications have evolved to become more accessible and engaging. The onus is on these institutions to use the insights they gain to improve policy-making and strengthen their ability to protect the economic wellbeing of the public they serve. ■

All social media statistics are as of March 2021

Mascots

SOME CENTRAL BANKS set their sights on the very young. The BoE's website provides free teaching resources targeting different age groups, including children as young as five years old. The Central Bank of Ireland has an animated series explaining its different roles in regulation, supervision and consumer protection. The RBI's mascot Money Kumar, depicted as a rolled-up banknote, appears in comic strips teaching school children about inflation. The Bank of Jamaica's Agent Croc O Doyle cartoon is the institution's logo brought to life, a nod to the reptile's prominence in the nation's culture. He appears in social media posts, adding a touch of humour and intrigue to educational content.

Dogs

IN SOME CASES, content produced by central banks appear mainly to increase brand awareness and public appreciation rather than transmit substantial or particularly useful information. The ECB's annual Valentine's Day poetry is usually its most retweeted content of the year. On Instagram, the hashtag #dogsofthefed brings up photos of canines on the premises of Fed regional banks.

Music

CENTRAL BANKS' more prominent online presence has forced them to become more creative and innovative in the content they release. This includes using simplified messages and relatable references that audiences can appreciate.

When ECB Member of the Executive Board Fabio Panetta spoke at a webinar for students at Bocconi University in March, he ended his remarks by quoting Daft Punk's Grammy-winning track, 'Harder, Better, Faster, Stronger'. 'The harder we push to close the output and inflation gaps, the better the outlook for the euro area economy. And the faster we get there, the stronger our growth potential will be,' Panetta stated.

Panetta may have taken the cue from central banks using music to connect with the public. The RBI released a short music video in February featuring rapper Viruss encouraging viewers to be careful and cautious when transacting online. The rap song is in Hindi, although the RBI's other public service announcements are dubbed in multiple languages to cater to citizens in different regions. Norges Bank was one of the first to explore music as a communication tool. In 2017, it released a music video featuring Governer Øystein Olsen to promote new maritime-themed banknotes. It commissioned a remake of 'Torsken kommer', a Norwegian parody song about cod, set to the tune of 'I Will Follow Him.'

A more prominent example is the Bank of Jamaica's series of reggae music videos explaining its inflation-targeting framework. Unlike the Indian and Norwegian videos, the Jamaican central bank's series is in English, enabling a global audience to fully appreciate the innovative approach. In one video viewed 340,000 times, Jamaican-American artist Tarrus Riley compares stable and predictable inflation to the bassline that underpins reggae music. Director of Public Relations Tony Morrison said that his counterparts in other central banks admit to having been inspired by the Bank of Jamaica's success to inject more creativity in their campaigns.

Using music in messaging shows central banks adjusting to a younger audience. Social media analytics companies report that the biggest demographic across social media platforms is aged 25-34. In nearly all cases, the 18-24 age group make up the next biggest cohort. The exception is Twitter, where users aged 35-49 is the second largest demographic. ■

IN CONVERSATION

Giving central banks a human face

Tony Morrison, director of communications at the Bank of Jamaica, discusses the success of the bank's innovative communication strategy during the pandemic.

KAT USITA: From a central bank's perspective, why is communication with the public an important aspect of policy-making?

TONY MORRISON: The main mandate of central banks is price stability. Whether people realise it or not, inflation involves and affects everybody. There are some parts of the economy that people can afford to tune out and disconnect themselves from but not inflation. The central bank therefore has a duty to communicate this clearly, and provide accurate information on a regular basis. Transparency and information help form expectations that are grounded on facts, not on unreliable speculations.

In 2021, we are used to proactive communication and talking to the public. In the 1980s or 90s, a pandemic would have been a lot worse and would have induced panic, because back then central banks were not as transparent and didn't communicate as much or as well. Now we are able to reassure people as we try to cope with the crisis. In Jamaica's case, we can tell them that inflation has stayed low despite the crisis. It is important for people to know that, or they would have assumed otherwise.

KU: The Bank of Jamaica's communications strategy has been innovative in its use of social media and music. What's the motivation behind this?

TM: The economy and the country were at a crossroads. We had started a comprehensive and important economic reform programme. Inflation targeting was going to be a big part of it. The central bank had to pull its weight and prepare the country to accept the major policy shift. It would have been dangerous to have a sudden change without the population knowing what it was about. There was a risk of it backfiring and people not trusting the policy.

For me, it was like a shotgun wedding, except that I wasn't protesting. My mandate was to devise a campaign comprehensive and eye-catching enough to have a wide outreach. Something bigger and bolder than anything we have done before. I was told to bring the circus. The funny thing is that when I actually turned up with lions and tigers, they got nervous.

Many still suffer from the mindset of disregarding the importance of communications until we get ourselves into trouble. But it was different in this case. It was our 'perfect storm' where the bank was under pressure to perform and produce. At that time, we were still in an International Monetary Fund programme, and economists were sent to check on our monetary and fiscal programmes. Communications experts were sent as well. I had the benefit of my programme being examined and endorsed by the IMF. At the same time, having a new, younger, more social media-savvy finance minister made a difference. He aggressively and openly challenged the central bank to do more in communications in general and social media in particular, which helped me get the green light to proceed.

'The bigger the audience, the more we can do to help make lives better by keeping things stable for the economy to grow.'

On our Twitter account, we have been using every opportunity to explain more about inflation and the work we do. We introduced the cartoon crocodile as a virtual spokesperson and we're giving him his own life and backstory to make him more interesting. We also had an explainer using a wild west theme to tell a story about inflation. We are thinking of transforming that into an actual comic book as a way of putting the story into people's hands literally.

KU: How do you interact on social media?

TM: We've chosen to respond to people on social media a bit more than the typical central bank. Although it may open doors to further criticism or noise, it is worth it as we have changed the face of our central bank. Some may say it's easier for us to manage social media because we have a small population, but we also don't have the advantage of larger countries with a big financial journalism community, so we all have our challenges and advantages. The bottom line is that we have managed to achieve a positive response and that outweighs the risks and negatives.

KU: Is there a risk that your approach downplays the importance of what a central bank does?

TM: By drawing more attention to what we do, I think it does the opposite. I think it is possible for any central bank to take such an approach to communications, as every country has their own culture and elements that will resonate with their own people. Central banks can tap into that and find ways to transmit the message to get the public's attention. I think what we have done is give the central bank a human face, making us more relatable. It has done us a lot of goodwill and broadened our audience, catching the attention of a lot of people who otherwise would not be paying attention.

One of the downsides is the fact that I still work in a central bank, which is not the easiest place to be creative and get things done. I have been trying to move at a private sector pace, but we are a bit behind in getting things done. Covid-19 made that even harder. Ironically, the big plan last year was to spend the entire year on the road talking to people, explaining the role of the central bank and inflation. We have done that on Twitter now, but not everyone is there, so we have to work hard to get to the wider audience and help them understand what we do. Constrained by the pandemic, we have to come up with more innovative ways to explain and spread information to people.

KU: Has the stratgey helped to build trust between the central bank and the community?

TM: I think we already had a high level of trust, but the communications strategy that we have adopted has heightened our branding and awareness. Prior to this, many would struggle to tell you what the central bank is about, or identify the work that we do. I think everyone in Jamaica now is pretty certain that we work on inflation. By monitoring our social media platforms, we find that our approach is largely appreciated by the public. However, getting everyone to understand our message is a long-term journey, not something that will happen overnight.

Our communications strategy has resulted in a favourable view of the central bank, broadening our bases, and maintaining trust, respect and likeability. The bigger the audience, the more we can do to help make lives better by keeping things stable for the economy to grow.

On a global level, we were quite surprised by the reaction. When the first videos went viral and the phone calls started coming in, I spent about two weeks blushing. I was speaking to the European Central Bank and the Reserve Bank of India, and they admitted that they took inspiration from us. Since we also learn from other central banks, it's an honour to be part of such a circle. ■

'Some may say it's easier for us to manage social media because we have a small population, but we also don't have the advantage of larger countries with a big financial journalism community, so we all have our challenges and advantages.'

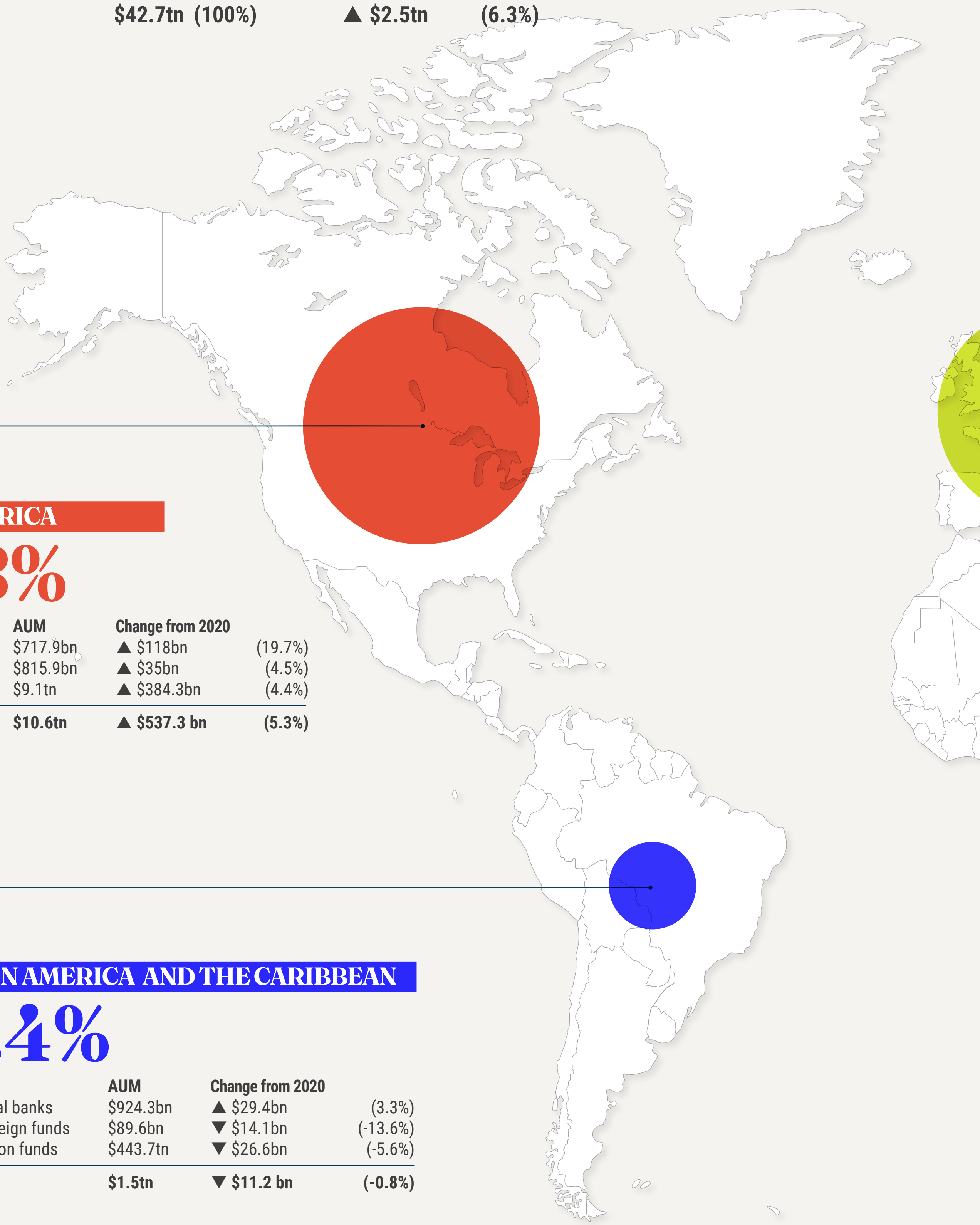
8

Databank

Rankings of top 850 GPIs, featuring breakdown by geography and performance.

GLOBAL DISTRIBUTION OF GPI ASSETS

Total GPIs	Total AUM 2021		Total change from 2020	
174 central banks	$15.3tn	(35.8%)	▲ $1.3tn	(9.1%)
128 sovereign funds	$9.3tn	(21.8%)	▲ $329.1bn	(3.7%)
548 pension funds	$18.1tn	(42.4%)	▲ $940.8bn	(5.5%)
850 GPIs	**$42.7tn**	**(100%)**	**▲ $2.5tn**	**(6.3%)**



NORTH AMERICA

24.8%

GPIs	AUM	Change from 2020	
2 central banks	$717.9bn	▲ $118bn	(19.7%)
32 sovereign funds	$815.9bn	▲ $35bn	(4.5%)
213 pension funds	$9.1tn	▲ $384.3bn	(4.4%)
247 GPIs	**$10.6tn**	**▲ $537.3 bn**	**(5.3%)**

LATIN AMERICA AND THE CARIBBEAN

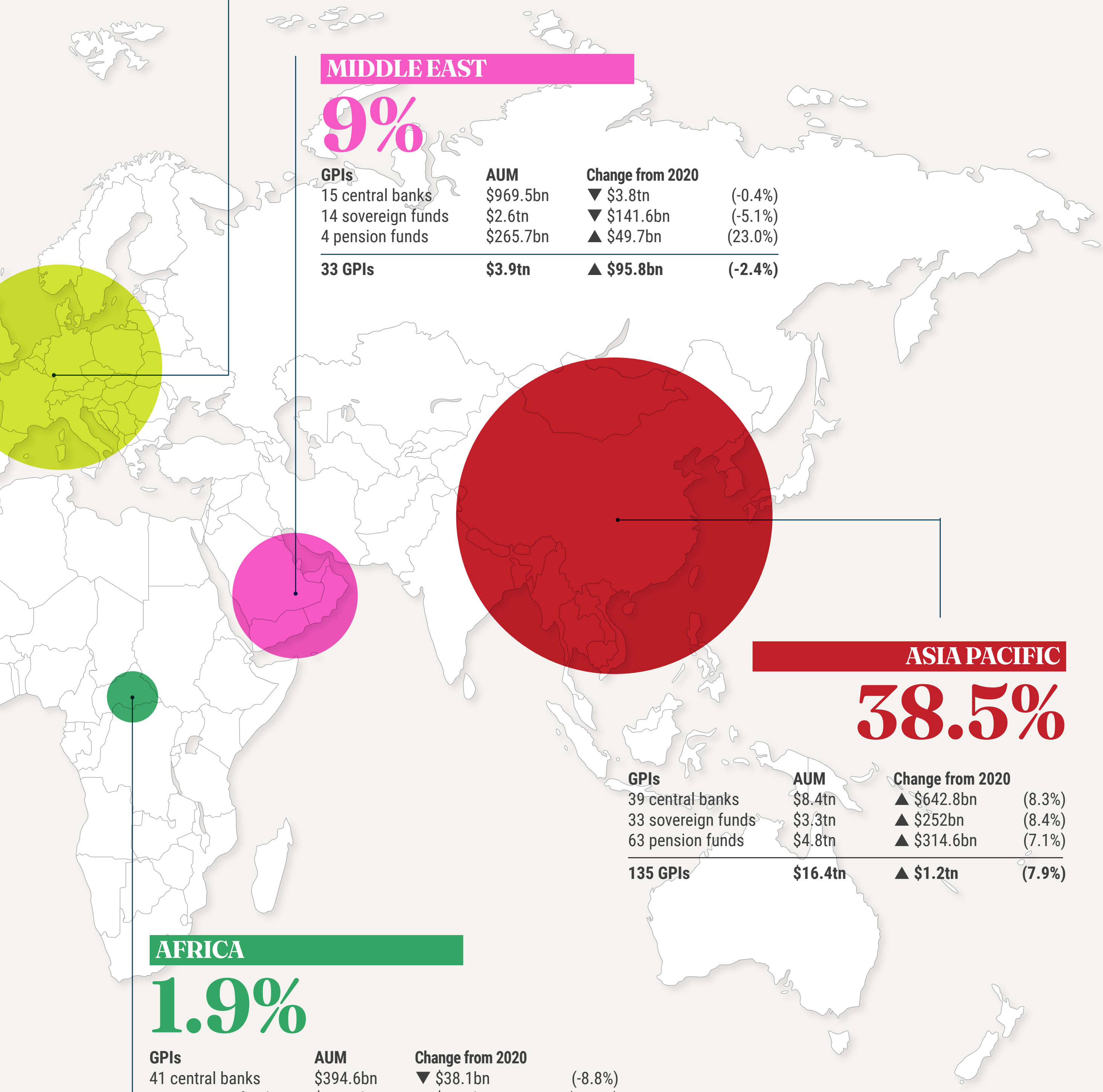
3.4%

GPIs	AUM	Change from 2020	
31 central banks	$924.3bn	▲ $29.4bn	(3.3%)
13 sovereign funds	$89.6bn	▼ $14.1bn	(-13.6%)
24 pension funds	$443.7tn	▼ $26.6bn	(-5.6%)
68 GPIs	**$1.5tn**	**▼ $11.2 bn**	**(-0.8%)**

