

GLOBAL PUBLIC  
PENSIONS  
2022

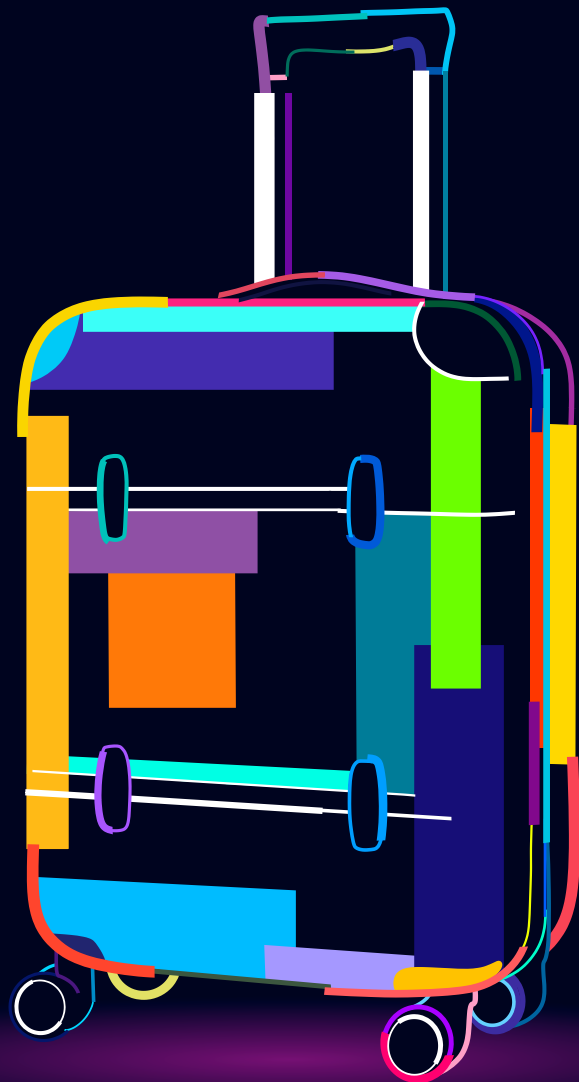
OMFIF



FLIGHT TO  
SAFETY

Vs

FIGHT FOR  
RETURNS



FOR THE LOVE OF  
**taking bigger  
 steps to make  
 smaller footprints.**  
 for the love of progress



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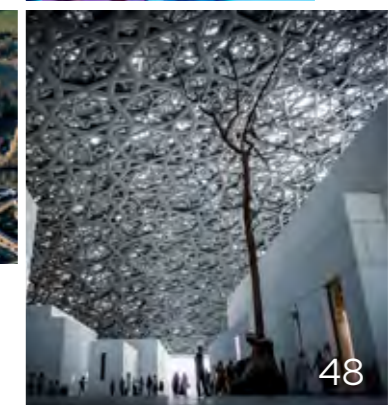
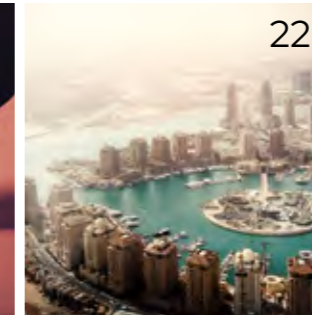
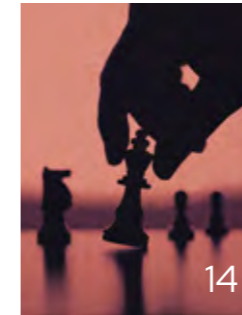
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# GLOBAL PUBLIC PENSIONS 2022



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With a presence in London, 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.

### ACKNOWLEDGMENTS

OMFIF thanks officials from the co-operating countries and cities for this publication, which will be joining us in launch partnerships around the world. We are grateful to many other associates and colleagues for their assistance and guidance.

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## FOREWORD



# FLIGHT TO SAFETY VERSUS FIGHT FOR RETURNS

**After 2021's boom comes 2022's bust, leaving global public funds looking for alternatives and safe havens. By Clive Horwood, managing editor and deputy CEO, OMFIF**

THE 2022 edition of OMFIF's Global Public Pensions paints a clear and stark picture of the fundamentally changed investment challenges facing the world's biggest asset owners.

This report covers global public pension and sovereign funds with total assets of over \$27tn. Most had a remarkable year in 2021, riding the wave of rising markets to post stellar returns. Assets at the top 100 pension funds rose by 17%. Assets at the leading 50 sovereign funds did even better, rising 23%, in part helped by inflows in commodity-rich nations. The era of quantitative easing since 2009 made the rich in society richer – and it clearly had a similarly positive impact for public asset owners. Even while holding on average over 40% of their assets in fixed income at negligible yields, other asset classes pushed their performance to new heights.

That era came to a crashing halt in 2022. Rising inflation, interest rate hikes to combat soaring prices and the impact of Russia's war in Ukraine have turned markets on their head. In the US, both bond and equity markets fell off more than 15% in the first 11 months of 2022. And asset owners don't anticipate that these conditions will improve any time soon.

For the first time, this year's GPP contains a bespoke survey of the investment plans of global public funds worth over \$3tn combined. They

expect a period of stagflation. The global economic slowdown and persistently higher inflation are their two main concerns. In this environment, how do they plan to protect the gains of recent years and generate positive returns?

As is typical in volatile times, a flight to safety is apparent. Global public funds will be net sellers of public equity and some higher-yielding fixed income assets. They will put their money to work, reducing cash holdings. They will retreat to the stronger currency blocs, with dollar holdings rising appreciably and the euro benefiting as well.

But – where their mandates allow – they will also invest more in alternative assets. Top of the list of their allocation targets are inflation hedges such as real estate and infrastructure assets, as well as inflation-linked government bonds. They will seek to drive returns with more investment in private equity, hedge funds and commodity-related assets.

There are risks in this approach – many of these are less-liquid assets and funds will want to avoid any liquidity crunches in uncertain times. Sooner rather than later, the attraction of improved fixed income yields may outweigh the pressure to avoid assets that are falling in price.

Our survey reveals many other important findings. For the first time in recent memory, allocations to the renminbi are set to fall. Despite market uncertainty, many asset owners will continue their move away from domestic assets to more foreign investments – often with the help of external managers. Global public funds remain committed to investing in more sustainable ways, with a particular focus on renewables, transition finance and green bonds.

And improving their operating models is very much top of mind. More than 80% of respondents say a core priority is to improve their data systems. Efficient operating models, and clever use of data, will be more important than ever as global public funds face a new and difficult era. •



**DESPITE MARKET UNCERTAINTY, MANY ASSET OWNERS WILL CONTINUE THEIR MOVE AWAY FROM DOMESTIC ASSETS TO MORE FOREIGN INVESTMENTS – OFTEN WITH THE HELP OF EXTERNAL MANAGERS**

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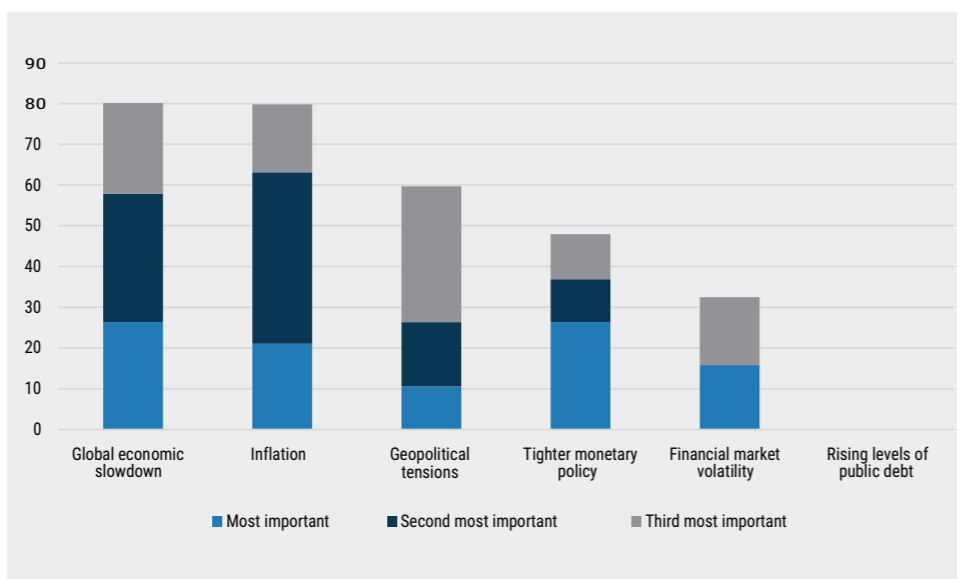
## RISK OF STAGFLATION LOOMS LARGE FOR GLOBAL PUBLIC FUNDS

The global economic slowdown and higher inflation are the top two concerns for global public pension funds and sovereign funds over the next 12-24 months. There is a clear message here: they expect a period of stagflation and will face huge challenges positioning their portfolios to cope with it. And they don't expect inflation to disappear quickly - persistently high inflation is the top long-term concern of almost 50% of global public funds surveyed.

### Global economic slowdown and inflation key concerns for GPFs over the short term

What are the most important economic challenges affecting your investment approach over the next 12-24 months? Share of respondents, %

Source: OMFIF GPP survey 2022



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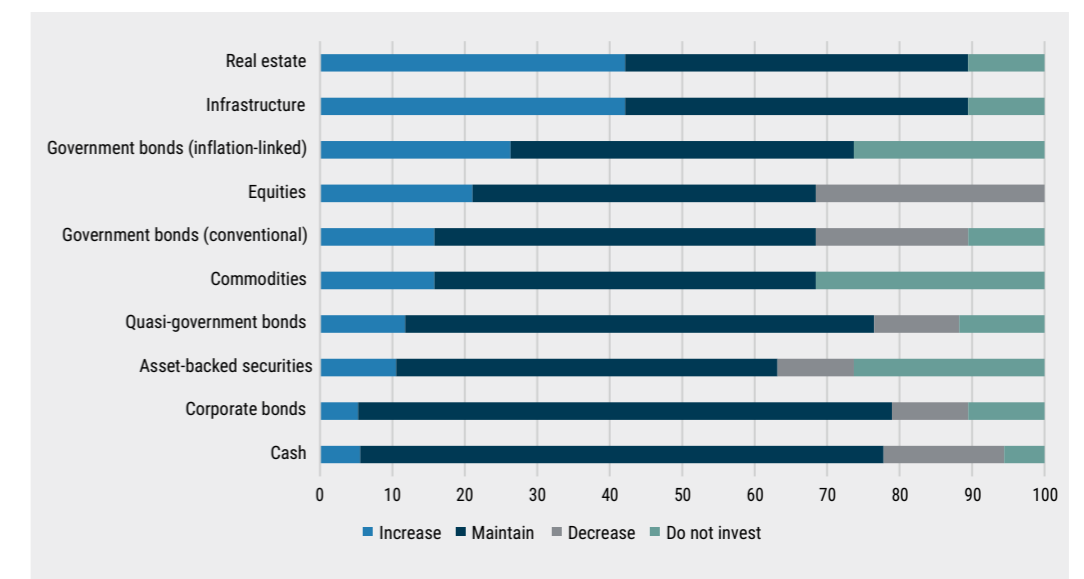
## FUNDS ARE BECOMING MORE ACTIVE...AND MORE CONSERVATIVE

Faced with stagflation, where do GPFs turn? They appear to be devising something of a barbell approach, mixing a flight to safety with an allocation to alternative assets that offer an inflation hedge. The traditional assets of fixed income and equities still accounted for 76% of portfolios in 2021 (down 4 percentage points from 2020). Over the next two years, more than 40% of GPFs plan to allocate more to real estate and infrastructure assets. Investment in inflation-linked bonds and commodities will also rise. GPFs will be net sellers of equities and some fixed income asset classes, and clearly feel the need to put their cash to work.