EUROPE

22.4%

GPIs	AUM	Change from 2020	
46 central banks	$3.9tn	▲ $526.7bn	(15.8%)
17 sovereign funds	$2.2tn	▲ $130.8bn	(6.3%)
229 pension funds	$3.5tn	▲ $217.1bn	(6.6%)
292 GPIs	**$9.6tn**	**▲ $874.5bn**	**(10.1%)**



MIDDLE EAST

9%

GPIs	AUM	Change from 2020	
15 central banks	$969.5bn	▼ $3.8tn	(-0.4%)
14 sovereign funds	$2.6tn	▼ $141.6bn	(-5.1%)
4 pension funds	$265.7bn	▲ $49.7bn	(23.0%)
33 GPIs	**$3.9tn**	**▲ $95.8bn**	**(-2.4%)**

ASIA PACIFIC

38.5%

GPIs	AUM	Change from 2020	
39 central banks	$8.4tn	▲ $642.8bn	(8.3%)
33 sovereign funds	$3.3tn	▲ $252bn	(8.4%)
63 pension funds	$4.8tn	▲ $314.6bn	(7.1%)
135 GPIs	**$16.4tn**	**▲ $1.2tn**	**(7.9%)**

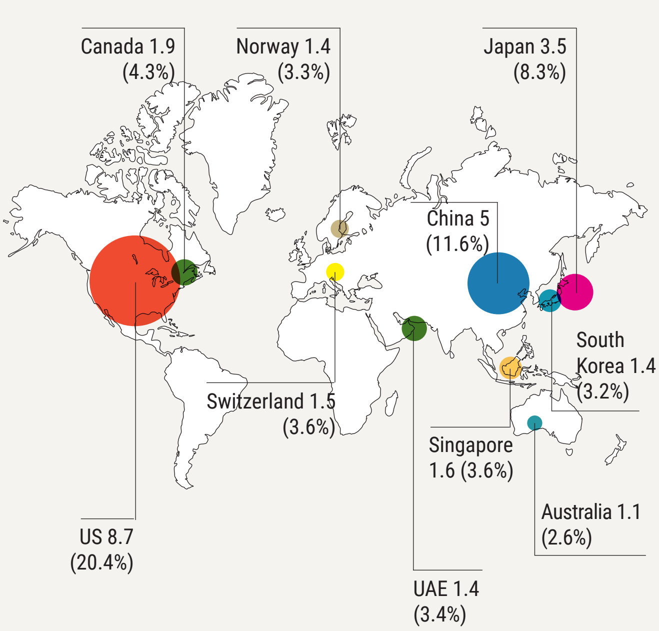
AFRICA

1.9%

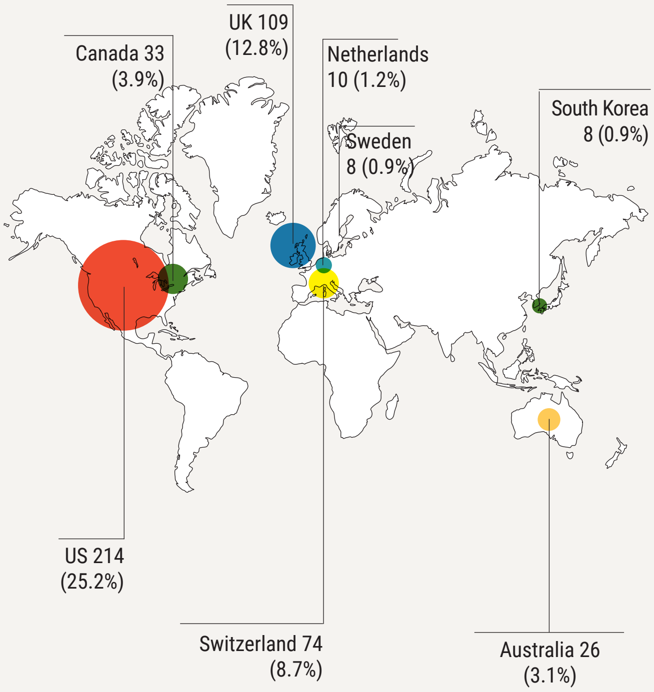
GPIs	AUM	Change from 2020	
41 central banks	$394.6bn	▼ $38.1bn	(-8.8%)
19 sovereign funds	$307.6bn	▲ $67.1bn	(27.9%)
15 pension funds	$90.9bn	▲ $1.6bn	(1.8%)
75 GPIs	**$793bn**	**▲ $30.6bn**	**(4.0%)**

DISTRIBUTION OF GPI ASSETS

US holds greatest share of global assets
Distribution of assets by country, $tn, % of total



Highest concentration of GPIs in US, UK
Distribution of GPIs by country, % of total



TOP FIVE RANKING CHANGES

▼ BIGGEST FALLERS

Top five GPIs by absolute decrease in assets

Rank	GPI Rank	Change on 2020	Institution	Country	Region	Type	AUM $bn 2021	% change on 2020	AUM $bn 2020
1	15	▼ -6	Abu Dhabi Investment Authority	UAE	ME	SF	579.6	-17%	696.66
2	229	▼ -141	National Development Fund of Iran	Iran	ME	SF	23.8	-74%	91.00
3	17	▼ -4	Kuwait Investment Authority	Kuwait	ME	SF	533.7	-10%	592.00
4	20	▼ -4	Saudi Central Bank	Saudi Arabia	ME	CB	453.7	-9%	499.54
5	51	▼ -11	Civil Service Retirement System	US	NA	PF	188.4	-15%	222.44

▲ HIGHEST CLIMBERS

Top five GPIs by absolute increase in assets (excludes GPIs in top 10 ranking)

Rank	GPI Rank	Change on 2020	Institution	Country	Region	Type	AUM $bn 2021	% change on 2020	AUM $bn 2020
1	14	▲ 5	Reserve Bank of India	India	AP	CB	588.4	27%	461.8
2	12	▲ 3	US Monetary Authorities	US	NA	CB	627.5	22%	514.5
3	26	▲ 5	Public Investment Fund	Saudi Arabia	ME	SF	399.5	38%	290.0
4	28	▲ 6	Monetary Authority of Singapore	Singapore	AP	CB	362.3	30%	279.5
5	10	▲ 1	National Pension Service	South Korea	AP	PF	706.7	12%	631.5

TOP 10 BY FUND TYPE

CENTRAL BANKS

Rank	GPI Rank	Change on 2020	Institution	Country	Region	AUM $bn	% change on 2020	$bn change on 2020
1	1	▶ 0	People's Bank of China	China	AP	3,536.0	4%	147.3
2	3	▶ 0	Japanese Monetary Authorities	Japan	AP	1,440.2	5%	71.3
3	5	▲ 2	Swiss National Bank	Switzerland	EU	1,085.1	27%	229.4
4	12	▲ 3	US Monetary Authorities	US	NA	627.5	22%	112.9
5	13	▲ 1	Central Bank of the Russian Federation	Russia	EU	596.1	8%	41.7
6	14	▲ 5	Reserve Bank of India	India	AP	588.4	27%	126.6
7	16	▲ 1	Central Bank of the Republic of China	Taiwan	AP	535.3	12%	56.0
8	18	▶ 0	Hong Kong Monetary Authority	Hong Kong	AP	495.7	5%	24.8
9	20	▼ -4	Saudi Central Bank	Saudi Arabia	ME	453.7	-9%	-45.9
10	22	▶ 0	Bank of Korea	South Korea	AP	443.1	8%	34.3

SOVEREIGN FUNDS

Rank	GPI Rank	Change on 2020	Institution	Country	Region	AUM $bn	% change on 2020	$bn change on 2020
1	4	▶ 0	Norges Bank Investment Management	Norway	EU	1,204.0	1%	16.7
2	6	▼ -1	China Investment Corporation	China	AP	1,045.7	11%	105.1
3	15	▼ -6	Abu Dhabi Investment Authority	UAE	ME	579.6	-17%	-117.0
4	17	▼ -4	Kuwait Investment Authority	Kuwait	ME	533.7	-10%	-58.4
5	19	▲ 2	Cassa Depositi e Prestiti	Italy	EU	470.6	10%	42.7
6	21	▲ 1	GIC	Singapore	AP	453.2	3%	13.2
7	23	▲ 2	Temasek	Singapore	AP	431.3	16%	58.3
8	26	▲ 5	Public Investment Fund	Saudi Arabia	ME	399.5	38%	109.5
9	27	▶ 0	National Social Security Fund	China	AP	380.8	18%	57.4
10	33	▼ -4	Investment Corporation of Dubai	UAE	ME	301.6	-1%	-3.7

PENSION FUNDS

Rank	GPI Rank	Change on 2020	Institution	Country	Region	AUM $bn	% change on 2020	$bn change on 2020
1	2	▶ 0	Government Pension Investment Fund	Japan	AP	1,677.0	8%	120.6
2	7	▼ -1	Military Retirement Fund	US	NA	979.4	9%	82.6
3	8	▶ 0	Federal Employees Retirement System	US	NA	782.0	7%	48.2
4	9	▲ 1	Thrift Savings Fund	US	NA	746.5	15%	96.1
5	10	▲ 1	National Pension Service	South Korea	AP	706.8	12%	75.2
6	11	▲ 1	APG	Netherlands	EU	654.4	9%	52.0
7	24	▼ -1	Canada Pension Plan Investment Board	Canada	NA	410.7	3%	11.5
8	25	▼ -1	California Public Employees' Retirement	US	NA	401.8	4%	15.6
9	30	▲ 2	Central Provident Fund	Singapore	AP	311.1	7%	21.7
10	31	▼ -1	Caisse de Dépôt et Placement du Québec	Canada	NA	307.3	4%	11.4

DISTRIBUTION OF GPI ASSETS BY REGION

AFRICA

Total assets held by top 10:

$586.6bn

Top 10 overall

Rank	GPI Rank	Institution	Type	AUM $bn
1	73	Public Investment Corporation (S. Africa)	SF	115.8
2	86	Sovereign Wealth Fund of Zimbabwe	SF	97.5
3	116	Libyan Investment Authority	SF	67.0
4	135	South African Reserve Bank	CB	54.2
5	140	Central Bank of Libya	CB	51.0
6	142	Central Bank of Egypt	CB	50.0
7	147	Bank of Algeria	CB	48.9
8	180	Central Bank of Nigeria	CB	36.7
9	182	Bank Al-Maghrib (Morocco)	CB	36.0
10	203	Caisse de Dépôt et de Gestion (Morocco)	PF	29.5

Central banks

GPI Rank	Institution	AUM $bn
135	South African Reserve Bank	54.2
140	Central Bank of Libya	51.0
142	Central Bank of Egypt	50.0
147	Bank of Algeria	48.9
180	Central Bank of Nigeria	36.7

Sovereign funds

GPI Rank	Institution	AUM $bn
73	Public Investment Corporation (South Africa)	115.8
86	Sovereign Wealth Fund of Zimbabwe	97.5
116	Libyan Investment Authority	67.0
301	Egypt Fund	13.5
444	Fundo Soberano de Angola	5.0

Pension funds

GPI Rank	Institution	AUM $bn
203	Caisse de Dépôt et de Gestion (Morocco)	29.5
215	National Pension Commission (Nigeria)	26.4
370	La Caisse Marocaine des Retraites	8.5
399	Government Institutions Pension Fund (Namibia)	6.6
420	Botswana Public Officers Pension Fund	5.8

ASIA PACIFIC

Total assets held by top 10:

$10.9tn

Top 10 overall

Rank	GPI Rank	Institution	Type	AUM $bn
1	1	People's Bank of China	CB	3,536.0
2	2	Government Pension Investment Fund (Japan)	PF	1,677.0
3	3	Japanese Monetary Authorities	CB	1,440.2
4	6	China Investment Corporation	SF	1,045.7
5	10	National Pension Service (South Korea)	PF	706.7
6	14	Reserve Bank of India	CB	588.4
7	16	Central Bank of the Republic of China (Taiwan)	CB	535.3
8	18	Hong Kong Monetary Authority	CB	495.7
9	21	GIC (Singapore)	SF	453.2
10	22	Bank of Korea	CB	443.1

Central banks

GPI Rank	Institution	AUM $bn
1	People's Bank of China	3,536.0
3	Japanese Monetary Authorities	1,440.2
14	Reserve Bank of India	588.4
16	Central Bank of the Republic of China (Taiwan)	535.3
18	Hong Kong Monetary Authority	495.7

Sovereign funds

GPI Rank	Institution	AUM $bn
6	China Investment Corporation	1,045.7
21	GIC (Singapore)	453.2
23	Temasek (Singapore)	431.3
27	National Social Security Fund (China)	380.8
61	Korea Investment Corporation	157.3

Pension funds

GPI Rank	Institution	AUM $bn
2	Government Pension Investment Fund	1,677.0
10	National Pension Service (South Korea)	706.7
30	Central Provident Fund (Singapore)	311.1
38	Employees' Provident Fund (Malaysia)	235.7
47	Pension Fund Association of Local Government Officials (Japan)	204.7

EUROPE

Total assets held by top 10:

$5.3tn

Top 10 overall

Rank	GPI Rank	Institution	Type	AUM $bn
1	4	Norges Bank Investment Management	SF	1,204.0
2	5	Swiss National Bank	CB	1,085.1
3	11	APG (Netherlands)	PF	654.4
4	13	Central Bank of the Russian Federation	CB	596.1
5	19	Cassa Depositi e Prestiti (Italy)	SF	470.6
6	32	PGGM (Netherlands)	PF	306.1
7	36	Deutsche Bundesbank	CB	269.5
8	39	Banque de France	CB	232.5
9	41	Bank of England	CB	223.1
10	43	Caisse des Dépôts et Consignations (France)	PF	213.6

Central banks

GPI Rank	Institution	AUM $bn
5	Swiss National Bank	1,085.1
13	Central Bank of the Russian Federation	596.1
36	Deutsche Bundesbank	269.5
39	Banque de France	232.5
41	Bank of England	223.1

Sovereign funds

GPI Rank	Institution	AUM $bn
4	Norges Bank Investment Management	1,204.0
19	Cassa Depositi e Prestiti (Italy)	470.6
45	Turkiye Wealth Fund	207.4
53	National Welfare Fund (Russia)	183.4
100	Bpifrance	82.2

Pension funds

GPI Rank	Institution	AUM $bn
11	APG (Netherlands)	654.4
32	PGGM (Netherlands)	306.1
43	Caisse des Dépôts et Consignations (France)	213.6
55	ATP (Denmark)	174.6
79	AP7 (Sweden)	113.5

LATIN AMERICA AND THE CARIBBEAN

Total assets held by top 10:

$1.2tn

Top 10 overall

Rank	GPI Rank	Institution	Type	AUM $bn
1	29	Banco Central do Brasil	CB	355.6
2	42	Comisión Nacional del Sistema de Ahorro para el Retiro (Mexico)	PF	219.1
3	50	Banco de México	CB	199.1
4	84	Fundo de Garantia por Tempo de Serviço (Mexico)	PF	103.9
5	111	Central Bank of Peru	CB	74.8
6	122	Banco de la Republica Colombia	CB	63.8
7	126	Banco Central de Chile	CB	59.2
8	144	Fondo de Garantia de Sustentabilidad (Argentina)	SF	49.5
9	166	Caixa de Previdencia dos Funcionários do Banco do Brasil	PF	41.7
10	172	Banco Central de la República Argentina	CB	39.4

Central banks

GPI Rank	Institution	AUM $bn
29	Banco Central do Brasil	355.6
50	Banco de México	199.1
111	Central Bank of Peru	74.8
122	Banco de la Republica Colombia	63.8
126	Banco Central de Chile	59.2

Sovereign funds

GPI Rank	Institution	AUM $bn
144	Fondo de Garantia de Sustentabilidad (Argentina)	49.5
341	Fondo de Reserva de Pensiones (Chile)	10.2
362	Fondo de Estabilización Económica y Social (Chile)	9.0
413	Fondo de Estabilización de los Ingresos Presupuestarios (Mexico)	6.0
416	Heritage and Stabilisation Fund (Trinidad and Tobago)	5.9

Pension funds

GPI Rank	Institution	AUM $bn
42	Comisión Nacional del Sistema de Ahorro para el Retiro (Mexico)	219.1
84	Fundo de Garantia por Tempo de Serviço (Mexico)	103.9
166	Caixa de Previdencia dos Funcionários do Banco do Brasil	41.7
289	Instituto Mexicano del Seguro Social	14.8
295	Fundação dos Economiários Federais (Brazil)	13.9

MIDDLE EAST

Total assets held by top 10:

$3.3tn

Top 10 overall

Rank	GPI Rank	Institution	Type	AUM $bn
1	15	Abu Dhabi Investment Authority	SF	579.6
2	17	Kuwait Investment Authority	SF	533.7
3	20	Saudi Central Bank	CB	453.7
4	26	Public Investment Fund (Saudi Arabia)	SF	399.5
5	33	Investment Corporation of Dubai	SF	301.6
6	34	Qatar Investment Authority	SF	295.2
7	40	Mubadala Investment Company (UAE)	SF	232.2
8	54	Dubai World	SF	175.3
9	56	Bank of Israel	CB	173.8
10	70	Public Institute for Social Security (Kuwait)	PF	124.0

Central banks

GPI Rank	Institution	AUM $bn
20	Saudi Central Bank	453.7
56	Bank of Israel	173.8
83	Central Bank of the UAE	106.7
136	Central Bank of Iraq	54.1
149	Central Bank of Kuwait	48.1

Sovereign funds

GPI Rank	Institution	AUM $bn
15	Abu Dhabi Investment Authority	579.6
17	Kuwait Investment Authority	533.7
26	Public Investment Fund (Saudi Arabia)	399.5
33	Investment Corporation of Dubai	301.6
34	Qatar Investment Authority	295.2

Pension funds

GPI Rank	Institution	AUM $bn
70	Public Institute for Social Security (Kuwait)	124.0
75	General Organisation for Social Insurance (Saudi Arabia)	115.4
280	Social Security Corporation (Jordan)	16.1
340	General Organisation for Social Insurance Bahrain	10.2

NORTH AMERICA

Total assets held by top 10:

$4.9tn

Top 10 overall

Rank	GPI Rank	Institution	Type	AUM $bn
1	7	Military Retirement Fund (US)	PF	979.4
2	8	Federal Employees Retirement System	PF	782.0
3	9	Thrift Savings Fund (US)	PF	746.5
4	12	US Monetary Authorities	CB	627.5
5	24	Canada Pension Plan Investment Board	PF	410.7
6	25	California Public Employees' Retirement System	PF	401.8
7	31	Caisse de Dépôt et Placement du Québec	PF	307.3
8	35	California State Teachers' Retirement System	PF	281.5
9	46	New York State Common Retirement Fund	PF	205.8
10	48	State Board of Administration of Florida	PF	203.7

Central banks

GPI Rank	Institution	AUM $bn
12	US Monetary Authorities	627.5
90	Bank of Canada	90.4

Sovereign funds

GPI Rank	Institution	AUM $bn
72	Oregon Investment Council	118.0
93	Alberta Investment Management Corporation	88.6
107	Texas Treasury Safekeeping Trust Company	78.3
109	State of Michigan Investment Board	76.4
120	Alaska Permanent Fund Corporation	65.3

Pension funds

GPI Rank	Institution	AUM $bn
7	Military Retirement Fund (US)	979.4
8	Federal Employees Retirement System	782.0
9	Thrift Savings Fund (US)	746.5
24	Canada Pension Plan Investment Board	410.7
25	California Public Employees' Retirement System	401.8

THE TOP 850 GPIs RANKED

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
1	▶ 0	People's Bank of China[1]	China	AP	CB	3,536.00	4%	1948
2	▶ 0	Government Pension Investment Fund	Japan	AP	PF	1,677.03	8%	2006
3	▶ 0	Japanese Monetary Authorities[2]	Japan	AP	CB	1,440.24	5%	1882
4	▶ 0	Norges Bank Investment Management[3]	Norway	EU	SF	1,204.02	1%	1990
5	▲ 2	Swiss National Bank	Switzerland	EU	CB	1,085.06	27%	1907
6	▼ -1	China Investment Corporation	China	AP	SF	1,045.72	11%	2007
7	▼ -1	Military Retirement Fund	US	NA	PF	979.43	9%	1984
8	▶ 0	Federal Employees Retirement System	US	NA	PF	782.01	7%	1987
9	▲ 1	Thrift Savings Fund	US	NA	PF	746.51	15%	1986
10	▲ 1	National Pension Service	South Korea	AP	PF	706.75	12%	1987
11	▲ 1	APG[4]	Netherlands	EU	PF	654.42	9%	1922
12	▲ 3	US Monetary Authorities[5]	US	NA	CB	627.45	22%	1913
13	▲ 1	Central Bank of the Russian Federation	Russia	EU	CB	596.07	8%	1990
14	▲ 5	Reserve Bank of India	India	AP	CB	588.43	27%	1935
15	▼ -6	Abu Dhabi Investment Authority	UAE	ME	SF	579.62	-17%	1976
16	▲ 1	Central Bank of the Republic of China	Taiwan	AP	CB	535.33	12%	1924
17	▼ -4	Kuwait Investment Authority	Kuwait	ME	SF	533.65	-10%	1953
18	▶ 0	Hong Kong Monetary Authority	Hong Kong	AP	CB	495.72	5%	1993
19	▲ 2	Cassa Depositi e Prestiti	Italy	EU	SF	470.64	10%	1850
20	▼ -4	Saudi Central Bank	Saudi Arabia	ME	CB	453.66	-9%	1952
21	▼ -1	GIC	Singapore	AP	SF	453.20	3%	1981
22	▶ 0	Bank of Korea	South Korea	AP	CB	443.10	8%	1950
23	▲ 2	Temasek	Singapore	AP	SF	431.31	16%	1974
24	▼ -1	Canada Pension Plan Investment Board	Canada	NA	PF	410.68	3%	1997
25	▼ -1	California Public Employees' Retirement System	US	NA	PF	401.79	4%	1995
26	▲ 5	Public Investment Fund	Saudi Arabia	ME	SF	399.45	38%	1971
27	▶ 0	National Social Security Fund	China	AP	SF	380.83	18%	1997
28	▲ 6	Monetary Authority of Singapore	Singapore	AP	CB	362.30	30%	1971
29	▼ -3	Banco Central do Brasil	Brazil	LA	CB	355.62	0%	1964
30	▲ 2	Central Provident Fund	Singapore	AP	PF	311.14	7%	1955
31	▼ -1	Caisse de Dépôt et Placement du Québec	Canada	NA	PF	307.29	4%	1965
32	▲ 1	PGGM[6]	Netherlands	EU	PF	306.08	8%	1969
33	▼ -4	Investment Corporation of Dubai	UAE	ME	SF	301.58	-1%	2006
34	▼ -6	Qatar Investment Authority	Qatar	ME	SF	295.20	-8%	2005
35	▶ 0	California State Teachers' Retirement System	US	NA	PF	281.46	3%	1913
36	▲ 1	Deutsche Bundesbank	Germany	EU	CB	269.45	20%	1957
37	▲ 1	Bank of Thailand	Thailand	AP	CB	258.24	15%	1942
38	▲ 4	Employees' Provident Fund	Malaysia	AP	PF	235.67	9%	1991
39	▲ 10	Banque de France	France	EU	CB	232.54	18%	1800
40	▼ -4	Mubadala Investment Company	UAE	ME	SF	232.21	1%	2002
41	▲ 2	Bank of England[7]	UK	EU	CB	223.11	7%	1694
42	▲ 2	Comisión Nacional del Sistema de Ahorro para el Retiro	Mexico	LA	PF	219.09	6%	1994
43	▲ 4	Caisse des Dépôts et Consignations	France	EU	PF	213.62	6%	1816

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
44	▲ 8	Banca d'Italia	Italy	EU	CB	213.10	21%	1893
45	▶ 0	Turkiye Wealth Fund	Turkey	EU	SF	207.45	0%	2016
46	▼ -5	New York State Common Retirement Fund	US	NA	PF	205.82	-7%	1786
47	▼ -8	Pension Fund Association of Local Government Officials	Japan	AP	PF	204.71	-8%	1962
48	▼ -2	State Board of Administration of Florida	US	NA	PF	203.75	-1%	1943
49	▼ -1	Ontario Teachers' Pension Plan	Canada	NA	PF	203.70	2%	1990
50	▶ 0	Banco de México	Mexico	LA	CB	199.06	9%	1925
51	▼ -11	Civil Service Retirement System	US	NA	PF	188.44	-15%	1920
52	▼ -1	Teacher Retirement System of Texas	US	NA	PF	184.36	1%	1937
53	▲ 15	National Welfare Fund	Russia	EU	SF	183.36	48%	2008
54	▼ -1	Dubai World	UAE	ME	SF	175.30	0%	2006
55	▶ 0	ATP	Denmark	EU	PF	174.64	13%	1964
56	▲ 11	Bank of Israel	Israel	ME	CB	173.77	37%	1954
57	▼ -3	Employees' Provident Fund Organisation	India	AP	PF	170.32	10%	1951
58	▼ -1	Bureau of Labor Funds[8]	Taiwan	AP	PF	169.15	12%	2014
59	▲ 1	Washington State Investment Board	US	NA	PF	164.89	12%	1981
60	▼ -2	Česká národní banka	Czech Republic	EU	CB	162.76	8%	1993
61	▲ 3	Korea Investment Corporation	South Korea	AP	SF	157.30	20%	2005
62	▼ -6	Commonwealth Superannuation Corporation	Australia	AP	PF	154.99	3%	1911
63	▼ -4	Public Sector Pension Investment Board	Canada	NA	PF	154.80	3%	1999
64	▲ 1	Narodowy Bank Polski	Poland	EU	CB	154.50	19%	1945
65	▲ 1	Bank Indonesia	Indonesia	AP	CB	135.90	5%	1953
66	▼ -4	Healthcare of Ontario Pension Plan	Canada	NA	PF	134.84	-1%	1960
67	▲ 3	AustralianSuper	Australia	AP	PF	131.47	10%	2006
68	▲ 8	State of Wisconsin Investment Board	US	NA	PF	128.64	17%	1951
69	▲ 2	British Columbia Investment Management Corporation	Canada	NA	PF	127.73	10%	1999
70	▲ 36	Public Institute for Social Security	Kuwait	ME	PF	124.00	64%	1976
71	▼ -2	New York State Teachers' Retirement System	US	NA	PF	121.45	-1%	1921
72	▲ 2	Oregon Investment Council	US	NA	SF	117.96	6%	1968
73	▼ -12	Public Investment Corporation[9]	South Africa	AF	SF	115.80	-21%	1911
74	▲ 9	Ohio Public Employees' Retirement System	US	NA	PF	115.71	12%	1935
75	▼ -3	General Organisation for Social Insurance	Saudi Arabia	ME	PF	115.41	0%	1932
76	▲ 3	North Carolina State Treasurer[10]	US	NA	PF	114.90	9%	1941
77	▲ 4	Minnesota State Board	US	NA	PF	114.37	10%	1980
78	▲ 11	Bangko Sentral ng Pilipinas	Philippines	AP	CB	113.82	27%	1993
79	▼ -4	AP7	Sweden	EU	PF	113.52	3%	2001
80	▼ -7	Future Fund	Australia	AP	SF	112.16	-1%	2006
81	▲ 6	Bayerische Versorgungskammer	Germany	EU	PF	111.07	21%	1995
82	▶ 0	Bank Negara Malaysia	Malaysia	AP	CB	108.20	4%	1959
83	▼ -6	Central Bank of the UAE	UAE	ME	CB	106.70	-2%	1980
84	▼ -21	Fundo de Garantia por Tempo de Serviço	Brazil	LA	PF	103.94	-22%	1966
85	▼ -5	Pension Fund Association	Japan	AP	PF	100.20	-5%	1967
86	▶ 0	Sovereign Wealth Fund of Zimbabwe	Zimbabwe	AF	SF	97.50	N/A	2015
87	▼ -9	Central Bank of the Republic of Turkey	Turkey	EU	CB	93.28	-12%	1931
88	▼ -4	Teachers' Retirement System of the City of New York	US	NA	PF	91.85	-3%	1917
89	▼ -4	Ontario Municipal Employees' Retirement System	Canada	NA	PF	91.35	-1%	1962

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
90	▲ 2	Bank of Canada	Canada	NA	CB	90.43	6%	1935
91	▼ -5	Virginia Retirement System	US	NA	PF	89.48	-2%	1942
92	▲ 9	State Bank of Vietnam	Vietnam	AP	CB	89.36	13%	1951
93	▲ 2	Alberta Investment Management Corporation[11]	Canada	NA	SF	88.59	9%	2008
94	▲ 16	First State Super	Australia	AP	PF	87.30	22%	1992
95	▲ 2	Banco de España	Spain	EU	CB	87.14	9%	1782
96	▼ -6	Universities Superannuation Scheme	UK	EU	PF	86.92	-1%	1974
97	▼ -6	Kommunal Landspensjonskasse	Norway	EU	PF	85.70	-1%	1964
98	▶ 0	New Jersey Division of Investment	US	NA	PF	84.64	6%	1962
99	▼ -3	QSuper	Australia	AP	PF	83.15	4%	1913
100	▲ 17	Bpifrance	France	EU	SF	82.15	23%	2012
101	▼ -2	Massachusetts Pension Reserves Investment Management	US	NA	PF	81.62	3%	1986
102	▼ -9	State Teachers Retirement System of Ohio	US	NA	PF	81.25	-2%	1919
103	▼ -3	Teachers' Retirement System of Georgia	US	NA	PF	81.25	3%	1943
104	▼ -10	European Central Bank	Eurosystem	EU	CB	81.23	-2%	1998
105	▲ 4	United Nations Joint Staff Pension Fund	US	NA	PF	80.77	12%	1949
106	▼ -2	New York City Employee Retirement System	US	NA	PF	79.89	3%	1920
107	▼ -4	Texas Treasury Safekeeping Trust Company	US	NA	SF	78.30	0%	2001
108	▼ -1	Permodalan Nasional Berhad	Malaysia	AP	SF	76.73	2%	1978
109	▼ -4	State of Michigan Investment Board	US	NA	SF	76.40	-2%	2018
110	▲ 5	Norges Bank	Norway	EU	CB	75.42	12%	1816
111	▲ 3	Central Bank of Peru	Peru	LA	CB	74.78	10%	1922
112	▲ 6	Danmarks Nationalbank	Denmark	EU	CB	73.51	10%	1818
113	▼ -2	Victorian Funds Management Corporation	Australia	AP	SF	73.05	3%	1994
114	▼ -6	TCorp	Australia	AP	SF	71.16	-4%	1983
115	▲ 4	National Public Service Personnel Mutual Aid	Japan	AP	PF	70.21	7%	1947
116	▶ 0	Libyan Investment Authority	Libya	AF	SF	67.00	0%	2006
117	▼ -5	Samruk-Kazyna JSC	Kazakhstan	AP	SF	66.96	-3%	2008
118	▲ 10	Brunei Investment Agency	Brunei	AP	SF	66.30	11%	1983
119	▲ 4	Kuntien eläkevakuutus	Finland	EU	PF	66.25	5%	1988
120	▶ 0	Alaska Permanent Fund Corporation	US	NA	SF	65.30	0%	1976
121	▶ 0	Pennsylvania Public School Employees' Retirement System	US	NA	PF	64.90	0%	1917
122	▲ 10	Banco de la Republica Colombia	Colombia	LA	CB	63.76	9%	1923
123	▲ 3	Los Angeles County Employees Retirement Association	US	NA	PF	61.36	0%	1938
124	▲ 7	Maryland State Retirement and Pension System	US	NA	PF	60.45	3%	1941
125	▲ 4	Hydro-Québec Pension Fund	Canada	NA	PF	60.32	2%	1944
126	▼ -4	Banco Central de Chile	Chile	LA	CB	59.20	-7%	1925
127	▲ 6	UniSuper	Australia	AP	PF	58.88	2%	2000
128	▲ 9	Sveriges Riksbank	Sweden	EU	CB	58.56	5%	1668
129	▼ -5	Illinois Teachers Retirement System	US	NA	PF	58.01	-7%	1939
130	▼ -3	Kazakhstan National Fund	Kazakhstan	AP	SF	57.11	-7%	2000
131	▲ 16	National Pension System Trust	India	AP	PF	56.32	25%	2008
132	▲ 3	Tennessee Retiree Group Trust	US	NA	SF	55.75	-1%	2015
133	▲ 6	Investment Management Corporation of Ontario	Canada	NA	PF	54.66	3%	2016
134	▲ 2	Queensland Investment Corporation	Australia	AP	SF	54.53	-3%	1991
135	▲ 3	South African Reserve Bank	South Africa	AF	CB	54.25	-1%	1921