### Inflation-cover assets a priority for GPFs over short term

Over the next 12-24 months, do you expect to increase, reduce or maintain your allocation to the following asset classes?, Share of respondents, %

Source: OMFIF GPP survey 2022



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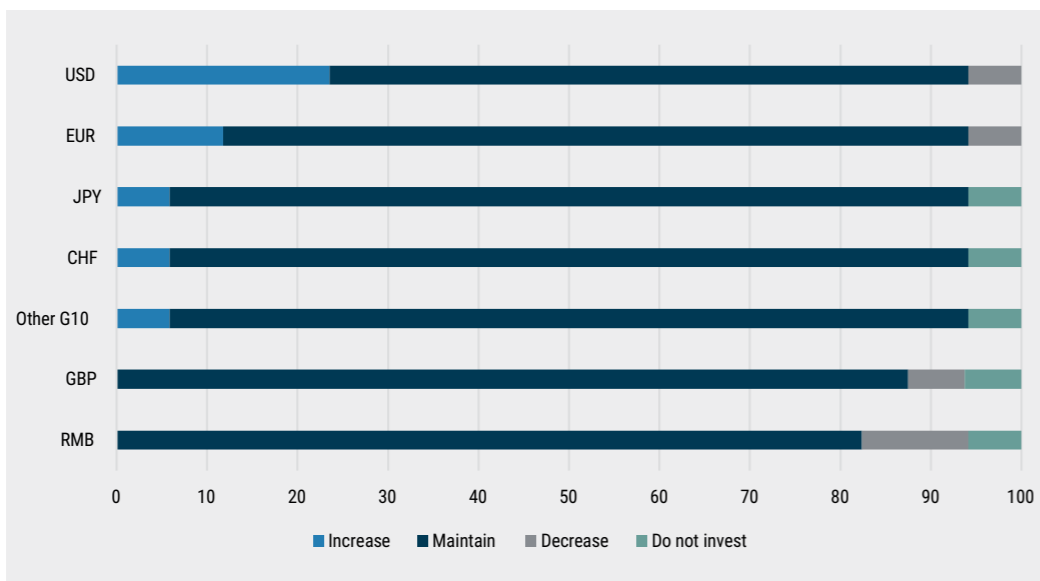


## BEATING A RETREAT TO CORE CURRENCIES

The flight to safety is apparent in GPFs' currency allocation expectations. As markets become more volatile, investors are moving towards the dollar as a safe haven. The euro, yen and Swiss franc will be net beneficiaries of the uncertainty. Recent upheavals in the UK economy will lead to a small reduction in sterling allocations. And while some GPFs plan to reduce their investments in renminbi, none are planning to allocate more to the Chinese currency.

### GPFs preference for safe-haven currencies

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



Source: OMFIF GPP survey 2022

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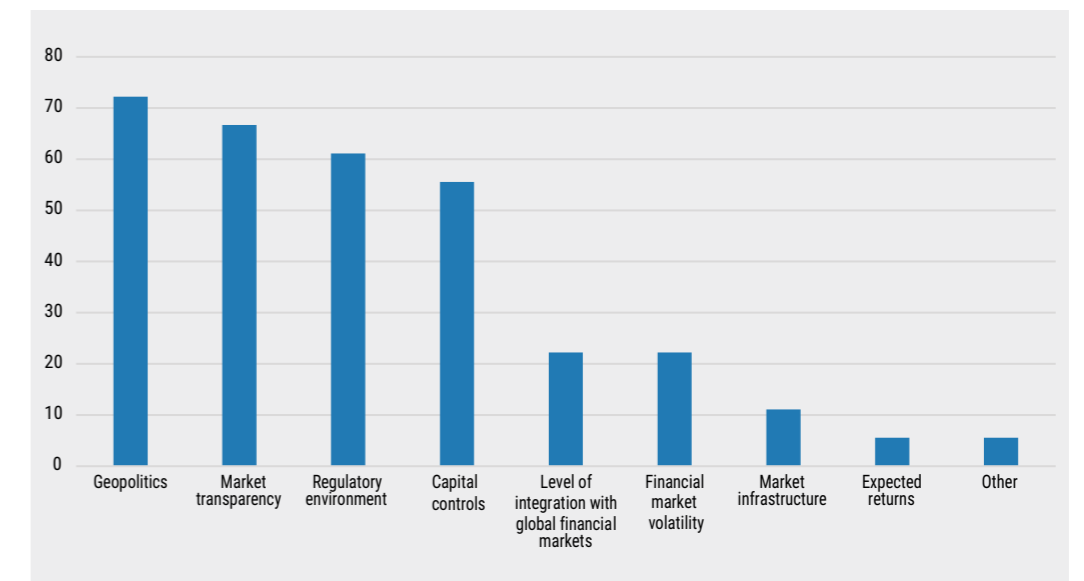


## GLOBAL PUBLIC FUNDS TURN BEARISH ON CHINA

For the first time in recent memory, an OMFIF survey of global public investors shows a reallocation away from renminbi. The reasons for this trend are clear and varied. Top of the list of concerns among GPFs about China are geopolitical tensions. But the worries go deeper, with more than 50% of GPFs also citing market transparency, the regulatory environment and capital controls as negative factors. However, almost 85% of the funds surveyed by OMFIF hold Chinese equities, with more than 70% of respondents citing diversification as the main reason for buying Chinese assets.

### Geopolitics, market transparency and regulation are primary concerns on China

Which of the following factors discourage you from investing more in Chinese financial assets?, Share of respondents, %



Source: OMFIF GPP survey 2022



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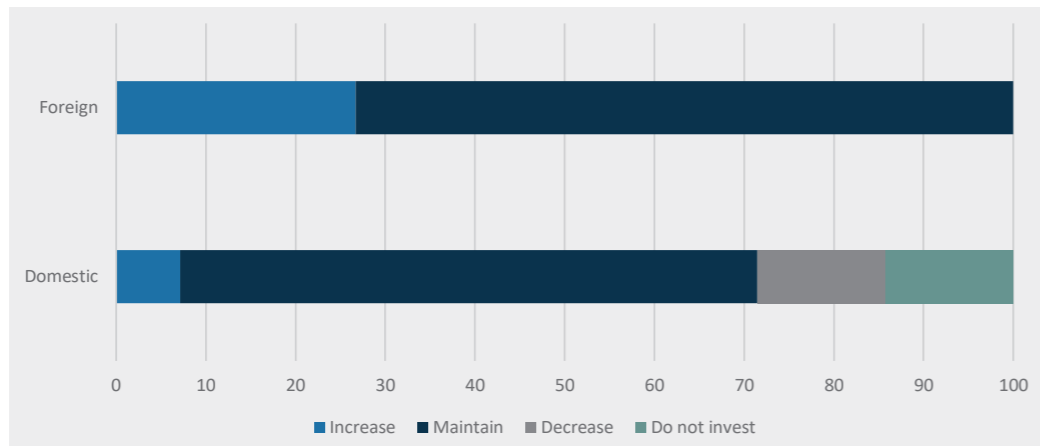
## SHIFT TO MORE FOREIGN HOLDINGS IS SET TO CONTINUE

For some time, pension and sovereign funds - particularly in fast-developing countries with large savings but small local markets - have sought to diversify their holdings away from domestic markets. That trend continued into this year, with the share of foreign holdings of the biggest 50 GPFs increasing to 35%. Will volatility and uncertainty lead to a repatriation of funds? It seems not. Around 15% of survey respondents said they will decrease their domestic holdings over the next two years, while close to 30% plan to increase ownership of foreign assets.

**Over the next 12-24 months, do you plan to increase, maintain or reduce your exposure to the following markets?**

Share of respondents, %

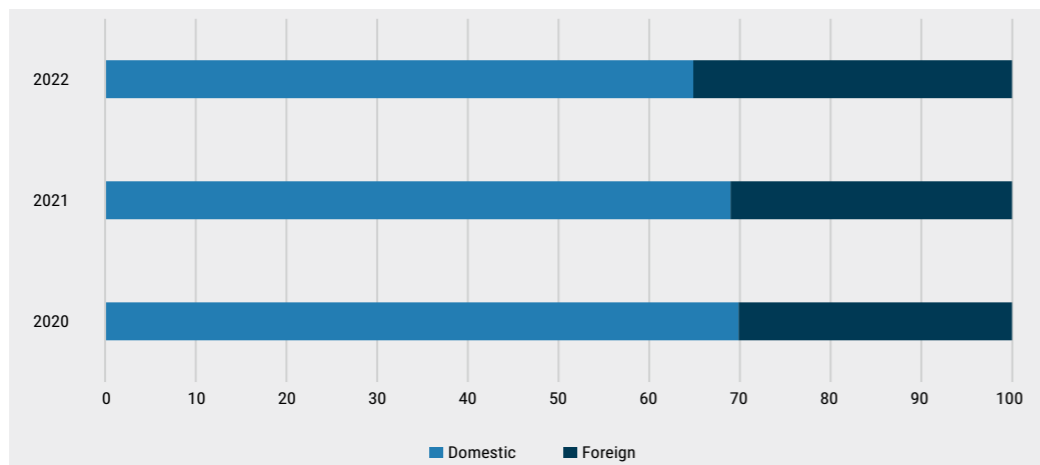
Source: OMFIF GPP survey 2022



**Increase in holdings of foreign assets among pension funds**

Share of portfolio investments held in the following asset categories, Weighted average (%)