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
136	▼ -23	Central Bank of Iraq	Iraq	ME	CB	54.10	-21%	1947
137	▲ 16	De Nederlandsche Bank	Netherlands	EU	CB	54.04	22%	1814
138	▲ 7	Colorado Public Employees' Retirement Association	US	NA	PF	53.35	15%	1931
139	▲ 18	Banca Naţională a României	Romania	EU	CB	52.17	24%	1880
140	▼ -38	Central Bank of Libya	Libya	AF	CB	51.00	-35%	1956
141	▲ 22	PKA	Denmark	EU	PF	50.98	28%	1954
142	▼ -8	Central Bank of Egypt	Egypt	AF	CB	50.01	-13%	1961
143	▲ 9	Illinois Municipal Retirement Fund	US	NA	PF	49.88	12%	1939
144	▼ -3	Fondo de Garantia de Sustentabilidad	Argentina	LA	SF	49.52	0%	2008
145	▲ 6	AP4	Sweden	EU	PF	49.09	10%	2001
146	▼ -4	Sunsuper	Australia	AP	PF	48.99	1%	1987
147	▼ -22	Bank of Algeria	Algeria	AF	CB	48.88	-21%	1962
148	▼ -5	Texas Permanent School Fund	US	NA	SF	48.30	0%	1854
149	▲ 17	Central Bank of Kuwait	Kuwait	ME	CB	48.10	22%	1969
150	▼ -1	Nevada Public Employees Retirement Systems	US	NA	PF	47.57	6%	1947
151	▲ 5	AP3	Sweden	EU	PF	46.96	10%	2001
152	▼ -6	Indiana Public Retirement System	US	NA	PF	46.66	2%	2011
153	▲ 7	Pensionskasse des Bundes PUBLICA	Switzerland	EU	PF	45.27	10%	1921
154	▶ 0	Sampension	Denmark	EU	PF	45.09	3%	1957
155	▼ -7	Emirates Investment Authority	UAE	ME	SF	44.52	-1%	2007
156	▲ 6	PensionDanmark	Denmark	EU	PF	44.30	9%	1993
157	▲ 10	Utah State Retirement System	US	NA	PF	43.98	13%	1910
158	▲ 1	State Oil Fund of the Republic of Azerbaijan	Azerbaijan	AP	SF	43.56	5%	1999
159	▼ -4	Public School Retirement Systems of Missouri	US	NA	PF	43.22	0%	1945
160	▲ 39	Bangladesh Bank	Bangladesh	AP	CB	43.16	52%	1971
161	▼ -31	Reserve Bank of Australia	Australia	AP	CB	43.05	-27%	1959
162	▼ -1	AP2	Sweden	EU	PF	42.61	4%	2001
163	▼ -5	Arizona State Retirement System	US	NA	PF	42.49	1%	1912
164	▲ 23	Banque du Liban	Lebanon	ME	CB	42.32	33%	1964
165	▲ 21	Magyar Nemzeti Bank	Hungary	EU	CB	41.69	29%	1924
166	▼ -26	Caixa de Previdencia dos Funcionários do Banco do Brasil	Brazil	LA	PF	41.68	-16%	1904
167	▲ 6	Compenswiss - Fonds de compensation AVS	Switzerland	EU	PF	41.05	12%	1948
168	▼ -4	Qatar Central Bank	Qatar	ME	CB	40.99	3%	1973
169	▼ -4	Retirement Systems' of Alabama	US	NA	PF	40.71	3%	1939
170	▲ 5	BVK Personalvorsorge des Kantons Zürich	Switzerland	EU	PF	40.58	13%	1926
171	▼ -27	Connecticut Retirement Plans & Trust Funds	US	NA	PF	40.22	-15%	1999
172	▼ -22	Banco Central de la República Argentina	Argentina	LA	CB	39.39	-12%	1935
173	▲ 3	British Transport Police Superannuation Fund	UK	EU	PF	39.30	12%	1970
174	▼ -5	AP1	Sweden	EU	PF	38.54	0%	1960
175	▲ 25	Bulgarian National Bank	Bulgaria	EU	CB	38.03	36%	1879
176	▼ -4	Construction and Buildings Union Superannuation	Australia	AP	PF	37.82	3%	1984
177	▼ -6	Health Employees Superannuation Trust Australia	Australia	AP	PF	37.77	2%	1987
178	▼ -1	The Private School Mutual Aid System	Japan	AP	PF	37.07	7%	1998
179	▼ -1	Utah Office of State Treasurer	US	NA	SF	36.81	8%	1896
180	▼ -12	Central Bank of Nigeria	Nigeria	AF	CB	36.73	-6%	1958
181	▼ -7	Iowa Public Employees Retirement System	US	NA	PF	36.13	0%	1985

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
182	▲ 27	Bank Al-Maghrib	Morocco	AF	CB	36.00	36%	1959
183	▼ -3	Texas County and District Retirement System	US	NA	PF	35.70	7%	1967
184	▲ 13	National Bank of the Republic of Kazakhstan[12]	Kazakhstan	AP	CB	35.64	23%	1993
185	▲ 9	Central Bank of Uzbekistan	Uzbekistan	AP	CB	34.90	20%	1991
186	▼ -1	Iowa Treasurer	US	NA	SF	34.30	5%	1846
187	▼ -8	South Carolina Retirement System Investment Commission	US	NA	PF	34.15	1%	1945
188	▲ 1	Government Pension Fund	Thailand	AP	PF	34.09	11%	1997
189	▲ 3	Nebraska Investment Council	US	NA	SF	33.99	13%	1969
190	▲ 3	Nationale Banque de Belgique	Belgium	EU	CB	33.54	13%	1850
191	▶ 0	Versorgungsanstalt des Bundes und der Länder	Germany	EU	PF	33.30	9%	1929
192	▼ -8	Folketrygdfondet[13]	Norway	EU	PF	32.59	0%	1967
193	▼ -10	Kumpulan Wang Persaraan	Malaysia	AP	PF	32.47	-1%	2007
194	▲ 2	ERAFP	France	EU	PF	32.32	11%	2003
195	▲ 9	Pennsylvania State Employees' Retirement System	US	NA	PF	31.77	15%	1923
196	▼ -14	Mississippi Public Employees' Retirement System	US	NA	PF	31.76	-4%	1944
197	▼ -9	Texas Municipal Retirement System	US	NA	PF	31.48	0%	1947
198	▲ 21	Oesterreichische Nationalbank	Austria	EU	CB	31.44	25%	1816
199	▼ -4	New Zealand Superannuation Fund	New Zealand	AP	SF	31.19	8%	2001
200	▲ 8	BPJS Ketenagakerjaan	Indonesia	AP	SF	30.49	15%	1977
201	▼ -31	Fonds de Réserve pour les Retraites	France	EU	PF	30.04	-20%	2001
202	▲ 12	Banco de Portugal	Portugal	EU	CB	30.02	16%	1846
203	▲ 10	Caisse de Dépôt et de Gestion	Morocco	AF	PF	29.45	13%	1959
204	▲ 13	National Bank of Ukraine	Ukraine	EU	CB	29.23	15%	1839
205	▼ -15	Greater Manchester Pension Fund	UK	EU	PF	28.30	-7%	1891
206	▼ -1	Employees' Retirement System of Texas	US	NA	PF	27.95	2%	1947
207	▼ -9	Massachusetts State Retirement Board	US	NA	PF	27.71	-3%	1993
208	▼ -1	Pensioenfonds Rail & Openbaar Vervoer	Netherlands	EU	PF	27.71	2%	2020
209	▲ 2	San Francisco Employees' Retirement System	US	NA	PF	27.24	4%	1922
210	▲ 13	Texas Permanent University Fund	US	NA	SF	27.23	14%	1876
211	▲ 7	New Mexico State Investment Council[14]	US	NA	SF	26.98	7%	1957
212	▼ -11	Strathclyde Pension Fund	UK	EU	PF	26.89	-4%	1974
213	▲ 3	Government Service Insurance System	Philippines	AP	PF	26.59	5%	1936
214	▼ -4	KENFO	Germany	EU	SF	26.53	0%	2017
215	▼ -3	National Pension Commission	Nigeria	AF	PF	26.39	1%	2014
216	▼ -1	National Railroad Retirement Investment Trust	US	NA	PF	26.30	4%	2001
217	▼ -14	Teachers Retirement System of Louisiana	US	NA	PF	26.09	-6%	1936
218	▼ -16	Uniform Pension Savings Fund	Kazakhstan	AP	PF	26.08	-6%	2013
219	▲ 3	Illinois State Universities Retirement System	US	NA	PF	26.07	9%	1941
220	▲ 14	Fonds de Compensation de la Sécurité Sociale	Luxembourg	EU	PF	25.33	19%	2004
221	▲ 8	Autoridade Monetária de Macau	Macau	AP	CB	25.11	13%	1999
222	▼ -2	Central Bank of Turkmenistan	Turkmenistan	AP	CB	24.91	0%	1991
223	▼ -2	New York State Deferred Compensation Plan	US	NA	PF	24.85	0%	1974
224	▲ 13	Hrvatske narodne banke	Croatia	EU	CB	24.78	19%	1990
225	▲ 2	AkademikerPension	Denmark	EU	PF	24.48	6%	2008
226	▼ -20	Fund for Reconstruction and Development of Uzbekistan	Uzbekistan	AP	SF	24.11	-12%	2006
227	▲ 13	New York City Deferred Compensation Plan	US	NA	PF	23.92	21%	2004

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
228	▼ -2	World Bank Staff Retirement Plan	US	NA	PF	23.81	2%	1975
229	▼ -141	National Development Fund of Iran	Iran	ME	SF	23.81	-74%	2011
230	▼ -6	Funds SA	Australia	AP	SF	23.57	-1%	1995
231	▼ -3	Los Angeles Fire and Police Pensions	US	NA	PF	23.41	4%	1899
232	▼ -7	Government Employees Superannuation Board	Australia	AP	PF	23.30	-1%	1939
233	▲ 9	Fundo de Estabilização da Segurança Social	Portugal	EU	PF	23.25	20%	1989
234	▲ 2	West Virginia Investment Management Board	US	NA	SF	22.76	9%	1997
235	▼ -2	Wyoming State Loan and Investment Board	US	NA	SF	22.74	6%	1921
236	▼ -5	Kentucky Teachers' Retirement System	US	NA	PF	22.54	3%	1938
237	▼ -7	British Broadcasting Corporation Pension Trust	UK	EU	PF	22.19	1%	1957
238	▲ 25	Banque Centrale des Etats de l'Afrique de l'Ouest	West African System	AF	CB	21.91	23%	1959
239	▲ 50	CPEG Caisse de prévoyance de l'Etat de Genève	Switzerland	EU	PF	21.76	55%	2014
240	▲ 1	Montana Board of Investments	US	NA	PF	21.56	10%	1993
241	▲ 8	National Bank of Cambodia	Cambodia	AP	CB	21.12	13%	1954
242	▲ 14	Public Service Pension Fund	Taiwan	AP	PF	20.80	13%	1943
243	▼ -8	Kansas Retirement System for Public Employees	US	NA	PF	20.70	-1%	1962
244	▼ -63	Khazanah Nasional Berhad	Malaysia	AP	SF	20.65	-38%	1993
245	▼ -7	Super SA	Australia	AP	PF	20.53	1%	1927
246	▲ 9	Korea Teachers Pension	South Korea	AP	PF	20.26	10%	1974
247	▲ 6	Pensionskasse SBB	Switzerland	EU	PF	20.17	9%	1998
248	▲ 60	National Employment Savings Trust	UK	EU	PF	19.91	64%	2012
249	▼ -6	Ordu Yardımlaşma Kurumu	Turkey	EU	PF	19.90	3%	1961
250	▼ -5	Illinois State Board of Investment	US	NA	PF	19.86	3%	1969
251	▲ 1	Taspen	Indonesia	AP	PF	19.85	7%	1960
252	▼ -20	OPTrust	Canada	NA	PF	19.76	-9%	1911
253	▲ 1	Pensionskasse Stadt Zürich	Switzerland	EU	PF	19.68	7%	1913
254	▼ -15	West Midlands Pension Fund	UK	EU	PF	19.63	-2%	1974
255	▼ -9	Alaska Retirement Management Board	US	NA	PF	19.42	1%	1961
256	▼ -6	Los Angeles City Employees’ Retirement System	US	NA	PF	19.23	3%	1937
257	▼ -10	Mumtalakat Holding Company	Bahrain	ME	SF	18.90	1%	2006
258	▼ -10	Employee Retirement System of Georgia	US	NA	PF	18.86	1%	1950
259	▲ 25	Banco de Guatemala	Guatemala	LA	CB	18.46	25%	1945
260	▼ -16	Oklahoma Teachers Retirement System	US	NA	PF	18.41	-4%	1943
261	▶ 0	Connecticut Teachers' Retirement Board	US	NA	PF	18.29	2%	1955
262	▼ -4	Arkansas Teachers' Retirement System	US	NA	PF	18.28	1%	1937
263	▲ 7	State Bank of Pakistan	Pakistan	AP	CB	18.25	11%	1947
264	▼ -2	Lærernes Pension	Denmark	EU	PF	18.20	2%	2013
265	▼ -6	Public Employee Retirement System of Idaho	US	NA	PF	18.10	1%	1963
266	▼ -1	Valtion Eläkerahasto	Finland	EU	PF	18.09	4%	1990
267	▲ 5	Pensionskasse der Zuger Kantonalbank	Switzerland	EU	PF	18.02	14%	1892
268	▼ -17	State of Hawaii Employees’ Retirement System	US	NA	PF	18.01	-4%	1926
269	▲ 5	Orange County Employees Retirement System	US	NA	PF	17.97	14%	1944
270	▲ 1	Petroleum Fund of Timor-Leste	Timor-Leste	AP	SF	17.69	12%	2005
271	▶ 0	Oman Investment Authority	Oman	ME	SF	17.40	N/A	2020
272	▲ 4	Central Bank of Jordan	Jordan	ME	CB	17.05	10%	1964
273	▶ 0	Ohio Police and Fire Pension Fund	US	NA	PF	16.99	8%	1965