Source: OMFIF analysis



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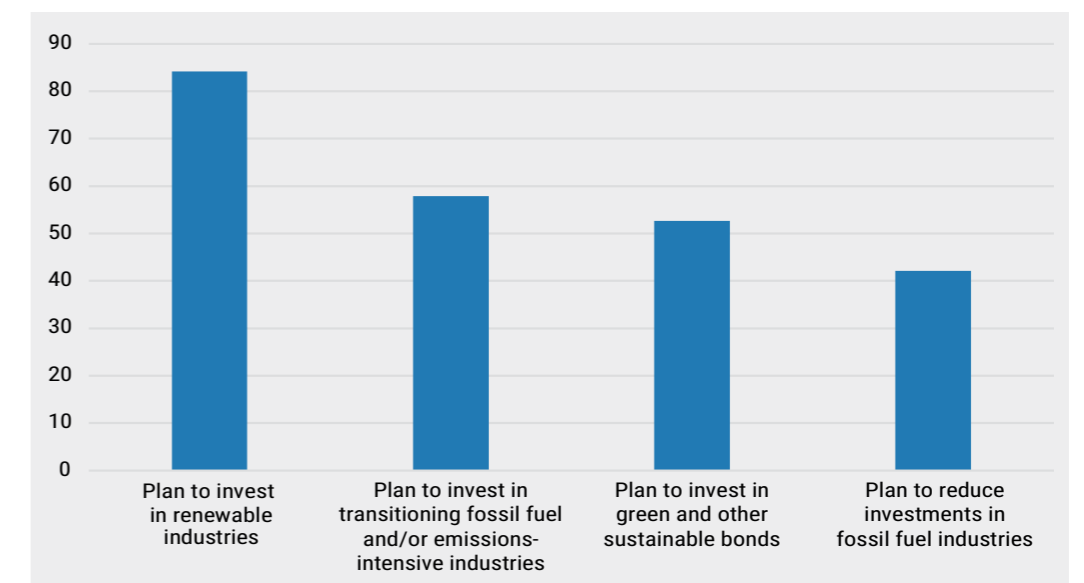
## ACTIONS MATCH TALK IN DRIVE TOWARDS SUSTAINABLE FINANCE

Climate change is one of the top two long-term concerns of more than 50% of GPFs. Many of them are trying to do something about it. Over 80% of respondents plan to invest more in renewable industries and almost 60% say they will allocate more to transitioning fossil fuel and emissions-intensive industries. Capital markets are another source of ESG commitments - 50% of GPFs plan to increase allocations to green bonds, while more than 40% expect to invest more in sustainable equities. The lack of reliable data remains the biggest barrier - three-quarters of respondents (75%) cite it as an obstacle to further ESG adoption.

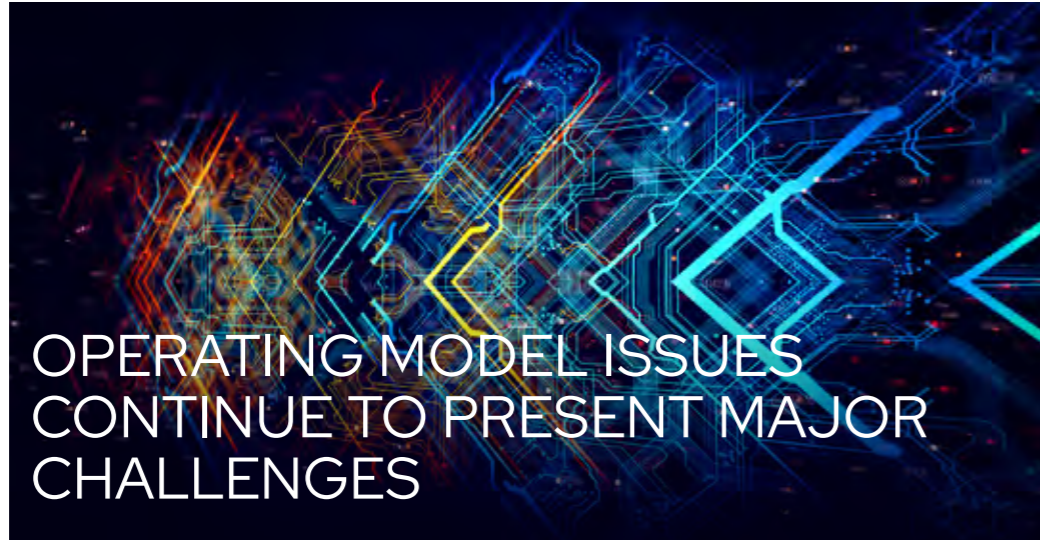
**Share of GPFs planning to invest in renewables is twice that of those aiming to divest from fossil fuels**

How is the green transition affecting your investment plans? Share of respondents, %

Source: OMFIF GPP survey 2022



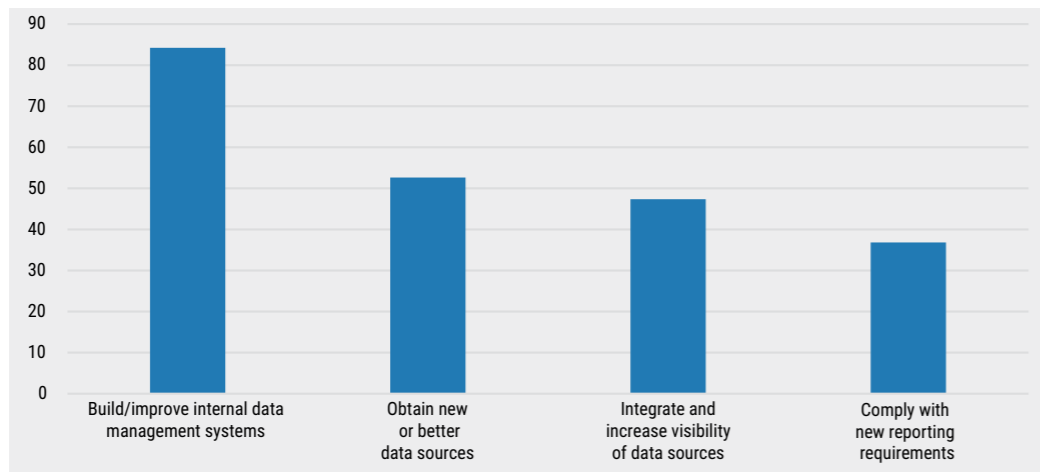
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Few public funds feel they have an operating model that enables them to optimally manage their funds. For example, internal administrative and governance set-up is the biggest obstacle to introducing new asset classes, according to more than 40% of survey respondents. Technology challenges also loom large - integrating new technology and tools, security issues and costs are all key issues for GPFs. Better use of data lies at the heart of the solution, with more than 80% of funds stating that building or improving internal data management systems are their main data priorities over the next two years.

### Pension funds looking to improve data management systems and data sources

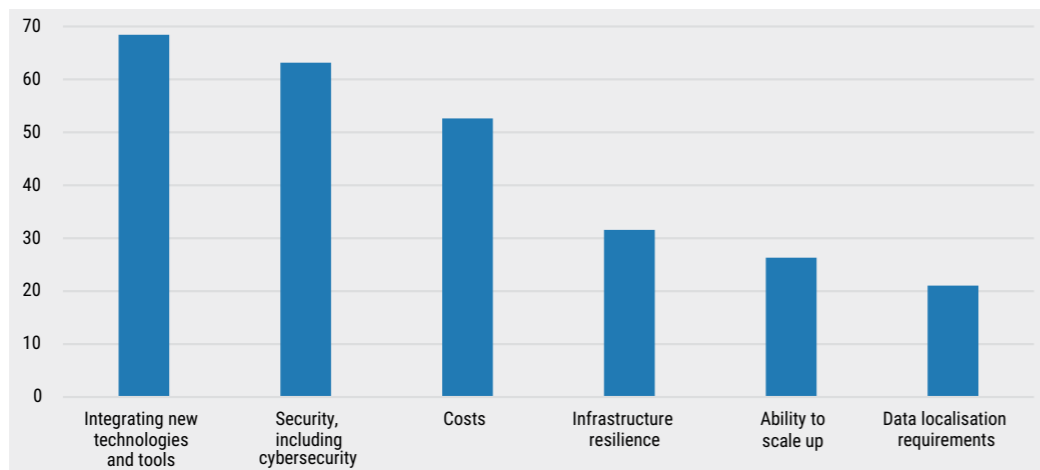
What are your data priorities for the next 12-24 months? Share of respondents, %



Source: OMFIF GPP survey 2022

### Data integration, cybersecurity and costs key barriers to using new technologies

What are your top technology challenges? Share of respondents, %



Source: OMFIF GPP survey 2022

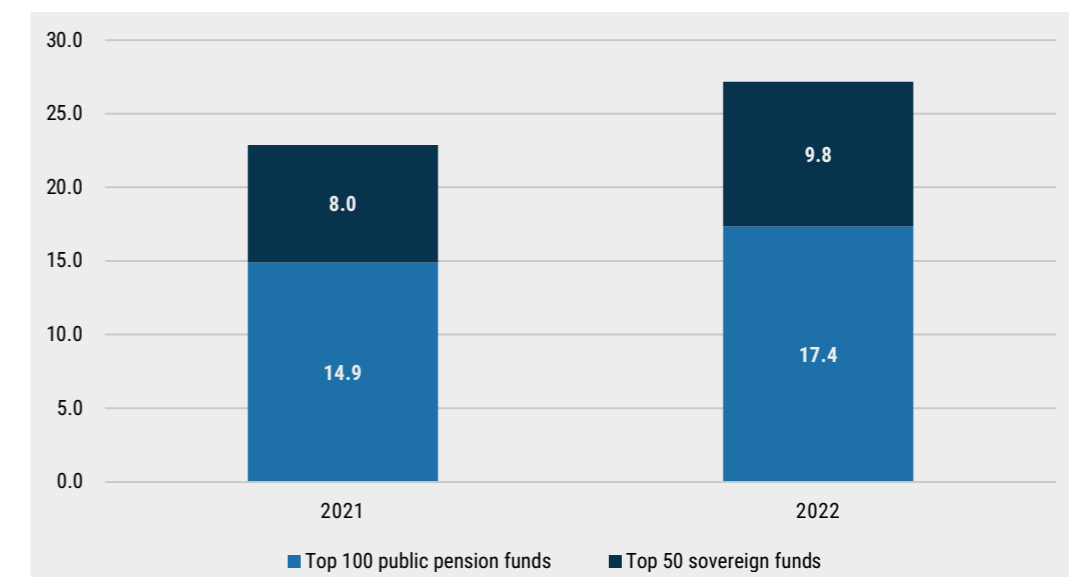
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## GLOBAL FUNDS HAVE MORE MONEY TO PUT TO WORK

While global public funds have faced a challenging 2022, they came into the year in good shape. In 2021, assets under management of the top 100 public pension funds grew 17% to \$17.4tn. Assets of the top 50 sovereign funds jumped 23% to \$9.8tn. CalPERS, the eighth biggest pension fund in the world, grew by more than 23%. Some sovereign funds posted even more remarkable figures, particularly in the Middle East, helped by inflows as well as strong investment returns. Keeping hold of these gains and finding the right places to put that money to work will be the key challenges for a number of years to come.

### Latest assets under management for top 100 public pension funds and top 50 sovereign funds \$tn



Source: Annual statements, OMFIF analysis

## ASSET ALLOCATION STRATEGIES: MORE ACTIVE, MORE CONSERVATIVE

**GPF investment strategies point to risk-off sentiment amid stagflation concerns. By Neil Williams and Taylor Pearce**

RISK seems to be taken off the table. Surveyed pension and sovereign wealth funds intend to adopt more conservative strategies, such as investing in higher-rated government bonds and perceived safe-haven currencies, and away from equities and corporate bonds. This reflects an intensification of the forces from the first half of 2022 spilling over into the second, with global public funds noting concerns over higher policy rates, inflation and a global economic slowdown. Respondents also expressed much more caution over China than last year, largely due to geopolitical tensions.

### PREPARING FOR STAGFLATION

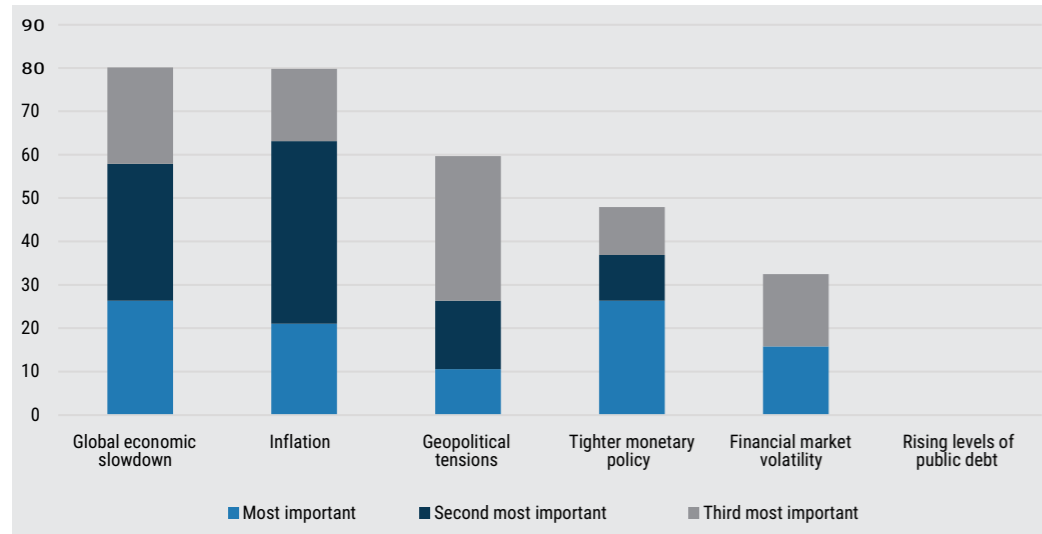
What a difference six months makes. In our sister survey of central bank reserve managers back in June, overall risk tolerance seemed to be holding

up, with little discernible shift expected from growth assets, despite all the responses after the start of Russia's invasion of Ukraine. This has not been the case for GPFs: in the main, pension fund and sovereign asset managers seem to be preparing for an environment of stagflation. The biggest share of respondents considered global

“

HOLDING LIQUID ASSETS MAY NOT BE A PRIORITY IN THE GOOD TIMES, BUT IT CAN BE NECESSARY IN THE BAD TIMES. THIS WAS DEMONSTRATED BY THE RECENT CRUNCH IN THE UK PENSION SYSTEM

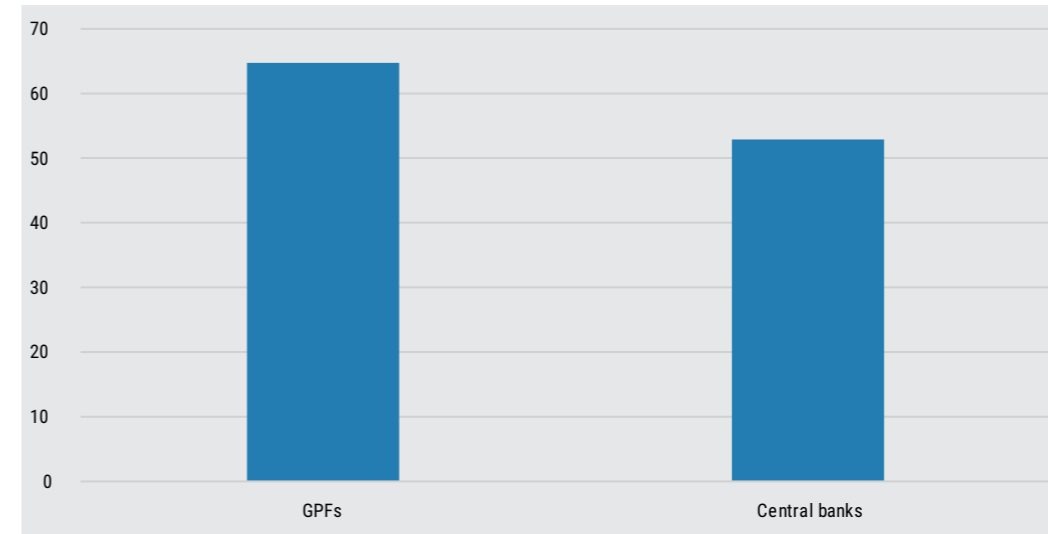




**1.1: Global economic slowdown and inflation key concerns for GPFs over the short term**

What are the most important economic challenges affecting your investment approach over the next 12-24 months? Share of respondents, %

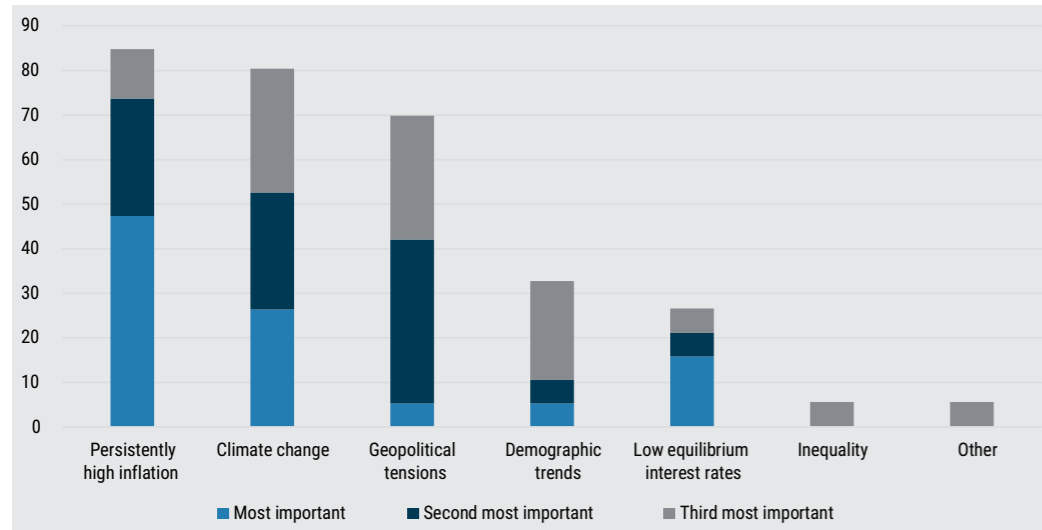
Source: OMFIF GPP survey 2022



**1.3: Two-thirds of GPFs taking more active approach in the face of challenging macro environment**

Share of respondents who report that the current economic and market volatility will prompt them to adopt a more active approach to portfolio management, %

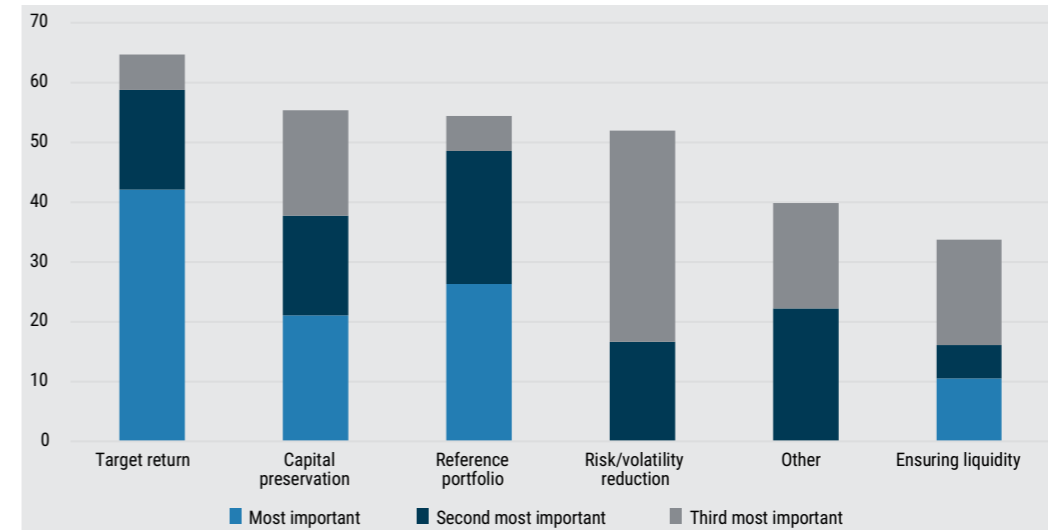
Source: OMFIF GPP survey 2022, OMFIF GPI survey 2022



**1.2: Vast majority of GPFs are concerned about persistently high inflation over medium to long term**

What are the most important economic challenges affecting your investment approach over the medium to long term? Share of respondents, %

Source: OMFIF GPP survey 2022



**1.4: Capital preservation and risk/volatility reduction increase in importance for GPFs**

What are your main investment objectives? Share of respondents, %

Source: OMFIF GPP survey 2022

growth slowdown and tighter monetary policy (26% each) as the most important macro challenges over the coming 12-24 months, while inflation was (21%) also cited as important (Figure 1.1). Altogether, 80% of respondents mentioned a global slowdown and inflation as a top three concern. The expectation of monetary conditions being tightened into a stagflation storm with accompanying geopolitical risks might lie behind the financial market volatility they also fear.

Over 80% of GPFs are concerned about inflation remaining persistently high, with 47% reporting this as the primary economic challenge impacting their investment strategies over the medium to long term (Figure 1.2). This is longer than the period that the central bank reserve managers had expressed in June, where a significant share expected inflation to fall back and return to the pre-Covid-19 levels. About a fifth (16%) of pension and sovereign fund respondents this time earmark low equilibrium interest rates

as a challenge beyond the short term, suggesting they believe currently sharp central bank monetary tightening may be limited or ultimately reversed (Figure 1.2).