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
274	▼ -17	West Yorkshire Pension Fund	UK	EU	PF	16.97	-7%	1974
275	▲ 4	South Dakota Investment Council	US	NA	PF	16.43	8%	1971
276	▲ 4	North Dakota Retirement and Investment Office	US	NA	PF	16.39	8%	1989
277	▼ -13	Public Employees' Retirement Association of New Mexico	US	NA	PF	16.35	-6%	1985
278	▲ 8	Banco Central del Uruguay	Uruguay	LA	CB	16.35	12%	1967
279	▲ 4	Bernische Pensionskasse	Switzerland	EU	PF	16.22	9%	1905
280	▲ 5	Social Security Corporation	Jordan	ME	PF	16.05	9%	1977
281	▼ -6	Maine Public Employees Retirement System	US	NA	PF	15.89	2%	1945
282	▼ -4	Crown Investment Corporation	Canada	NA	SF	15.66	2%	1961
283	▼ -6	School Employees Retirement System of Ohio	US	NA	PF	15.24	-1%	1937
284	▲ 9	Caisse de Pension de l'Etat de Vaud	Switzerland	EU	PF	15.23	11%	1952
285	▼ -3	National Bank of Serbia	Serbia	EU	CB	15.12	0%	1884
286	▼ -18	Central Bank of Oman	Oman	ME	CB	15.00	-10%	1974
287	▲ 1	Alberta Teachers' Retirement Fund Board	Canada	NA	PF	14.97	6%	1939
288	▼ -22	Banco Nacional de Angola	Angola	AF	CB	14.81	-14%	1926
289	▼ -2	Instituto Mexicano del Seguro Social	Mexico	LA	PF	14.77	2%	1943
290	▲ 19	Suomen Pankki	Finland	EU	CB	14.52	21%	1811
291	▲ 3	Pensionskasse Basel-Stadt	Switzerland	EU	PF	14.47	6%	2000
292	▼ -11	International Monetary Fund Staff Retirement Plan	US	NA	PF	14.19	-6%	1944
293	▼ -33	Reserve Bank of New Zealand	New Zealand	AP	CB	14.00	-22%	1934
294	▲ 4	New Mexico Educational Retirement Board	US	NA	PF	13.88	6%	1983
295	▼ -26	Fundação dos Economiários Federais	Brazil	LA	PF	13.86	-17%	1977
296	▼ -5	New York City Metropolitan Transportation Authority	US	NA	PF	13.84	0%	1953
297	▲ 2	Employees' Provident Fund	Sri Lanka	AP	PF	13.83	7%	1958
298	▲ 3	Vestcor[15]	Canada	NA	PF	13.82	9%	1965
299	▼ -2	San Diego County Employees Retirement Association	US	NA	PF	13.67	1%	1939
300	▼ -10	Transport for London Pension Fund	UK	EU	PF	13.59	-3%	1942
301	▲ 9	Egypt Fund	Egypt	AF	SF	13.48	13%	2019
302	▼ -6	Kentucky Retirement Systems	US	NA	PF	13.45	-1%	1958
303	▼ -8	Water and Power Employees' Retirement Plan	US	NA	PF	13.35	-2%	1938
304	▲ 9	Subsidised Schools Provident Fund	Hong Kong	AP	PF	13.05	13%	2000
305	▲ 7	Aargauische Pensionskasse	Switzerland	EU	PF	12.92	10%	1908
306	▼ -6	Central Bank of Cuba	Cuba	LA	CB	12.80	0%	1948
307	▲ 45	Bank of Greece	Greece	EU	CB	12.67	44%	1927
308	▼ -16	Louisiana State Employees' Retirement System	US	NA	PF	12.62	-8%	1947
309	▼ -6	National Managing Holding Baiterek	Kazakhstan	AP	SF	12.58	2%	2013
310	▼ -43	Ireland Strategic Investment Fund	Ireland	EU	SF	12.33	-27%	2001
311	▲ 6	Kåpan Pensioner	Sweden	EU	PF	12.28	11%	1992
312	▼ -7	Public Officials Benefit Association	South Korea	AP	PF	12.26	0%	1952
313	▲ 8	Cook County Annuity & Benefit Fund	US	NA	PF	12.24	12%	1926
314	▲ 6	Instituto Guatemalteco de Seguridad Social	Guatemala	LA	PF	11.98	10%	1985
315	▼ -9	Missouri State Employees' Retirement System	US	NA	PF	11.87	-3%	1957
316	▼ -5	Public School Teachers' Pension & Retirement Fund of Chicago	US	NA	PF	11.86	0%	1895
317	▲ 10	Social Security Fund	Panama	LA	PF	11.55	9%	1941
318	▼ -3	Ircantec	France	EU	PF	11.55	2%	1971
319	▲ 42	Nepal Rastra Bank	Nepal	AP	CB	11.31	35%	1956

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
320	▼ -16	British Coal Staff Superannuation Scheme	UK	EU	PF	11.25	-8%	1947
321	▼ -7	Merseyside Pension Fund	UK	EU	PF	11.09	-2%	1972
322	▼ -6	Equisuper	Australia	AP	PF	11.07	-1%	1931
323	▲ 57	Georgia Office of the State Treasurer	US	NA	SF	11.03	48%	1993
324	▼ -1	Oklahoma Public Employees Retirement System	US	NA	PF	11.01	2%	1964
325	▲ 4	Basellandschaftliche Pensionskasse	Switzerland	EU	PF	10.98	6%	1921
326	▲ 14	Fundo de Segurança Social de Macau	Macau	AP	PF	10.96	11%	2011
327	▼ -9	Tyne and Wear Pensions Fund	UK	EU	PF	10.93	-1%	1974
328	▲ 2	Delaware Public Employees' Retirement System	US	NA	PF	10.92	6%	1970
329	▲ 57	Demographic Reserve Fund	Poland	EU	PF	10.88	51%	2002
330	▲ 23	Banco Central de la República Dominicana	Dominican Republic	LA	CB	10.75	22%	1947
331	▲ 18	St.Galler Pensionskasse	Switzerland	EU	PF	10.68	19%	2014
332	▲ 16	Vorsorgeeinrichtung der St. Galler Kantonalbank	Switzerland	EU	PF	10.68	19%	1868
333	▼ -7	Lancashire County Pension Fund	UK	EU	PF	10.67	0%	1983
334	▲ 7	Social Security System	Philippines	AP	PF	10.64	9%	1957
335	▼ -10	San Bernardino County Employees' Retirement Association	US	NA	PF	10.59	-2%	1945
336	▼ -17	Wyoming Retirement System	US	NA	PF	10.53	-4%	1953
337	▼ -13	South Yorkshire Pension Fund	UK	EU	PF	10.49	-3%	1974
338	▼ -10	Sacramento County Employees' Retirement System	US	NA	PF	10.38	-1%	1937
339	▼ -8	The National Insurance Board of Trinidad and Tobago	E. Caribbean System	LA	PF	10.29	0%	1971
340	▼ -7	General Organisation for Social Insurance Bahrain	Bahrain	ME	PF	10.23	0%	1976
341	▼ -19	Fondo de Reserva de Pensiones	Chile	LA	SF	10.16	-6%	2006
342	▼ -10	Nilgosc	UK	EU	PF	10.12	-1%	1950
343	▼ -9	IFC Asset Management Company	US	NA	SF	10.06	0%	2009
344	▼ -9	Russian Direct Investment Fund	Russia	EU	SF	10.00	0%	2011
345	▼ -8	Military Mutual Aid Association	South Korea	AP	PF	9.81	-1%	1984
346	▲ 10	Contra Costa County Employees' Retirement Association	US	NA	PF	9.73	13%	1945
347	▲ 10	Da Afghanistan Bank	Afghanistan	ME	CB	9.69	13%	1939
348	▲ 18	Pensioenfonds UWV	Netherlands	EU	PF	9.67	17%	2002
349	▲ 34	Banque Centrale de Tunisie	Tunisia	AF	CB	9.65	30%	1958
350	▼ -11	Arkansas Public Employees Retirement System	US	NA	PF	9.59	-3%	1957
351	▲ 3	Rhode Island State Investment Commission[16]	US	NA	SF	9.49	8%	2006
352	▼ -14	Coal Mines Provident Fund	India	AP	PF	9.42	-5%	1948
353	▲ 14	Národná banka Slovenska	Slovakia	EU	CB	9.35	14%	1993
354	▲ 11	Luzerner Pensionskasse	Switzerland	EU	PF	9.28	12%	2000
355	▲ 5	Office of the Indiana Treasurer of State	US	NA	SF	9.27	9%	1816
356	▲ 6	Bernische Lehrerversicherungskasse	Switzerland	EU	PF	9.23	11%	1818
357	▲ 6	Bernische Lehrerversicherungskasse	Switzerland	EU	PF	9.23	11%	1818
358	▲ 16	Banco Central del Paraguay	Paraguay	LA	CB	9.21	19%	1952
359	▼ -14	New Hampshire Retirement System	US	NA	PF	9.16	-1%	1967
360	▼ -2	District of Columbia Retirement Board	US	NA	PF	9.07	6%	1998
361	▲ 12	Retraites Populaires	Switzerland	EU	PF	9.05	17%	1907
362	▼ -55	Fondo de Estabilización Económica y Social	Chile	LA	SF	8.96	-27%	2007
363	▲ 14	Alameda County Employees' Retirement Association	US	NA	PF	8.94	18%	1985
364	▼ -17	Hampshire Pension Fund	UK	EU	PF	8.87	-2%	1974
365	▼ -14	Missouri Local Government Employees Retirement System	US	NA	PF	8.85	0%	1967

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
366	▼ -22	San Diego City Employees' Retirement System	US	NA	PF	8.85	-5%	1927
367	▲ 21	Centralna Banka Bosne i Hercegovine	Bosnia and Herzegovina	EU	CB	8.71	21%	1997
368	▼ -18	Essex Pension Fund	UK	EU	PF	8.51	-5%	1974
369	▶ 0	Illinois Police Officers' Pension Investment Fund	US	NA	PF	8.50	N/A	2019
370	▼ -27	La Caisse Marocaine des Retraites	Morocco	AF	PF	8.49	-10%	1930
371	▼ -12	Local Government Super	Australia	AP	PF	8.36	-2%	1997
372	▼ -26	Central Bank of Kenya	Kenya	AF	CB	8.30	-9%	1966
373	▲ 10	Banque des États de l'Afrique Centrale	Central African System	AF	CB	8.20	11%	1972
374	▲ 40	Banco Central de Honduras	Honduras	LA	CB	8.14	42%	1950
375	▼ -20	Lothian Pension Fund	UK	EU	PF	8.12	-6%	1994
376	▼ -6	Permanent Wyoming Mineral Trust Fund	US	NA	SF	7.99	0%	1945
377	▲ 12	Nova Scotia Health Employees' Pension Plan	Canada	NA	PF	7.90	10%	1959
378	▼ -6	Montana Public Employee Retirement Administration	US	NA	PF	7.72	-1%	1975
379	▲ 11	Los Angeles City Deferred Compensation Plan	US	NA	PF	7.68	8%	1983
380	▲ 32	Central Bank of Myanmar	Myanmar	AP	CB	7.67	32%	1990
381	▶ 0	Bank of Ghana	Ghana	AF	CB	7.65	3%	1957
382	▲ 21	Central Bank of the Republic of Azerbaijan	Azerbaijan	AP	CB	7.63	21%	1992
383	▼ -8	Fairfax County Retirement Systems[17]	US	NA	PF	7.62	-1%	1955
384	▲ 9	Provident10[18]	Canada	NA	PF	7.56	9%	2014
385	▲ 12	Boston City Retirement System	US	NA	PF	7.56	14%	1923
386	▼ -4	London Pensions Fund Authority	UK	EU	PF	7.56	2%	1989
387	▼ -8	Government Employees Pension Service	South Korea	AP	PF	7.54	0%	1960
388	▲ 125	Banco Central del Ecuador	Ecuador	LA	CB	7.53	133%	1927
389	▼ -25	Pension Fund for Nurses and State Employees	Iceland	EU	PF	7.53	-9%	1996
390	▲ 25	Central Bank of Ireland	Ireland	EU	CB	7.49	31%	1943
391	▼ -49	National Bank of the Republic of Belarus	Belarus	EU	CB	7.47	-23%	1990
392	▼ -21	Kent County Council Superannuation Fund	UK	EU	PF	7.34	-8%	1974
393	▼ -8	Bank of Mauritius	Mauritius	AF	CB	7.33	-1%	1967
394	▼ -7	Vision Super	Australia	AP	PF	7.27	1%	1947
395	▼ -59	Banco Central de Costa Rica	Costa Rica	LA	CB	7.23	-27%	1950
396	▼ -5	Cheshire Pension Fund	UK	EU	PF	7.08	1%	1974
397	▼ -3	Central Bank of Trinidad & Tobago	Trinidad and Tobago	LA	CB	7.07	2%	1964
398	▼ -20	Public Employees Pension Plan	Canada	NA	PF	7.05	-7%	1960
399	▼ -30	Government Institutions Pension Fund	Namibia	AF	PF	6.64	-19%	1989
400	▼ -8	Nottinghamshire Local Government Pension Scheme	UK	EU	PF	6.47	-7%	1888
401	▼ -6	Seðlabanki Íslands	Iceland	EU	CB	6.42	-5%	1961
402	▲ 15	Healthcare Employees' Pension Plan - Manitoba	Canada	NA	PF	6.39	13%	1958
403	▲ 2	Philadelphia Public Employees Retirement System	US	NA	PF	6.38	3%	1956
404	▼ -8	Banco Central de Venezuela	Venezuela	LA	CB	6.37	-4%	1939
405	▲ 17	Bank of England Pension Scheme	UK	EU	PF	6.33	14%	1694
406	▲ 2	East Bay Municipal Utility District Pension Fund	US	NA	PF	6.28	3%	1986
407	▲ 4	Previs Personalvorsorgestiftung Service Public	Switzerland	EU	PF	6.23	6%	1958
408	▲ 13	Pensionskasse Kanton Solothurn	Switzerland	EU	PF	6.15	11%	1957
409	▼ -8	East Riding Pension Fund	UK	EU	PF	6.12	-6%	1966
410	▼ -3	Hertfordshire County Council Pension Fund	UK	EU	PF	6.10	0%	1974
411	▼ -13	Staffordshire Pension Fund	UK	EU	PF	6.09	-7%	1974

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
412	▲ 16	Saskatchewan Healthcare Employees' Pension Plan	Canada	NA	PF	6.03	10%	1962
413	▼ -45	Fondo de Estabilización de los Ingresos Presupuestarios	Mexico	LA	SF	6.00	-27%	2000
414	▼ -4	Ventura County Employees' Retirement Association	US	NA	PF	5.98	2%	1946
415	▼ -11	Derbyshire County Council Pension Fund	UK	EU	PF	5.98	-4%	1974
416	▼ -16	Heritage and Stabilisation Fund	Trinidad and Tobago	LA	SF	5.89	-9%	2000
417	▼ -8	Lietuvos Bankas	Lithuania	EU	CB	5.84	-1%	1990
418	▲ 12	Civil Service Superannuation Board of Manitoba	Canada	NA	PF	5.83	7%	1964
419	▲ 16	Latvijas Banka	Latvia	EU	CB	5.81	11%	1993
420	▲ 16	Botswana Public Officers Pension Fund	Botswana	AF	PF	5.76	12%	2001
421	▼ -15	Avon Pension Fund	UK	EU	PF	5.74	-7%	1974
422	▲ 24	City of Milwaukee Employees' Retirement System	US	NA	PF	5.74	17%	1937
423	▲ 18	Colorado Fire & Police Pension Association	US	NA	PF	5.72	14%	1980
424	▼ -48	Central Bank of Sri Lanka	Sri Lanka	AP	CB	5.68	-26%	1950
425	▼ -12	Houston Police Officers' Pension System	US	NA	PF	5.62	-2%	1947
426	▼ -10	North East Scotland Pension Fund	UK	EU	PF	5.61	-2%	1999
427	▲ 5	Caja Costarricense de Seguro Social	Costa Rica	LA	PF	5.59	5%	1941
428	▼ -26	Banco Central de Bolivia	Bolivia	LA	CB	5.58	-14%	1928
429	▼ -3	West Sussex Pension Fund	UK	EU	PF	5.52	0%	1974
430	▲ 1	Montgomery County Employees' Retirement System	US	NA	PF	5.51	2%	1965
431	▲ 18	Istituto di previdenza del Cantone Ticino	Switzerland	EU	PF	5.51	14%	2009
432	▼ -13	Australia Post Superannuation Scheme	Australia	AP	PF	5.33	-5%	1990
433	▲ 7	Caisse de Prévoyance du Personnel de l'Etat de Fribourg	Switzerland	EU	PF	5.33	6%	1930
434	▲ 16	Vermont Pension Investment Committee	US	NA	PF	5.33	12%	2005
435	▲ 10	Teachers' Retirement Allowances Fund	Canada	NA	PF	5.33	7%	1925
436	▼ -11	Leicestershire County Council Pension Fund	UK	EU	PF	5.32	-3%	1974
437	▶ 0	Fresno County Employees' Retirement Association	US	NA	PF	5.32	4%	1945
438	▼ -15	Energy Super	Australia	AP	PF	5.30	-4%	2011
439	▲ 21	Caisse de pensions de la fonction publique du Canton de Neuchâtel	Switzerland	EU	PF	5.24	19%	1950
440	▼ -20	Benki Kuu ya Tanzania	Tanzania	AF	CB	5.24	-6%	1966
441	▲ 18	CAP Prévoyance	Switzerland	EU	PF	5.17	17%	2009
442	▼ -15	Devon County Council Pension Fund	UK	EU	PF	5.15	-6%	1974
443	▼ -5	Environment Agency Pension Funds	UK	EU	PF	5.02	-1%	1974
444	▼ -2	Fundo Soberano de Angola	Angola	AF	SF	5.02	0%	2012
445	▲ 3	Alberta Pension Services Corporation	Canada	NA	PF	5.01	4%	1995
446	▼ -3	Nova Scotia Public Service Superannuation Plan	Canada	NA	PF	4.97	-1%	1962
447	▼ -23	Surrey Pension Fund	UK	EU	PF	4.96	-10%	1974
448	▼ -49	Bank of Botswana	Botswana	AF	CB	4.94	-24%	1975
449	▲ 28	AP6	Sweden	EU	PF	4.94	24%	2001
450	▲ 2	CPVAL	Switzerland	EU	PF	4.93	6%	2010
451	▲ 7	Zuger Pensionskasse	Switzerland	EU	PF	4.91	11%	1858
452	▼ -13	Kern County Employees' Retirement Association	US	NA	PF	4.90	-3%	1945
453	▼ -2	San Mateo County Employees' Retirement Association	US	NA	PF	4.86	3%	1944
454	▲ 33	Banka e Shqipërisë	Albania	EU	CB	4.81	28%	1992
455	▲ 8	Caisse de Pensions du CERN	Switzerland	EU	PF	4.76	11%	1955
456	▼ -22	Teesside Pension Fund	UK	EU	PF	4.76	-9%	1922
457	▼ -13	Tayside Pension Fund	UK	EU	PF	4.72	-5%	1994

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
458	▼ -11	Norfolk Pension Fund	UK	EU	PF	4.63	-5%	1974
459	▼ -6	North Yorkshire Pension Fund	UK	EU	PF	4.54	0%	1974
460	▲ 8	Bank of Mongolia	Mongolia	AP	CB	4.52	8%	1991
461	▲ 18	Louisiana Parochial Employees' Retirement System	US	NA	PF	4.48	16%	1953
462	▲ 97	Social Insurance Fund	Ireland	EU	PF	4.47	70%	2005
463	▲ 4	Teachers' Pension Plan Corporation	Canada	NA	PF	4.46	6%	1955
464	▼ -8	Jacksonville City Retirement System	US	NA	PF	4.42	0%	1937
465	▲ 23	Maryland Supplemental Retirement Agency	US	NA	PF	4.39	17%	1974
466	▲ 3	Pensionskasse Thurgau	Switzerland	EU	PF	4.38	6%	2006
467	▼ -12	East Sussex Pension Fund	UK	EU	PF	4.37	-2%	1974
468	▲ 3	Dallas Employees' Retirement Fund	US	NA	PF	4.33	5%	1943
469	▼ -12	Rhondda Cynon Taf Pension Fund	UK	EU	PF	4.31	-2%	1974
470	▼ -4	PMA Pensionfonds Medewerkers Apotheken	Netherlands	EU	PF	4.31	2%	1957
471	▲ 3	Municipal Employees' Annuity & Benefit Fund of Chicago	US	NA	PF	4.24	4%	1921
472	▼ -39	Staten pensjonskasse	Norway	EU	PF	4.23	-19%	1917
473	▼ -8	Montana Teachers' Retirement System	US	NA	PF	4.19	-1%	1937
474	▼ -13	Houston Firefighters' Relief & Retirement Fund	US	NA	PF	4.18	-4%	1937
475	▼ -2	Nova Scotia Teachers' Pension Plan	Canada	NA	PF	4.13	1%	1963
476	▲ 17	Narodna Banka na Republika Makedonija	North Macedonia	EU	CB	4.13	13%	1991
477	▲ 1	Banco de Moçambique	Mozambique	AF	CB	4.09	5%	1975
478	▼ -8	Nashville & Davidson County Metropolitan Government Ret. Syst.	US	NA	PF	4.09	-1%	1963
479	▼ -17	Pula Fund	Botswana	AF	SF	4.04	-6%	1993
480	▼ -178	Central Bank of Iran	Iran	ME	CB	4.00	-68%	1960
481	▼ -17	Autoriti Monetari Brunei Darussalam	Brunei	AP	CB	4.00	-6%	2011
482	▲ 9	Caisse Intercommunale de Pensions	Switzerland	EU	PF	3.93	6%	1924
483	▲ 11	Bank of Jamaica	Jamaica	LA	CB	3.92	7%	1961
484	▲ 27	Bank of Uganda	Uganda	AF	CB	3.92	21%	1966
485	▲ 16	National Bank of Georgia	Georgia	EU	CB	3.91	12%	1919
486	▼ -4	CDP Equity	Italy	EU	SF	3.88	2%	2011
487	▼ -15	Energy Industries Superannuation Scheme	Australia	AP	PF	3.87	-6%	1997
488	▼ -12	TWU Superannuation Fund	Australia	AP	PF	3.87	-5%	1984
489	▼ -14	Cambridgeshire Local Government Pension Scheme	UK	EU	PF	3.85	-5%	1974
490	▼ -4	Pensioenfonds Notariaat	Netherlands	EU	PF	3.84	2%	2017
491	▲ 6	AHV-IV-FAK	Liechtenstein	EU	PF	3.81	6%	1958
492	▲ 36	Banca Naţională a Moldovei	Moldova	EU	CB	3.78	24%	1991
493	▼ -8	Solomon Islands National Provident Fund	Solomon Islands	AP	PF	3.77	0%	1988
494	▲ 60	Delaware State Treasurer	US	NA	SF	3.75	41%	1778
495	▼ -14	Buckinghamshire Pension Fund	UK	EU	PF	3.74	-3%	1974
496	▼ -1	Fondo de Ahorro y Estabilización	Colombia	LA	SF	3.73	3%	2012
497	▼ -1	San Jose City Police & Fire Department Retirement Plan	US	NA	PF	3.72	3%	1961
498	▲ 9	European Investment Fund	Luxembourg	EU	SF	3.72	12%	1994
499	▲ 1	National Provident Fund	Fiji	AP	PF	3.70	6%	1966
500	▼ -16	Lembaga Pengelola Dana Pendidikan	Indonesia	AP	SF	3.68	-3%	1945
501	▼ -12	Suffolk Pension Fund	UK	EU	PF	3.61	-3%	1974
502	▼ -19	Durham County Council Pension Fund	UK	EU	PF	3.58	-6%	1974
503	▲ 26	National Social Security Fund	Uganda	AF	PF	3.57	17%	1985

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
504	▲ 23	Kantonale Pensionskasse Graubünden	Switzerland	EU	PF	3.52	14%	2008
505	▶ 0	PKH	Norway	EU	PF	3.51	5%	2013
506	▲ 18	San Antonio Fire & Police Pension Fund	US	NA	PF	3.50	12%	1919
507	▼ -17	Greater Gwent Pension Fund	UK	EU	PF	3.50	-6%	1974
508	▲ 18	Pensionskasse Schaffhausen	Switzerland	EU	PF	3.49	12%	2013
509	▲ 16	Kantonale Pensionskasse Schaffhausen	Switzerland	EU	PF	3.49	12%	2006
510	▼ -30	Dorset County Pension Fund	UK	EU	PF	3.48	-10%	1974
511	▼ -13	Worcestershire Pension Fund	UK	EU	PF	3.40	-5%	1946
512	▲ 2	Chicago Policemen's Annuity & Benefit Fund	US	NA	PF	3.38	5%	1922
513	▲ 9	Seattle City Employees' Retirement System	US	NA	PF	3.36	7%	1929
514	▲ 24	Manhattan & Bronx Surface Transit Operating Authority Pen. Plan	US	NA	PF	3.31	16%	1962
515	▼ -13	Cumbria Local Government Pension Scheme	UK	EU	PF	3.31	-4%	1974
516	▶ 0	San Joaquin County Employees' Retirement Association	US	NA	PF	3.29	2%	1946
517	▼ -18	Gulf Investment Corporation	Kuwait	ME	SF	3.27	-7%	1893
518	▼ -8	Kentucky Public Employees' Deferred Compensation Authority	US	NA	PF	3.27	0%	1993
519	▼ -11	Santa Barbara County Employees' Retirement System	US	NA	PF	3.26	-1%	1937
520	▼ -14	Fife Pension Fund	UK	EU	PF	3.26	-2%	1994
521	▼ -9	Alabama Trust Fund	US	NA	SF	3.24	0%	1985
522	▲ 53	Banco Central de Nicaragua	Nicaragua	LA	CB	3.21	34%	1961
523	▼ -19	Wiltshire Pension Fund	UK	EU	PF	3.20	-5%	1950
524	▼ -9	TAP Brunei	Brunei	AP	PF	3.19	-1%	1992
525	▼ -7	Northamptonshire Local Government Pension Scheme	UK	EU	PF	3.09	-3%	1974
526	▼ -23	Annuitas	New Zealand	AP	PF	3.08	-8%	2001
527	▼ -73	Banco Central de Reserva de El Salvador	El Salvador	LA	CB	3.08	-31%	1961
528	▼ -19	Dyfed Pension Fund	UK	EU	PF	3.05	-7%	1974
529	▲ 4	National Bank of Ethiopia	Ethiopia	AF	CB	3.05	2%	1906
530	▼ -13	Oxfordshire Pension Fund	UK	EU	PF	3.04	-6%	1974
531	▲ 3	Oklahoma Firefighters Pension & Retirement System	US	NA	PF	3.03	2%	1908
532	▲ 82	Japan Pension Service	Japan	AP	PF	3.03	65%	2010
533	▼ -13	Falkirk Pension Fund	UK	EU	PF	2.99	-6%	1994
534	▲ 3	Société Régionale d'Investissement de Wallonie	Belgium	EU	SF	2.98	2%	1979
535	▲ 27	Austin City Employees' Retirement System	US	NA	PF	2.94	13%	1941
536	▲ 6	Caisse des Dépôts et Consignations	Tunisia	AF	PF	2.93	4%	1816
537	▼ -18	Houston Municipal Employees Pension System	US	NA	PF	2.91	-8%	1943
538	▲ 19	Public Employees Contributory Retirement Scheme	UK	EU	PF	2.89	10%	1967
539	▼ -9	Gloucestershire Local Government Pension Fund	UK	EU	PF	2.88	-5%	1974
540	▲ 11	Banco de Previsión Social	Uruguay	LA	PF	2.88	7%	1970
541	▶ 0	Pensioenfonds openbare bibliotheken POB	Netherlands	EU	PF	2.87	2%	1957
542	▼ -11	Lincolnshire County Council Local Government Pension Scheme	UK	EU	PF	2.85	-5%	1974
543	▼ -7	Bedfordshire Pension Fund	UK	EU	PF	2.84	-3%	1974
544	▲ 19	Personalvorsorgekasse der Stadt Bern	Switzerland	EU	PF	2.83	9%	1910
545	▲ 7	Fairfax County Educational Employees' Supp. Ret. Syst.	US	NA	PF	2.81	5%	1973
546	▲ 27	National Bank of the Kyrgyz Republic	Kyrgyzstan	AP	CB	2.81	16%	1991
547	▼ -4	Phoenix City Employees' Retirement System	US	NA	PF	2.80	0%	1991
548	▼ -8	Baltimore County Employees' Retirement System	US	NA	PF	2.78	-2%	1945
549	▼ -17	Wandsworth Pension Fund	UK	EU	PF	2.78	-8%	1974

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
550	▼ -1	Fort Worth City Employees' Retirement Fund	US	NA	PF	2.71	-1%	1945
551	▲ 13	Caisse de pensions du personnel communal	Switzerland	EU	PF	2.71	6%	1895
552	▲ 8	Oklahoma Police Pension & Retirement System	US	NA	PF	2.70	3%	1907
553	▲ 3	Federal Holding and Investment Company	Belgium	EU	SF	2.70	2%	2006
554	▼ -1	Marin County Employees' Retirement Association	US	NA	PF	2.68	1%	1937
555	▼ -9	Baltimore City Fire & Police Employees' Retirement	US	NA	PF	2.67	-4%	1962
556	▼ -12	Berkshire Pension Fund	UK	EU	PF	2.67	-4%	1974
557	▼ -22	Detroit Policemen & Firemen Retirement System	US	NA	PF	2.66	-11%	1938
558	▼ -19	Central Bank of Armenia	Armenia	EU	CB	2.64	-7%	1993
559	▼ -14	Somerset County Council Pension Fund	UK	EU	PF	2.63	-6%	1974
560	▼ -2	Iowa Municipal Fire & Police Retirement System	US	NA	PF	2.63	0%	1992
561	▼ -14	Warwickshire Pension Fund	UK	EU	PF	2.61	-6%	1974
562	▲ 23	Pensionskasse des Kantons Schwyz	Switzerland	EU	PF	2.61	17%	2013
563	▼ -15	Cardiff and Vale of Glamorgan Pension Fund	UK	EU	PF	2.60	-6%	1974
564	▼ -3	Swansea Pension Fund	UK	EU	PF	2.55	-2%	1974
565	▲ 5	Employees Provident Fund	Nepal	AP	PF	2.54	4%	1959
566	▲ 8	Arlington County Employees' Retirement System	US	NA	PF	2.53	5%	1981
567	▼ -17	Utah School & Institutional Trust Funds Office	US	NA	SF	2.53	-6%	1896
568	▼ -13	Gwynedd Pension Fund	UK	EU	PF	2.49	-6%	1974
569	▼ -3	Missouri Dept. of Transport. and Highway Patrol Employees' Ret. Syst.	US	NA	PF	2.48	-2%	1955
570	▲ 27	Arkansas Local Police & Fire Retirement System	US	NA	PF	2.48	19%	1983
571	▲ 11	Norfund	Norway	EU	SF	2.46	8%	1997
572	▲ 5	Idaho Endowment Fund Investment Board	US	NA	SF	2.46	3%	1969
573	▼ -5	Cornwall Pension Fund	UK	EU	PF	2.46	0%	1974
574	▼ -156	Fondo de Reserva Seguridad Social	Spain	EU	PF	2.46	-57%	1990
575	▼ -10	Highland Council Pension Fund	UK	EU	PF	2.43	-5%	1994
576	▲ 7	Denver Employees Retirement Plan	US	NA	PF	2.42	7%	1963
577	▼ -6	Government of Guam Retirement Fund	US	NA	PF	2.41	-1%	1951
578	▲ 29	Centrale Bank van Curaçao en Sint Maarten	Curaçao	LA	CB	2.39	24%	1828
579	▲ 47	Central Bank of the Bahamas	Bahamas	LA	CB	2.38	35%	1974
580	▼ -1	Pennsylvania Municipal Retirement System	US	NA	PF	2.37	0%	1943
581	▼ -12	Shropshire County Pension Fund	UK	EU	PF	2.35	-4%	1974
582	▲ 28	Stichting Pensioenfonds Openbare Apothekers	Netherlands	EU	PF	2.35	26%	1972
583	▼ -16	State Capital Investment Corporation	Vietnam	AP	SF	2.34	-5%	2005
584	▼ -6	Stanislaus County Employees' Retirement Association	US	NA	PF	2.32	-2%	1948
585	▲ 1	Cincinnati Retirement System	US	NA	PF	2.30	5%	1984
586	▼ -5	Bank of Papua New Guinea	Papua New Guinea	AP	CB	2.29	-1%	1973
587	▼ -11	Clwyd Pension Fund	UK	EU	PF	2.28	-5%	1974
588	▼ -4	Louisiana Municipal Police Employees Retirement System	US	NA	PF	2.27	1%	1973
589	▲ 4	Pensionskasse der Stadt Winterthur	Switzerland	EU	PF	2.25	6%	2014
590	▼ -98	Central Bank of Bahrain	Bahrain	ME	CB	2.25	-39%	2006
591	▼ -19	Lembaga Tabung Angkatan Tentera	Malaysia	AP	PF	2.23	-8%	1984
592	▼ -1	San Jose City Federated City Employees Retirement System	US	NA	PF	2.23	4%	1941
593	▲ 2	Prince George's County Retirement System	US	NA	PF	2.17	4%	1993
594	▲ 4	Bank of Namibia	Namibia	AF	CB	2.17	6%	1990
595	▼ -5	Tampa Police & Firefighters' Pension Fund	US	NA	PF	2.15	0%	1948