**GPFs GETTING MORE ACTIVE TO CHASE RETURNS**

How is the stagflationary outlook impacting GPFs' investment objectives? And how might asset



allocations shift as a result? As recognition of and preparation for the intensifying macro challenges, most asset managers are likely to follow a more active approach, as cited by nearly two thirds (65%) of respondents (Figure 1.3). This is higher than the just over half (53%) of central bank respondents in June, again suggesting concern about market volatility and changing economies.

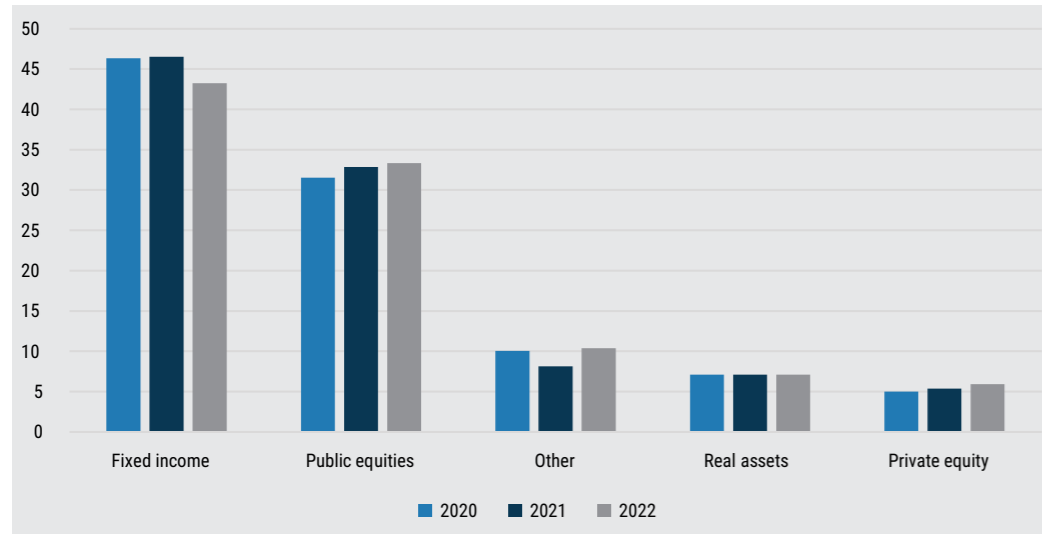
Corresponding with the trend towards more active portfolio management, achieving a target return is one of the main investment objectives for the majority of GPFs. As is capital preservation (Figure 1.4). Given the sharp sell-offs in benchmark equity markets and fixed income assets, it's no surprise that funds are having to become more selective to generate returns and keep hold of their money.

There is relatively low importance given to ensuring liquidity – only a third of respondents report it as one of their three main investment objectives, which is lower than all other factors.

Holding liquid assets may not be a priority in the good times, but it can be necessary in the bad times. This was demonstrated by the recent crunch in the UK pension system. The surge in gilt yields following October's mini-budget put some pension funds under pressure to cover positions under their liability-driven investment strategies, causing them to raise cash by selling liquid assets. Gilt markets and UK pension funds have since recovered. But one lingering effect from this episode may be a renewed focus on liquidity among GPFs to protect against times of market stress.

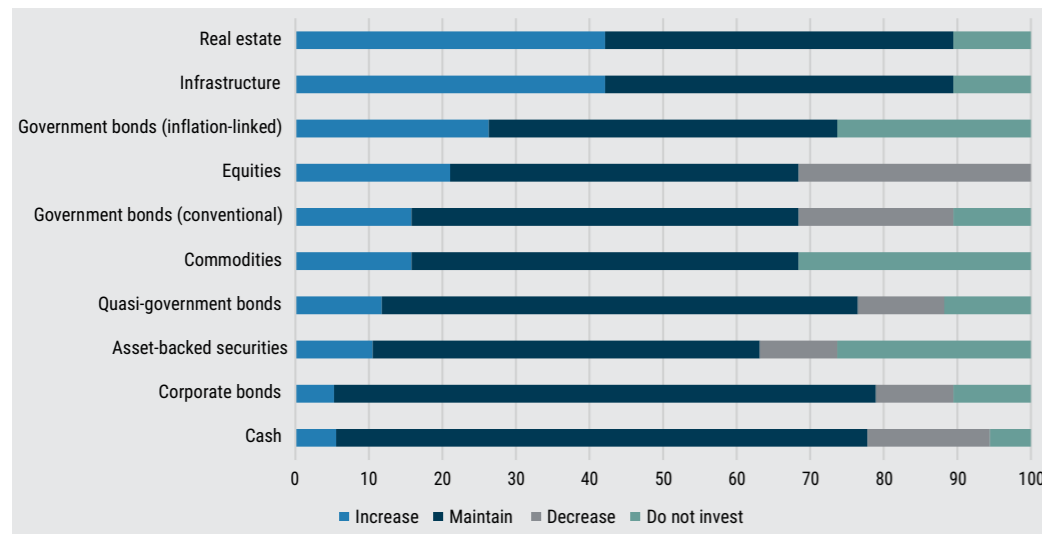
However, for now, some GPFs are willing to move away from liquid assets to generate higher returns. A net 10% of survey respondents anticipate decreasing their exposure to cash over the next one to two years. This suggests that asset managers see harm in sustained inflation and can benefit from putting cash to work. GPFs are generally looking to move into more inflation-protected, but illiquid, markets. The most





**1.5: Fixed income and public equities still comprise majority of pension funds' investments**  
 Top 50 global public pension funds' portfolio investments in the following asset classes, Weighted average, %

Source: OMFIF analysis



**1.6: Inflation-cover assets a priority for GPFs over short term**  
 Over the next 12-24 months, do you expect to increase, reduce or maintain your allocation to the following asset classes?, Share of respondents, %

Source: OMFIF GPP survey 2022

significant net increases in portfolio allocations are expected in real estate (42% of funds reporting intent to increase) and infrastructure (42%). Higher exposure to inflation-linked government bonds (26%) is also consistent with rising concerns about inflation (Figure 1.6).

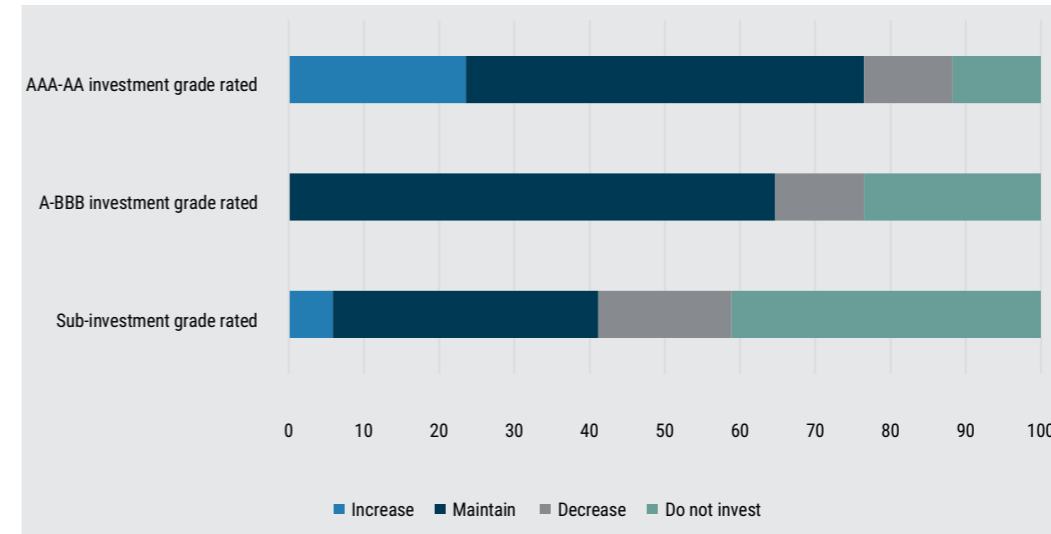
**RISK-OFF SENTIMENT PREVAILS**

Despite the hesitance to hold cash, there is evidence that GPFs are becoming more conservative. There are five main signals that confirm a far more risk-off profile than was reported in OMFIF's 2021 pension fund or 2022 central bank reserve manager surveys.

There is waning appetite to hold riskier assets. Our analysis of the top 50 global public pension funds shows that investors had been in a bullish mood heading into this year. Allocations to fixed income products declined to 43.2% of total investments, from 46.3% in 2020, while it rose to 33.3% for public equities over this time, from

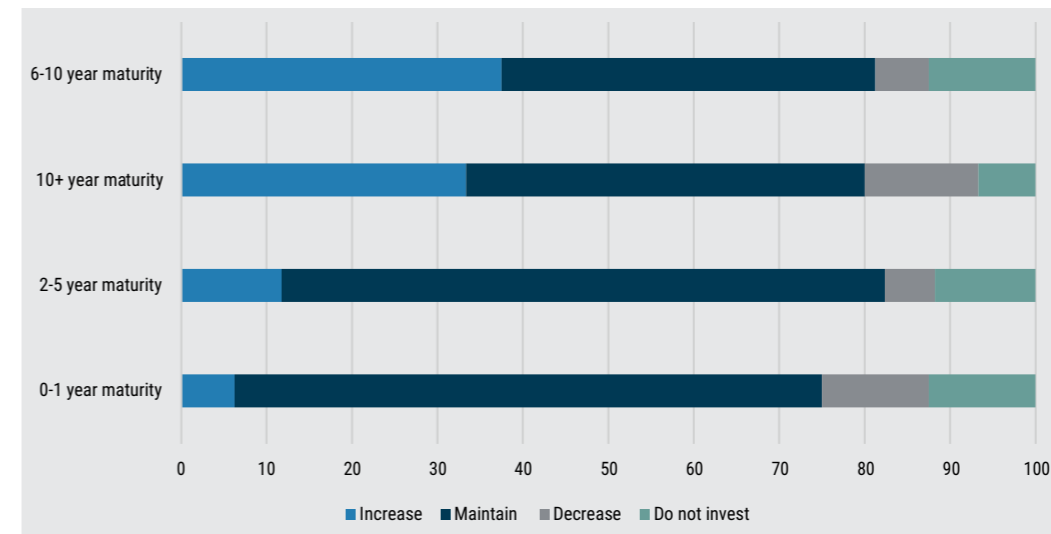
31.5% in 2020 (Figure 1.5). However, in our recent survey of GPFs, allocations to equities, while not plummeting, are expected to fall in a net 11% of funds over the coming two years. A reported 32% of funds intend to decrease their equity exposure, making it the asset class with the largest share of funds intending to reduce their holdings (Figure 1.6). This is at variance with our 2022 central bank reserve manager survey which saw respondents

“**DESPITE CONCERNS ABOUT INFLATION AND FISCAL POSITIONS, THE FACT THAT GPFs ARE WILLING TO HOLD HIGH-RATED GOVERNMENT DEBT SEEMS TO REFLECT A CONSERVATIVE APPROACH GOING INTO A WORSENING MACRO OUTLOOK**”



**1.7: GPFs anticipate a shift away from higher-risk government bonds**  
 Over the next 12-24 months, do you expect to increase, reduce or maintain your allocation to government bonds in these categories? Share of respondents, %

Source: OMFIF GPP survey 2022



**1.8: On government bonds, GPFs maintain a long-term time horizon**  
 In the next 12-24 months, do you expect to increase, reduce or maintain your allocation to government bonds in these categories? Share of respondents, %

Source: OMFIF GPP survey 2022

planning to increase (35% of central banks) or at least hold their net equity positions (46% of central banks).