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
596	▼ -4	Dallas Police & Fire Pension System	US	NA	PF	2.15	1%	1989
597	▼ -17	Bank of Haiti	Haiti	LA	CB	2.15	-9%	1979
598	▲ 3	Jacksonville Police & Fire Pension Fund	US	NA	PF	2.14	4%	1937
599	▼ -10	Asabri	Indonesia	AP	PF	2.13	-3%	1971
600	▼ -13	National Social Security Fund	Kenya	AF	PF	2.10	-4%	1965
601	▲ 10	Anne Arundel County Retirement & Pension System	US	NA	PF	2.10	13%	1996
602	▲ 4	Caisse Nationale d'Assurance Pension	Luxembourg	EU	PF	2.08	6%	1951
603	▲ 44	Centralna Banka Crne Gore	Montenegro	EU	CB	2.07	35%	2001
604	▼ -16	Employees' Old Age Benefits Institution	Pakistan	AP	PF	2.04	-7%	1976
605	▼ -9	Southwark Council Pension Fund	UK	EU	PF	2.03	-3%	1974
606	▲ 57	Eesti Pank	Estonia	EU	CB	2.02	41%	1919
607	▼ -13	London Borough of Camden Pension Fund	UK	EU	PF	2.00	-6%	1974
608	▲ 27	Banque Centrale de Madagascar	Madagascar	AF	CB	1.98	17%	1973
609	▲ 10	Chicago Transit Authority Employees Retirement Plan	US	NA	PF	1.97	9%	1949
610	▼ -6	Tallahassee Pension Plan	US	NA	PF	1.95	-1%	2004
611	▲ 4	ProPublic Vorsorge Genossenschaft	Switzerland	EU	PF	1.94	6%	2012
612	▲ 24	Tacoma Employees' Retirement System	US	NA	PF	1.94	16%	1941
613	▼ -14	Louisiana School Employees' Retirement System	US	NA	PF	1.94	-5%	1937
614	▼ -9	National Insurance Fund	Barbados	LA	PF	1.94	-2%	1967
615	▲ 16	Superannuation Fund	Guernsey	EU	PF	1.93	11%	1948
616	▲ 4	Orlando Employee Retirement Funds	US	NA	PF	1.92	7%	1998
617	▼ -17	Partnership Fund	Georgia	EU	SF	1.91	-7%	2011
618	▼ -9	Detroit General Retirement System	US	NA	PF	1.91	1%	1938
619	▼ -16	London Borough of Tower Hamlets Pension Fund	UK	EU	PF	1.90	-4%	1974
620	▲ 19	Caisse de Prévoyance des Fonctionnaires de Police et de la Prison	Switzerland	EU	PF	1.90	15%	1930
621	▲ 2	Pensionskasse Stadt St. Gallen	Switzerland	EU	PF	1.88	6%	1922
622	▲ 8	London Borough of Hackney Pension Fund	UK	EU	PF	1.85	7%	1966
623	▼ -15	Baltimore City Employees' Retirement System	US	NA	PF	1.85	-3%	1926
624	▼ -12	CPS Energy Employees' Pension Trust	US	NA	PF	1.84	0%	1986
625	▼ -3	Louisiana Firefighters' Retirement System	US	NA	PF	1.84	3%	2008
626	▼ -13	Lambeth Pension Fund	UK	EU	PF	1.83	0%	1974
627	▼ -25	Nigeria Sovereign Investment Authority	Nigeria	AF	SF	1.81	-10%	2011
628	▲ 42	National Bank of Rwanda	Rwanda	AF	CB	1.81	33%	1964
629	▲ 11	Pensionskasse der Stadt Luzern	Switzerland	EU	PF	1.78	9%	1918
630	▼ -5	Haringey Council Pension Fund	UK	EU	PF	1.78	1%	1965
631	▲ 3	Eastern Caribbean Central Bank	E. Caribbean System	LA	CB	1.77	4%	1983
632	▼ -16	Newham Pension Fund	UK	EU	PF	1.76	-4%	1972
633	▼ -6	London Borough of Islington Pension Fund	UK	EU	PF	1.74	-1%	1974
634	▲ 7	Pensionskasse Stadt Luzern	Switzerland	EU	PF	1.74	6%	2012
635	▼ -11	London Borough of Lewisham Pension Fund	UK	EU	PF	1.74	-2%	1974
636	▼ -18	City of Westminster Superannuation Fund	UK	EU	PF	1.70	-6%	1972
637	▼ -20	Social Security and National Insurance Trust	Ghana	AF	PF	1.70	-7%	1972
638	▲ 15	Banque Centrale du Luxembourg	Luxembourg	EU	CB	1.70	13%	1998
639	▼ -7	Miami City Fire & Police Retirement Trust	US	NA	PF	1.69	-2%	1985
640	▼ -12	Tulare County Employees' Retirement Association	US	NA	PF	1.68	-4%	1945
641	▼ -12	AvSuper Fund	Australia	AP	PF	1.68	-4%	1990

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
642	▼ -5	El Paso Firemen & Policemen Pension Fund	US	NA	PF	1.67	0%	1920
643	▼ -22	Northumberland Pension Fund	UK	EU	PF	1.67	-7%	1974
644	▲ 14	Memphis Light Gas & Water Division Pension Plan	US	NA	PF	1.66	13%	1948
645	▲ 16	Massachusetts Bay Transportation Authority Ret. Fund	US	NA	PF	1.64	13%	1948
646	▼ -8	Polish Development Fund	Poland	EU	SF	1.63	-2%	2016
647	▼ -3	Croydon Pension Scheme	UK	EU	PF	1.62	1%	1974
648	▼ -125	Central Bank of Sudan	Sudan	AF	CB	1.60	-49%	1960
649	▼ -16	Royal Borough of Greenwich Pension Fund	UK	EU	PF	1.59	-7%	1974
650	▼ -2	Prince Edward Island Public Sector Pension Plan	Canada	NA	PF	1.58	4%	1945
651	▲ 2	National Bank of Tajikistan	Tajikistan	AP	CB	1.58	5%	1991
652	▼ -7	Sistema de Retiro de los Empleados del Gobierne de Puerto Rico	US	NA	PF	1.57	0%	1964
653	▲ 6	Metropolitan Water Reclamation District Retirement Fund	US	NA	PF	1.57	7%	1931
654	▼ -8	Southeastern Pennsylvania Transportation Authority	US	NA	PF	1.54	0%	2007
655	▲ 43	Royal Monetary Authority of Bhutan	Bhutan	AP	CB	1.54	43%	1982
656	▼ -13	London Borough of Ealing Pension Fund	UK	EU	PF	1.53	-5%	1974
657	▼ -5	Louisiana Education Quality Trust Fund	US	NA	SF	1.53	2%	1986
658	▼ -8	The National Board of the Commonwealth of the Bahamas	Bahamas	LA	PF	1.52	0%	1972
659	▲ 5	Caisse de pensions de la République et du Canton du Jura	Switzerland	EU	PF	1.50	6%	1979
660	▲ 8	Omaha School Employees' Retirement System	US	NA	PF	1.50	7%	2010
661	▲ 4	Prévoyance Santé Valais	Switzerland	EU	PF	1.50	7%	1984
662	▲ 32	Banque Centrale de Mauritanie	Mauritania	AF	CB	1.49	36%	1973
663	▼ -12	London Borough of Enfield Pension Fund	UK	EU	PF	1.48	-3%	1974
664	▼ -4	Fondo de Ahorro de Panamá	Panama	LA	SF	1.47	1%	2012
665	▲ 4	Arkansas State Highway Employees' Retirement System	US	NA	PF	1.47	6%	1949
666	▲ 12	San Luis Obispo County Pension Trust	US	NA	PF	1.47	12%	1958
667	▼ -18	Royal Borough of Kensington and Chelsea Pension Fund	UK	EU	PF	1.46	-4%	1998
668	▼ -1	Oklahoma Tobacco Settlement Endowment Trust	US	NA	SF	1.44	3%	2001
669	▲ 15	Fulton County Employees' Pension Fund	US	NA	PF	1.43	16%	1991
670	▼ -149	Fondo de Estabilización de los Ingresos de las Entidades Federativas	Mexico	LA	SF	1.43	-55%	2006
671	▼ -15	Fresno City Retirement Systems	US	NA	PF	1.42	-4%	1939
672	▼ -6	Central Bank of the Republic of Guinea	Guinea	AF	CB	1.40	0%	1960
673	▲ 27	Bank of the Lao PDR	Laos	AP	CB	1.39	30%	1968
674	▼ -17	Barnet Pension Fund	UK	EU	PF	1.39	-6%	1974
675	▲ 10	Wichita Retirement Systems	US	NA	PF	1.36	13%	1956
676	▼ -34	Public Service Pensions Fund	Eswatini	AF	PF	1.36	-16%	1993
677	▼ -2	Bundespensionskasse	Austria	EU	PF	1.35	2%	2000
678	▲ 4	Atlanta General Employees' Pension Fund	US	NA	PF	1.33	4%	1962
679	▲ 9	Pensionskasse Appenzell Ausserrhoden	Switzerland	EU	PF	1.33	12%	2000
680	▼ -4	Puerto Rico Electric Power Authority Employees	US	NA	PF	1.32	0%	1945
681	▼ -10	City of London Corporation Pension Fund	UK	EU	PF	1.32	-3%	1974
682	▲ 8	Colorado Public School Fund Investment Board	US	NA	SF	1.32	15%	2016
683	▲ 19	Banka Slovenije	Slovenia	EU	CB	1.31	26%	1991
684	▼ -12	London Borough of Hammersmith and Fulham Pension Fund	UK	EU	PF	1.30	-3%	1974
685	▼ -5	Georgia Municipal Association Employees Benefit Syst. Ret. Fund	US	NA	PF	1.30	0%	1933
686	▼ -12	Bromley Pension Fund	UK	EU	PF	1.29	-3%	1974
687	▲ 12	Central Bank of Cyprus	Cyprus	EU	CB	1.28	19%	1963

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
688	▼ -7	Hillingdon Pension Fund	UK	EU	PF	1.27	-2%	1974
689	▼ -10	Barking and Dagenham Pension Fund	UK	EU	PF	1.25	-4%	1974
690	▼ -7	Chicago Laborers' Annuity & Benefit Fund	US	NA	PF	1.24	0%	1982
691	▼ -14	Shelby County Retirement System	US	NA	PF	1.24	-6%	1978
692	▼ -3	Pensionskasse Uri	Switzerland	EU	PF	1.23	6%	1938
693	▼ -20	Hounslow Pension Fund	UK	EU	PF	1.23	-7%	1974
694	▲ 15	Centrale Bank van Aruba	Aruba	LA	CB	1.22	22%	1986
695	▼ -33	Bank of Zambia	Zambia	AF	CB	1.20	-17%	1964
696	▼ -10	Fondo para la Revolución Industrial Productiva	Bolivia	LA	SF	1.20	0%	2013
697	▲ 13	Caisse Cantonale d'Assurance Populaire	Switzerland	EU	PF	1.15	17%	1898
698	▼ -11	Waltham Forest Pension Fund	UK	EU	PF	1.11	-7%	1974
699	▲ 14	Banka Qendrore e Republikës së Kosovës	Kosovo	EU	CB	1.10	13%	2006
700	▼ -5	London Borough of Harrow Pension Fund	UK	EU	PF	1.09	1%	1974
701	▼ -9	London Borough of Bexley Pension Fund	UK	EU	PF	1.09	-3%	1974
702	▼ -5	Fondo Mexicano del Petróleo para la Estabilidad y el Desarrollo	Mexico	LA	SF	1.08	0%	2014
703	▲ 17	Pensionskasse der Stadt Biel	Switzerland	EU	PF	1.08	19%	1923
704	▼ -11	Brent Pension Fund	UK	EU	PF	1.08	-2%	1974
705	▼ -1	Bank Ċentrali ta' Malta	Malta	EU	CB	1.07	3%	1968
706	▼ -4	Reserve Bank of Fiji	Fiji	AP	CB	1.05	1%	1984
707	▲ 21	Cayman Islands Public Service Pensions Board	UK	EU	PF	1.05	29%	1999
708	▼ -7	Royal Borough of Kingston upon Thames Pension Fund	UK	EU	PF	1.04	-2%	1974
709	▼ -13	St Paul Teachers' Retirement Fund Association	US	NA	PF	1.04	-4%	1956
710	▼ -5	London Borough of Redbridge Pension Fund	UK	EU	PF	1.03	1%	1974
711	▶ 0	Indonesia Investment Authority	Indonesia	AP	SF	1.03	N/A	2021
712	▼ -21	Dumfries and Galloway Council Pension Fund	UK	EU	PF	1.03	-10%	1994
713	▼ -1	Future Health Research and Innovation Fund	Australia	AP	SF	1.02	5%	2006
714	▲ 2	Pensionskasse des Kantons Nidwalden	Switzerland	EU	PF	1.01	6%	1946
715	▲ 11	Pensionskasse des Kantons Glarus	Switzerland	EU	PF	1.00	23%	2011
716	▼ -9	Fonds Gabonais d'Investissements Stratégiques	Gabon	AF	SF	1.00	0%	2011
717	▼ -11	Palestine Investment Fund	Palestine	ME	SF	1.00	-1%	2003
718	▲ 4	Wayne County Employees' Retirement System	US	NA	PF	1.00	13%	1944
719	▲ 16	Maldives Monetary Authority	Maldives	AP	CB	0.99	30%	1981
720	▼ -3	Havering Pension Fund	UK	EU	PF	0.94	0%	1974
721	▼ -3	Scottish Borders Council Pension Fund	UK	EU	PF	0.92	-2%	1996
722	▼ -1	London Borough of Merton Pension Fund	UK	EU	PF	0.88	-3%	1974
723	▼ -12	Ghana Petroleum Funds	Ghana	AF	SF	0.84	-14%	2011
724	▶ 0	Powys Pension Fund	UK	EU	PF	0.83	-1%	1974
725	▼ -2	London Borough of Sutton Pension Fund	UK	EU	PF	0.81	-6%	1974
726	▼ -19	Central Bank of Yemen	Yemen	ME	CB	0.80	-20%	1971
727	▲ 31	Banca Centrale della Repubblica di San Marino	San Marino	EU	CB	0.78	65%	2005
728	▲ 3	National Insurance Corporation of St. Lucia	E. Caribbean System	LA	PF	0.78	0%	1970
729	▲ 10	Central Bank of Lesotho	Lesotho	AF	CB	0.77	8%	1980
730	▼ -75	Central Bank of Barbados	Barbados	LA	CB	0.77	-48%	1972
731	▲ 5	Personalversicherungskasse Obwalden	Switzerland	EU	PF	0.77	3%	2011
732	▼ -17	South African Local Authorities Pension Fund	South Africa	AF	PF	0.77	-20%	1985
733	▲ 1	Banque Centrale du Congo	DR of the Congo	AF	CB	0.77	0%	1997

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
734	▼ -5	National Insurance Fund Jamaica	Jamaica	LA	PF	0.76	-6%	1965
735	▼ -5	National Savings Fund	Mauritius	AF	PF	0.75	-7%	1995
736	▲ 6	Jersey Teachers Superannuation Fund	Jersey	EU	PF	0.74	11%	2010
737	▲ 1	Banco de Cabo Verde	Cape Verde	AF	CB	0.73	-1%	1975
738	▼ -5	Isle of Wight Council Pension Fund	UK	EU	PF	0.73	-6%	1974
739	▼ -7	Saskatchwean Telecommunications Pension Plan	Canada	NA	PF	0.72	-7%	1928
740	▼ -13	Government Employees' Ret. Syst. of the Virgin Islands	US	NA	PF	0.71	-13%	1959
741	▼ -4	Prince Edward Island Tecachers' Superannuation Fund	Canada	NA	PF	0.70	-5%	1945
742	▲ 1	Palestine Monetary Authority	Palestine	ME	CB	0.70	6%	1994
743	▲ 12	Central Bank of Djibouti	Djibouti	AF	CB	0.69	37%	1977
744	▲ 1	National Development and Social Fund	Malta	EU	SF	0.68	7%	2015
745	▲ 3	Bank of Guyana	Guyana	LA	CB	0.68	18%	1965
746	▲ 8	Bank of Sierra Leone	Sierra Leone	AF	CB	0.66	31%	1964
747	▲ 14	Central Bank of Eswatini	Eswatini	AF	CB	0.66	50%	1974
748	▲ 1	Central Bank of Solomon Islands	Solomon Islands	AP	CB	0.66	16%	1985
749	▼ -5	Banco Central de Timor-Leste	Timor-Leste	AP	CB	0.66	0%	2011
750	▼ -9	Instituto Nicaragüense de Seguridad Social	Nicaragua	LA	PF	0.66	-1%	1956
751	▼ -5	National Social Security Fund	Tanzania	AF	PF	0.62	0%	1997
752	▼ -33	Saint Christopher and Nevis Social Security Board	E. Caribbean System	LA	PF	0.62	-32%	1977
753	▲ 7	Reserve Bank of Vanuatu	Vanuatu	AP	CB	0.61	35%	1981
754	▼ -4	Centrale Bank van Suriname	Suriname	LA	CB	0.61	11%	1957
755	▼ -4	Pensionskasse Stadt Chur	Switzerland	EU	PF	0.59	10%	2010
756	▲ 1	Pensionskasse Stadt Zug	Switzerland	EU	PF	0.57	18%	1857
757	▼ -10	Central Bank of Seychelles	Seychelles	AF	CB	0.56	-3%	1978
758	▼ -33	Reserve Bank of Malawi	Malawi	AF	CB	0.55	-33%	1964
759	▼ -6	Central Bank of Liberia	Liberia	AF	CB	0.54	2%	1999
760	▼ -4	Grant Schools Provident Fund	Hong Kong	AP	PF	0.54	9%	2000
761	▼ -9	Fire and Emergency Services Superannuation Fund	Australia	AP	PF	0.52	-2%	1999
762	▼ -48	Fundusz Gwarantowanych Świadczeń Pracowniczych	Poland	EU	PF	0.48	-50%	1994
763	▼ -4	Saskatchewan Pension Plan	Canada	NA	PF	0.45	-1%	1986
764	▲ 1	Native Hawaiian Trust Fund	US	NA	SF	0.43	13%	1981
765	▼ -25	Revenue Equalisation Reserve Fund	Kiribati	AP	SF	0.42	-37%	1956
766	▼ -2	Algemeen Pensioenfonds Sint Maarten	Netherlands	EU	PF	0.42	10%	2010
767	▼ -1	Pensionskasse der Stadt Aarau	Switzerland	EU	PF	0.41	12%	1998
768	▼ -5	Central Bank of Syria	Syria	ME	CB	0.41	1%	1953
769	▶ 0	Luzerner Gemeindepersonalkasse	Switzerland	EU	PF	0.38	6%	1965
770	▼ -3	Fonds souverain intergénérationnel du Luxembourg	Luxembourg	EU	SF	0.37	2%	2014
771	▼ -9	Punjab Pension Fund	Pakistan	AP	PF	0.36	-17%	2008
772	▼ -1	Kantonale Versicherungskasse Appenzell Innerrhoden	Switzerland	EU	PF	0.36	20%	1930
773	▼ -5	Hampshire County Retirement System	US	NA	PF	0.36	0%	1911
774	▼ -4	National Insurance Scheme Grenada	E. Caribbean System	LA	PF	0.35	4%	1983
775	▶ 0	Central Bank of Belize	Belize	LA	CB	0.35	25%	1982
776	▼ -3	Pensionskasse des Personals der Einwohnergemeinde Köniz	Switzerland	EU	PF	0.34	19%	1942
777	▼ -5	Turks and Caicos Islands National Insurance Board	UK	EU	PF	0.32	8%	1991
778	▲ 12	Central Bank of Comoros	Comoros	AF	CB	0.29	46%	1981
779	▲ 6	National Reserve Bank of Tonga	Tonga	AP	CB	0.29	27%	1972

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
780	▶ 0	Pensionskasse der Gemeinde Küsnacht	Switzerland	EU	PF	0.29	11%	2010
781	▲ 15	Faletupe Tutotonu o Samoa	Samoa	AP	CB	0.28	50%	1984
782	▼ -8	Korea Workers' Compensation & Welfare Service	South Korea	AP	PF	0.28	-2%	1976
783	▼ -5	Social Security Board Belize	Belize	LA	PF	0.28	3%	1981
784	▼ -5	Antigua-Barbuda Social Security Fund	E. Caribbean System	LA	PF	0.26	0%	1973
785	▼ -8	Seamen's Provident Fund Organisation	India	AP	PF	0.26	-5%	1964
786	▲ 1	Cayman Islands Monetary Authority	Cayman Islands	LA	CB	0.25	15%	1997
787	▲ 2	Pensionskasse der Stadt Dubendorf	Switzerland	EU	PF	0.25	20%	2013
788	▼ -6	Banko di Seguro Sosial	Curaçao	LA	PF	0.23	-5%	1960
789	▼ -5	Central Bank of Gambia	Gambia	AF	CB	0.23	0%	1971
790	▼ -7	Universities Provident Fund	Sri Lanka	AP	PF	0.23	-4%	1978
791	▶ 0	Ithmar Capital	Morocco	AF	SF	0.23	N/A	2011
792	▶ 0	Pensionskasse der Stadt Langenthal	Switzerland	EU	PF	0.22	10%	2015
793	▼ -5	Sharjah Asset Management	UAE	ME	SF	0.22	0%	2008
794	▼ -18	Ghana Infrastructure Investment Fund	Ghana	AF	SF	0.21	-23%	2014
795	▶ 0	Caisse de prévoyance du personnel communal de la ville de Fribourg	Switzerland	EU	PF	0.21	13%	1927
796	▲ 2	Pensionskasse der Stadt Adliswil	Switzerland	EU	PF	0.21	14%	2020
797	▼ -16	Seychelles Pension Fund	Seychelles	AF	PF	0.20	-20%	1971
798	▼ -7	Agaciro Development Fund	Rwanda	AF	SF	0.20	0%	2012
799	▼ -13	Colpensiones	Colombia	LA	PF	0.20	-11%	2005
800	▼ -6	Bermuda Monetary Authority	Bermuda	LA	CB	0.20	5%	1969
801	▶ 0	Natural Resource Fund	Guyana	LA	SF	0.20	18%	2015
802	▼ -3	Little Red River Cree Nation Sovereign Wealth Fund	Canada	NA	SF	0.19	7%	2019
803	▼ -10	Central Bank of Eritrea	Eritrea	AF	CB	0.19	0%	1914
804	▼ -4	Pensionskasse für das Personal der Stadt Frauenfeld	Switzerland	EU	PF	0.19	6%	1972
805	▼ -2	Pensionskasse der Stadt Frauenfeld	Switzerland	EU	PF	0.19	19%	2018
806	▼ -1	Pensionskasse der Gemeinde Emmen	Switzerland	EU	PF	0.18	17%	1973
807	▼ -10	St Vincent and the Grenadines National Insurance Services	E. Caribbean System	LA	PF	0.18	-3%	1970
808	▼ -6	Vanuatu National Provident Fund	Vanuatu	AP	PF	0.17	7%	1987
809	▼ -8	Fonds de Réserves pour Générations Futures	Equatorial Guinea	AF	SF	0.17	0%	2002
810	▼ -6	National Insurance Scheme Guyana	Guyana	LA	PF	0.16	4%	1969
811	▼ -4	Caisse de Pensions de la Ville de Sion	Switzerland	EU	PF	0.16	6%	1950
812	▼ -4	Dominica Social Security	Dominica	LA	PF	0.15	0%	1983
813	▼ -4	Caisse de pensions du personnel de la Ville de Carouge	Switzerland	EU	PF	0.15	6%	2020
814	▶ 0	Pensionskasse Stadt Rapperswil-Jona	Switzerland	EU	PF	0.14	18%	
815	▼ -3	The Pension Reserve Fund Of Republic of Srpska	Bosnia and Herzegovina	EU	PF	0.13	7%	2008
816	▼ -5	National Social Security and Welfare Corporation	Liberia	AF	PF	0.13	0%	1975
817	▼ -1	National Superannuation Fund	Cook Islands	AP	PF	0.12	18%	2000
818	▼ -5	Tuvalu Trust Fund	Tuvalu	AP	SF	0.12	-1%	1987
819	▶ 0	Fonds Souverain de Djibouti	Djibouti	AF	SF	0.12	N/A	2020
820	▼ -2	Pensionskasse der Stadt Weinfelden	Switzerland	EU	PF	0.11	17%	2013
821	▼ -3	Pensionskasse der Gemeinde Weinfelden	Switzerland	EU	PF	0.11	17%	2008
822	▼ -12	Bank of South Sudan	South Sudan	AF	CB	0.10	-24%	2011
823	▼ -1	Intergenerational Trust Fund for the People of Nauru	Nauru	AP	SF	0.10	28%	2015
824	▼ -4	Pensionskasse der Stadt Arbon	Switzerland	EU	PF	0.10	6%	2012
825	▼ -8	Birmingham Retirement Systems	US	NA	PF	0.09	-8%	1965

Rank and change on 2020		Institution	Country	Region	Type	AUM $bn	% change on 2020	Year est.
826	▼ -11	Central Bank of Burundi	Burundi	AF	CB	0.09	-19%	1964
827	▼ -4	Pensionskasse der Gemeinde Kilchberg	Switzerland	EU	PF	0.08	6%	2012
828	▼ -1	Fonds National des Revenus des Hydrocarbures	Mauritania	AF	SF	0.07	35%	2006
829	▼ -5	Excess Crude Account	Nigeria	AF	SF	0.07	1%	2004
830	▲ 1	Banco Nacional de São Tomé e Príncipe	São Tomé and Príncipe	AF	CB	0.07	53%	1975
831	▼ -3	New Hampshire Judicial Retirement Plan	US	NA	SF	0.07	19%	2005
832	▼ -6	Falkland Islands Pensions Scheme	UK	EU	PF	0.06	1%	2005
833	▼ -8	Pensionskasse der Stadt Romanshorn	Switzerland	EU	PF	0.06	-21%	2012
834	▼ -5	Pensionskasse der Stadt Amriswil	Switzerland	EU	PF	0.05	6%	2010
835	▼ -5	Social Security Administration	F. States of Micronesia	AP	PF	0.05	0%	1968
836	▼ -4	Fiscal Stability Fund	Mongolia	AP	SF	0.05	0%	2011
837	▼ -1	National Investment and Infrastructure Fund	India	AP	SF	0.04	130%	2015
838	▼ -32	Reserve Bank of Zimbabwe	Zimbabwe	AF	CB	0.03	-77%	1956
839	▼ -6	University of Maine System Pension Plan	US	NA	PF	0.02	-7%	1998
840	▼ -19	Petroleum Revenue Investment Reserve	Uganda	AF	SF	0.02	-72%	2015
841	▶ 0	Ontario First Nations Sovereign Wealth	Canada	NA	SF	0.02	N/A	2018
842	▼ -7	Northwest Territories Heritage Fund	Canada	NA	SF	0.02	9%	1996
843	▼ -9	National Retirement Benefits Fund	Tonga	AP	PF	0.02	-2%	2010
844	▼ -7	National Oil Account	São Tomé and Príncipe	AF	SF	0.01	2%	2004
845	▼ -6	National Stabilisation Fund	Taiwan	AP	SF	0.01	480%	1973
846	▼ -8	Fonds Souverain d'Investissements Strategiques	Senegal	AF	SF	0.01	-2%	2012
847	▼ -7	Bhutan Economic Stabilisation Fund	Bhutan	AP	SF	0.002	59%	2018
848	▼ -419	Fondo de Estabilización Fiscal	Peru	LA	SF	0.001	-100%	1999
849	▼ -7	Future Heritage Fund	Mongolia	AP	SF	0.0001	-6%	2016
850	▼ -9	Fondo de Ahorro y Estabilización Petrolera	Colombia	LA	SF	0.0001	-96%	1995

NOTES ON DATA SOURCES AND TOP 850 ENTRIES

Data for assets under management are largely sourced from global public investors' official websites, usually based on annual reports and financial statements. Where no such official data are available, OMFIF uses reliable sources from the financial industry and research community.

Most data are taken as of December 2020. 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. Includes assets held by the Federal Reserve, Exchange Stabilization Fund and Treasury
5. Manages Stichting Pensioenfonds ABP
6. Includes assets held by HM Treasury
7. Manages Stichting Pensioenfonds Zorg en Welzijn
8. Includes assets of the Labor Pension Fund, Labor Retirement Fund, Labor Insurance Fund, Employment Insurance Fund, Occupation Incidents Protection Fund, Arrear Wage Payment Fund and the National Pension Insurance Fund
9. The PIC is also responsible for investing the assets of the Government Employees Pension Fund
10. Includes all pension funds under the North Carolina State Treasurer
11. Includes the Alberta Teachers' Retirement Fund, Local Authorities Pension Plan, Management Employees Pension Plan, Management Supplementary Retirement Plan, Provincial Judges & Masters in Chambers Registered Pension Plan, Provincial Judges & Masters in Chambers Unregistered Pension Plan, Public Service Pension Plan, Special Forces Pension Plan and Universities Academic Pension Plan
12. Includes the National Investment Corporation of Kazakhstan and Unified State Pension Fund of Kazakhstan
13. Manages the Government Pension Fund Norway
14. Includes Land Grant and Severance Tax Permanent Funds
15. Manages the New Brunswick Public Service Pension Plan and New Brunswick Teachers Pension Plan
16. Includes ERS, TSB, MERS, SPRBT, JRBT, RIJRFT, and RI Defined Contribution Plan
17. Includes Employees System, Police System and Uniformed System
18. Manages the Public Service Pension Plan of Newfoundland and Labrador

NOTE ON METHODOLOGY

The ranking table includes 850 global public investors.

All figures are in dollars. Throughout the publication 'dollar' refers to US dollars. Figures for the percentage change in assets are calculated using year-on-year figures where possible, generally between December 2019-December 2020.

OMFIF adopts a regional classification: Africa (AF), Asia Pacific (AP), Europe (EU), Latin America and the Caribbean (LA), Middle East (ME) and North America (NA).

Three broad fund classifications – central banks (CB), pension funds (PF) and sovereign funds (SF) – integrate different categories of asset owners in an easy-to-assess manner.

OMFIF recognises that not all states are universally recognised as enjoying full political independence or sovereignty. Where data are available, central banks and monetary authorities in overseas territories, dependencies or other non-self-governing territories are included. For sovereign funds and pension funds, overseas territories are assigned to the country and region of their sovereign state. Several central banks from countries not recognised by at least one United Nations member, such as South Korea and Israel, are also included.

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; the majority of their members are public employees; or they are constituted as public institutions under public law.

Sovereign funds are institutions owned or controlled by a government and 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 US 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.

Important note

Figures for previous years may not correspond directly to those published in earlier editions of *Global Public Investor.* This reflects revisions to and comparisons between 2020 data and past years' figures, as well as changes to the rankings' overall scope.