There is a shift towards 'safer' fixed income products. Among respondents, net demand for corporate bonds is expected to fall back, with a 5% net decrease reported. Moreover, 17% expect to move away from perceived higher-risk, sub-investment grade and lower (A-BBB) investment-grade government bonds names. Higher (AAA-AA) rated government bonds are predicted to be the main beneficiary (Figure 1.7). Despite concerns about inflation and fiscal positions, the fact that GPFs are willing to hold high-rated government debt seems to reflect a conservative approach going into a worsening macro outlook.

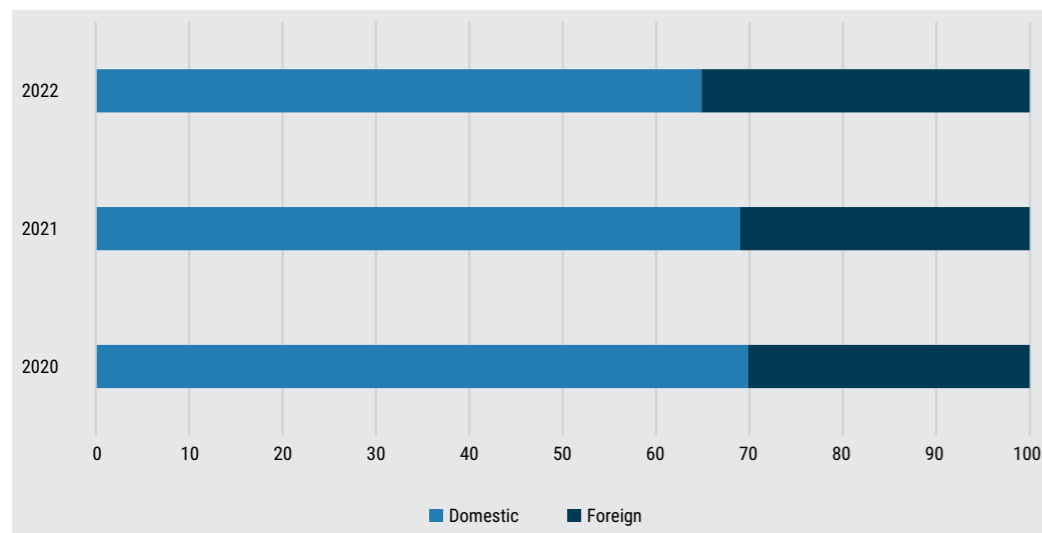
Pension and sovereign wealth funds are being drawn to longer maturity government bonds. There is a net increase of more than 20% expected for six-ten year bonds and bonds with maturities greater than 10 years, and a net decrease in

exposure to short bond maturities (Figure 1.8). This may reflect scepticism about underlying economic growth prospects as policy rates rise. This differs to the central bank reserve managers' plans in June to move towards shorter bond maturities. Presumably, reserve managers had judged early in the tightening cycle that markets' rate-tightening expectations were overdone.

Respondents' intended allocations by currency

“**THE EXPECTATION OF MONETARY CONDITIONS BEING TIGHTENED INTO A STAGFLATION STORM WITH ACCOMPANYING GEOPOLITICAL RISKS MIGHT LIE BEHIND THE FINANCIAL MARKET VOLATILITY THEY ALSO FEAR.**”

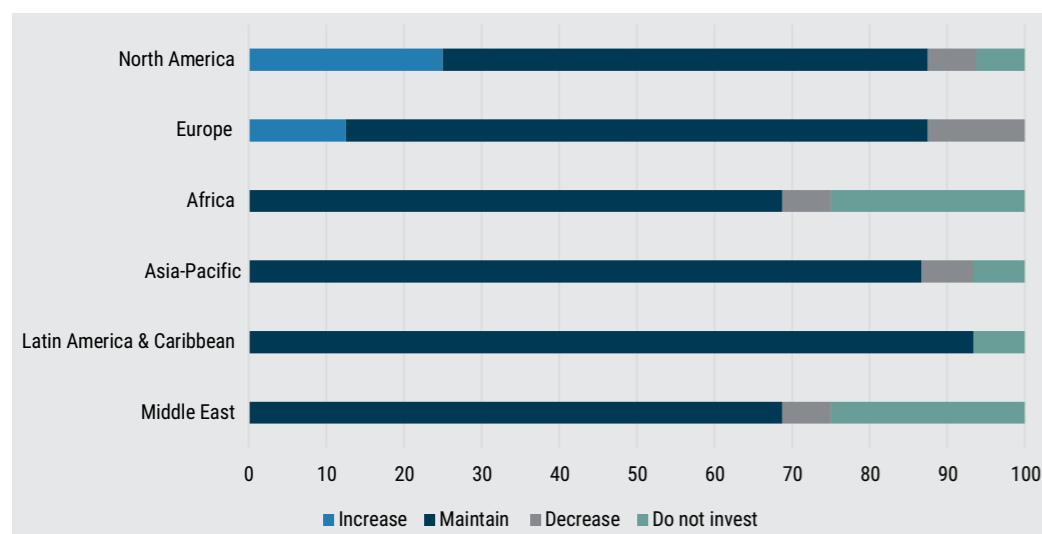




**1.9: Steady increase in holdings of foreign assets among pension funds**

Share of portfolio investments held in the following asset categories, Weighted average (%)

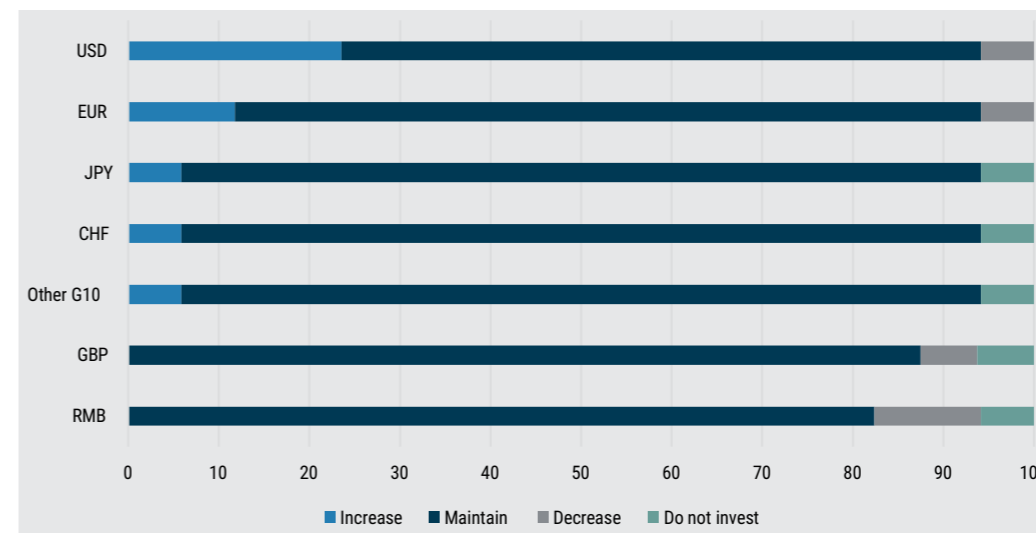
Source: OMFIF analysis



**1.10: Developed markets favoured regions among GPFs**

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

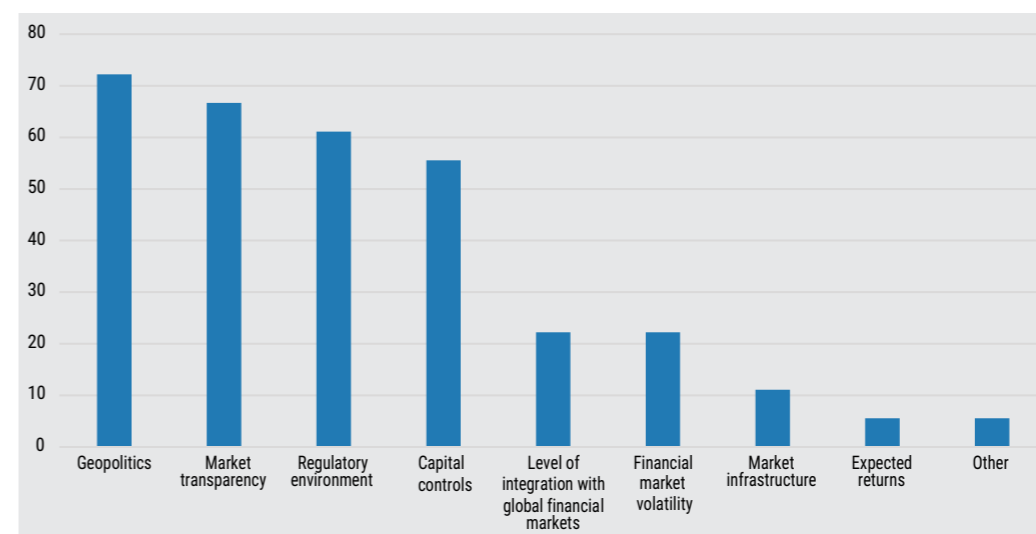
Source: OMFIF GPP survey 2022  
Note: Europe includes Russia and Turkey



**1.11: GPFs preference for safe-haven currencies**

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

Source: OMFIF GPP survey 2022



**1.12: Geopolitics, market transparency and regulation are primary concerns on China**

Which of the following factors discourage you from investing more in Chinese financial assets? Share of respondents, %

Source: OMFIF GPP survey 2022

and region seem to be consistent with a more risk averse approach. Among the biggest 50 global pension funds, there has been a steady shift towards foreign assets in recent years, increasing to 35.1% of total portfolio investments from 30.1% in 2020 (Figure 1.9). This trend looks set to continue as GPFs seek safety in deeper and more liquid markets in advanced economies. Our survey shows that funds are more willing to increase investments in North America and Europe in the coming two years, comprising an average of 41% and 24% of funds respectively. This comes at a cost to Africa, Asia-Pacific, Latin America and, perhaps surprisingly, given oil exposure, the Middle East (Figure 1.10). Taken together, this implied shift to developed from emerging markets seems to support risk-off strategies.

Consistent with this, pension and sovereign funds intend to increase their exposure to perceived safe-haven currencies. The significant majority expect to either raise, or at least maintain,



their holdings of dollar, euro, yen and Swiss franc assets (Figure 1.11). Nearly a quarter (24%) of funds report an anticipated increase in dollar holdings over the coming two years, in comparison to only 6% of GPFs reporting an intention to increase such holdings last year. This comes despite the bullish run for the dollar over the last 12 months and suggests there is little expectation among GPFs that the tide will turn against the greenback. Interestingly, one loser is expected to be the pound (6% of fund reporting a planned decrease, with the rest reporting plans only to maintain current levels), having been buffeted during the survey period by the government’s plan (since rescinded) for unfunded tax cuts.

**INCREASING PESSIMISM ON CHINA**

While these trends indicate broad-based risk-off sentiment, specific concerns about China have arisen. No surveyed GPF is looking to increase their exposure to renminbi, while 12% report a

planned decrease in the currency over the next year or two. This is a significant departure to the net 11% increase reported but GPFs in last year’s survey. And a considerable difference to central banks reserves managers, more than 30% of whom expected to increase their exposure to renminbi-based assets in OMFIFs GPI survey in June.

Exposure to Chinese assets is widespread. The vast majority (94%) of respondents surveyed hold Chinese assets; the bulk of them (83%) hold equities. Diversification needs and China’s inclusion in benchmark indices provide the main incentives to hold Chinese financial assets, rather than a positive outlook on China’s economy. This caution is backed by GPFs’ heightened concerns about geopolitics, market transparency and the regulatory environment, which are factors highlighted by a majority of respondents (Figure 1.12). For the first time, public investors now appear more defensive than upbeat on China. •



## RISING APPEAL AS TRADITIONAL ASSET RETURNS FALTER

**With returns from bonds and public equities crashing this year, global public pension funds and sovereign funds appear to be shifting towards alternative asset classes to drive higher returns. By Nikhil Sanghani**

TRADITIONAL asset classes dominate most global public pension fund portfolios. As a weighted average, fixed income and public equity allocations made up over 75% of the assets of the world's 50 largest funds. By comparison, alternative investment allocations were small, with only 5%–6% of assets invested in private equity and real estate, and less than 2% in infrastructure (Figure 2.1).

That said, there is a large divergence among countries. Just 1% of the assets of Japan's Government Pension Investment Fund – the biggest pension fund in the world – is dedicated to alternative investments. In contrast, Canadian funds generally have diversified portfolios with considerable exposure to alternative assets. Based on the eight Canadian funds within our sample, an average of 13.8% of their assets are dedicated to private equity, with a further 12.6% dedicated to real estate and 9% to infrastructure (Figure 2.2). Altogether, this totals almost \$700bn.

More broadly, private equity exposure is common across North American funds. Within our sample, 19 of the top 20 funds ranked by private equity exposure are based in North America. The Virginia Retirement System, Oregon Public Employees Retirement System and Washington State Investment Board funds top this list with around 20% of their assets in private equity. Investments in infrastructure are also dominated by North American funds. However, real estate exposure is more widespread. For instance, more than 10% of the assets of the major Australian and Dutch pension funds in our sample are comprised of real estate holdings.

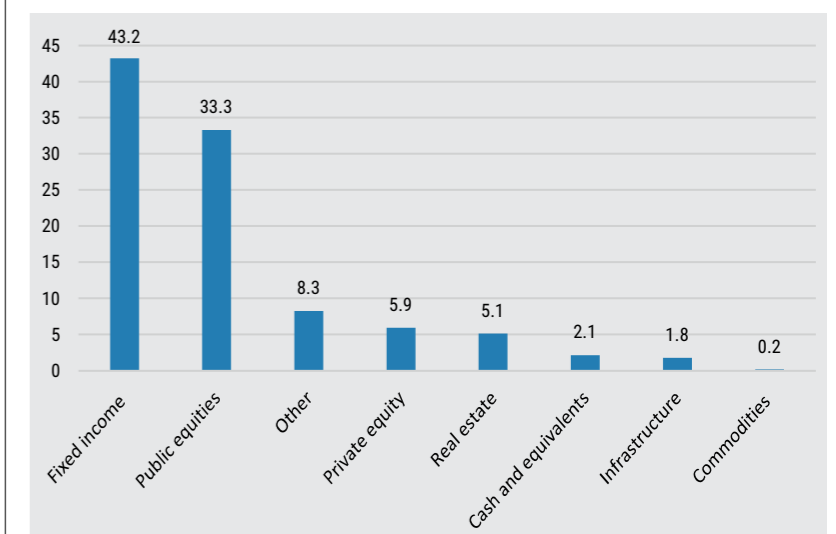
There are many factors which influence allocation towards alternative assets. Expectations of higher returns, diversification and the availability of domestic opportunities in these markets matter. Regulation is

also a key consideration, as there are legal ceilings for investing in certain assets in some jurisdictions. For example, direct investment in real estate is prohibited for public pension funds in Italy, Japan and Mexico (although indirect holdings via real estate investment trusts or shares in property companies is generally allowed).

That said, legal limits can change, as seen in South Africa. The government amended Regulation 28 of the Pension Fund Act to include a formal definition of infrastructure, with exposure to this asset class

**2.1: Traditional assets continue to dominate global pension fund portfolios**

Weighted average of largest 50 public pension funds' allocation to asset classes, %



Source: Annual reports, OMFIF analysis

limited to 45% of a fund's holdings. The regulation also notes 'the limit between hedge funds and private equity has been split. There will now be a separate and higher allocation to private equity assets, which is 15% increased from 10%.' These changes will come into force at the start of 2023, opening the door to greater investment in alternatives for South African funds.

**ALTERNATIVES' ALLURE**

Global public funds are becoming more active and moving towards safer assets to navigate the current volatile market. At the same time, though, they are willing to increase their allocation to alternative investments.

Our survey shows that almost half of GPFs intend to increase their allocation to real estate and infrastructure investments. A net 18% of surveyed

funds want to raise their exposure to private equity too (Figure 2.3). Indicative of the move towards more active strategies, relatively few funds (6%) are looking to increase their exchange traded fund holdings.

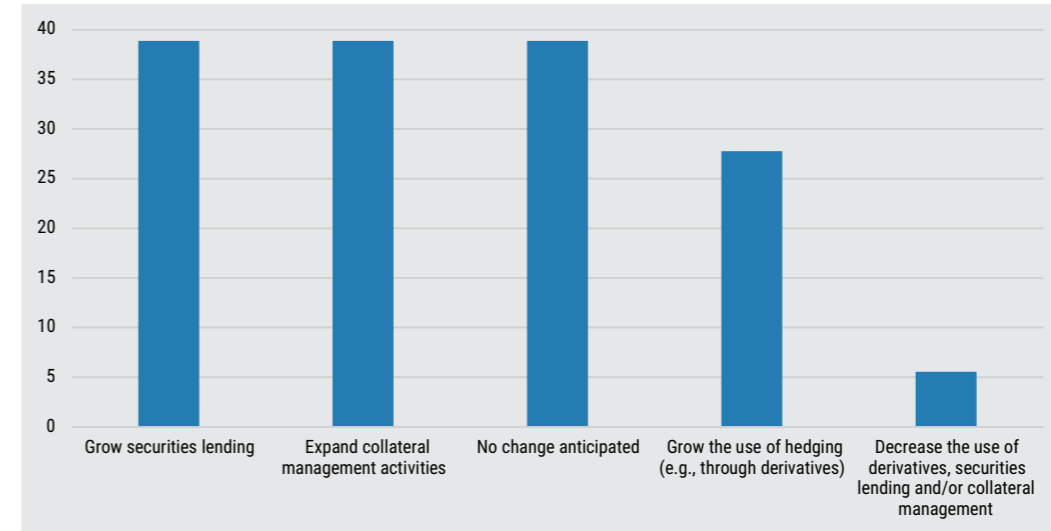
These findings point to a clear desire to 'inflation-proof' portfolios. Real estate and infrastructure provide a stable income stream in real terms over the long run and have historically had a weak correlation with the returns derived from traditional fixed income and equities. Private equity can also offer greater returns by allowing funds to take advantage of an illiquidity premium.

The benefits of these alternative assets have been demonstrated this year. In its 2022 third quarter investments report, the Virginia Retirement System stated that 'in the last 12 months, public stocks and bonds were down mid-to-high teens (-19.4% and -14.9%, respectively). In that same period, credit was mildly negative at -1.4%, while real assets and private equity were up 20.0% and 8.7%, respectively.' Given this stark outperformance and lingering concerns among GPFs about inflation (see Chapter 1), it's no surprise that there is appetite to move further into real assets and private equity.

Alternative assets also provide an avenue to bolster environmental, social and governance investments. For instance, in its 2021 annual report, Australia's Aware Super stated that it has roughly \$1bn committed to renewables and low carbon technologies, with more than \$600m committed to key-worker affordable housing too. Our survey suggests this is a broader theme. A handful of respondents mentioned they have existing investments in renewable infrastructure and one participant stated an intention to increase investments in social housing over the next 12-24 months.

**ALTERNATIVES COME WITH RISKS**

While the dire performance of traditional assets this year may prompt a shift towards alternative assets, this is not without risks. Chasing higher returns in relatively illiquid markets gives funds less flexibility



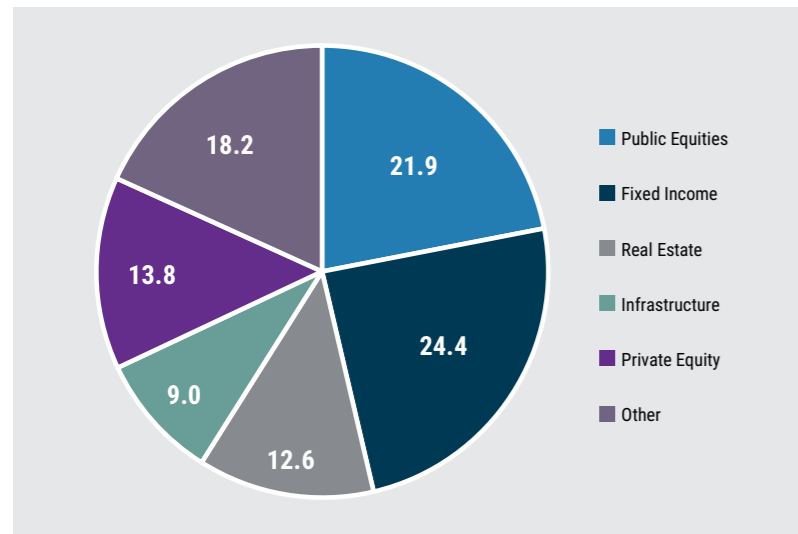
**2.4: Many GPFs willing to grow securities lending and collateral management activities**

Which of the following internal yield enhancing activities are you considering over the next 12-24 months? Share of respondents, %

Source: OMFIF GPP survey 2022

**2.2: Major Canadian pension funds have significant exposure to alternatives**

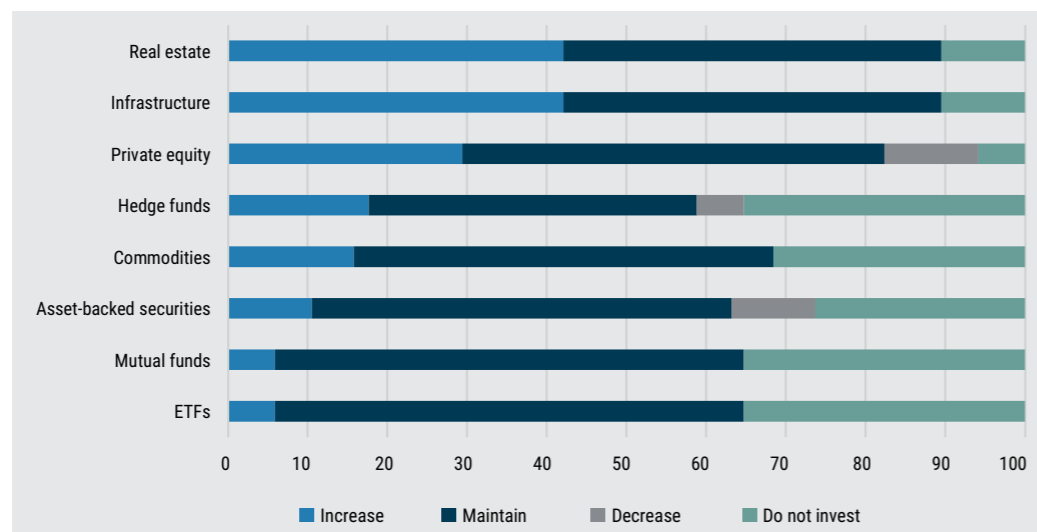
Simple average of largest Canadian public pension funds' allocation to asset classes, %



Source: Annual reports, OMFIF analysis

**2.3: GPFs looking to add to real estate, infrastructure and private equity holdings**

Over the next 12-24 months do you expect to increase, reduce or maintain your allocation to the following assets classes? Share of respondents, %



Source: OMFIF GPP survey 2022

to change their strategies in future, as it can be slow or increase the cost of exiting from investments in private equity, real estate or infrastructure. Moreover, the recent UK pension crisis suggests it is necessary to hold liquid assets as a way to instantly raise cash in bad times. This would become more difficult by investing greater sums in alternative assets.

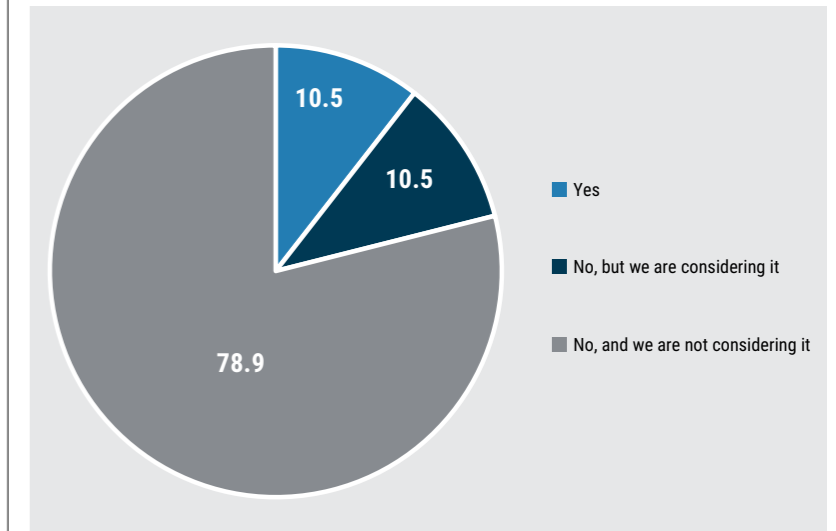
The episode in the UK also highlighted the risks in using derivatives, as it left British pension funds overly exposed to a spike in gilt yields. But using financial instruments to manage liabilities and/or bolster returns remains common among GPFs. In our survey, only 5% of respondents stated they will decrease their use of derivatives, securities lending or collateral management in the next 12-24 months. In contrast, over a quarter expect to grow the use of hedging (including through derivatives). And close to 40% intend to expand collateral management activity as well as grow securities lending (Figure 2.4).

Another potential risk is the lack of transparency. In public markets, listed companies are forced to disclose their financial information on a timely basis and there is regulation ensuring brokers clearly provide a breakdown of fees, returns and asset values. The same is not necessarily true in private markets. GPFs rely on their internal teams and external consultants to conduct robust due diligence to garner the necessary information to make investments in private markets.

But there will inevitably be times when data gaps persist and investments turn sour. One recent example is the Ontario Teachers' Pension Plan's \$95m investment in FTX – the failed cryptocurrency exchange – which will be written off. It was a similar story with another Canadian pension giant - Caisse de Dépôt et Placement du Québec – which wrote off its \$150m stake in crypto firm Celsius earlier this year. Both of these investments are merely a rounding error compared to the vast assets of OTPP and CDPQ (more than \$250bn each). But these examples demonstrate the risks that come from trying to pick

**2.5: Interest among a small section of GPFs in digital assets**

Do you invest in digital assets? Share of respondents, %



Source: OMFIF GPP survey 2022

winners in private markets where complete data on firms' accounts may be lacking.

They also speak to the specific risk of investing in digital assets or companies related to digital assets. No respondent to our sister survey of central bank reserves managers reported they were invested in digital assets. That is unsurprising given the volatility of digital assets and reserves managers' focus on capital preservation. But there is some interest among GPFs – 10.5% of survey respondents are invested in digital assets with the same share stating that they are considering it. Clearly, though, most funds remain sceptical, with almost 80% not considering investing in digital assets (Figure 2.5). One respondent stated that 'they are banned in the investment regime' and another mentioned that the 'drivers of return remain unclear to us'. •

3. SUSTAINABLE TRANSITION



# GPFs LEADING THE WAY, BUT A LONG WAY TO GO

Global public funds go beyond central banks on sustainable practices, but data gaps remain a challenge. By Taylor Pearce

GLOBAL public funds are actively adapting their strategies in the face of climate-related risks. Survey respondents reported heightened concerns over climate change and they continue to go further than central bank reserve managers in implementing sustainability practices. They are also looking to increase their holdings of environmental, social and governance assets and invest in green technologies and renewable infrastructure, rather than divest from fossil fuels. However, there is some evidence of backsliding on sustainable practices, as data remains a key barrier to further ESG adoption.

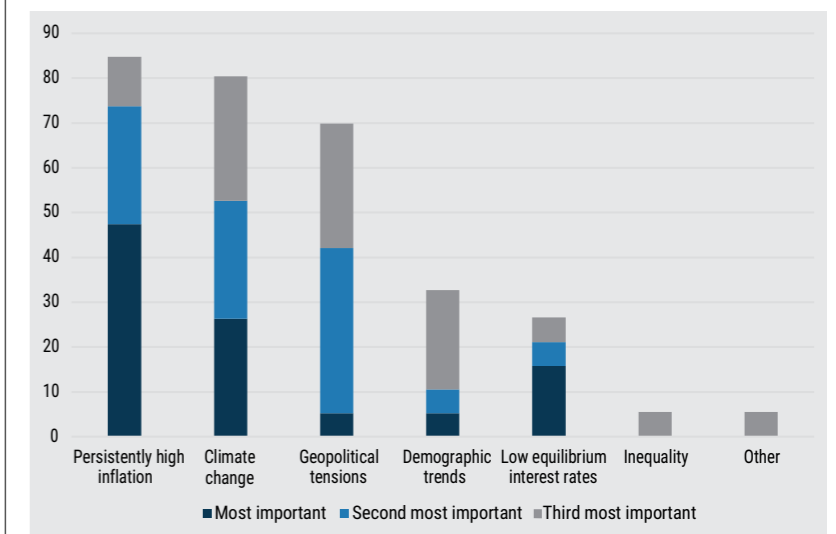
### CLIMATE CHANGE CONCERNS AND CAUTIOUS OPTIMISM ON ESG ASSETS

The economic and financial risks associated with climate change are becoming increasingly acute, making environment, social and governance considerations particularly pressing for GPFs due to their long-term time horizons. In this year's survey of pension and sovereign funds, climate change was the second most reported major concern over the medium to long term, after inflation. Most funds (80%) reported climate change as within their top three medium to long run concerns, making it a more important factor than geopolitical tensions (70%), demographic trends (32%) and low equilibrium interest rates (27%) (Figure 3.1). The significance of climate change for GPFs is reflected in one survey respondent's comments, which noted, 'climate change

physical and regulatory risks are very much on our minds. Pension fund clients continue to restrict their policies to avoid causing climate damage through their investments, and to reduce climate risk exposure.'

**3.1: After inflation, climate change is seen as GPFs' most important concern over medium to long term**

What are the most important economic challenges affecting your investment approach over the medium to long term? Share of respondents, %



Source: OMFIF GPP survey 2022

Such acute concern over climate impacts is not uniform across all public investors. The percentage of GPFs concerned about climate change is comparatively higher than central banks, only 16% of which, when asked the same question in OMFIF's 2022 Global Public Investor survey, saw an increased focus on sustainable investments as one of their top three concerns.

The concern over climate change appears to be feeding into GPFs' investment decisions. In this year's survey, 76% of GPFs reported investing in ESG assets. And this share is growing: while the number of funds with green bond holdings increased modestly (up to 59% from 56% last year), the jump in green/sustainable equities stands out: the share of funds holding green equities increased to 59% from 38% last year (Figure 3.2). The Japanese Government Pension Investment Fund, once again the largest pension fund in the world with \$1.7tn under management, adopted an ESG index for Japanese equities in March of this year, exemplifying this trend.

This upward trend in ESG asset adoption looks set to continue. Most funds which responded to the survey reported that they are looking to increase exposure to green investments over the next 12-24 months (Figure 3.3). GPFs are particularly looking to increase their exposure to green bonds (50%) and green/sustainable equities (44%). For the latter, this share is lower than last year (66%), which may indicate larger number of funds have already increased their allocation to these ESG assets.

Meanwhile, compared to the previous year, more funds are looking to invest in 'other sustainable bonds', including bonds linked to sustainable development goals and social bonds, as well as 'other' sustainable investments. There was a neutral outlook for sustainable exchange traded funds, with a mix of those increasing (17%) and – for the first time – a small minority looking to decrease their exposure to sustainable ETFs (8%), resulting in a near net constant for this asset class (Figure 3.3). Overall, despite the general flight to safety phenomenon highlighted in Chapter 1, survey data suggest that GPFs are still cautiously optimistic on the outlook for ESG assets.

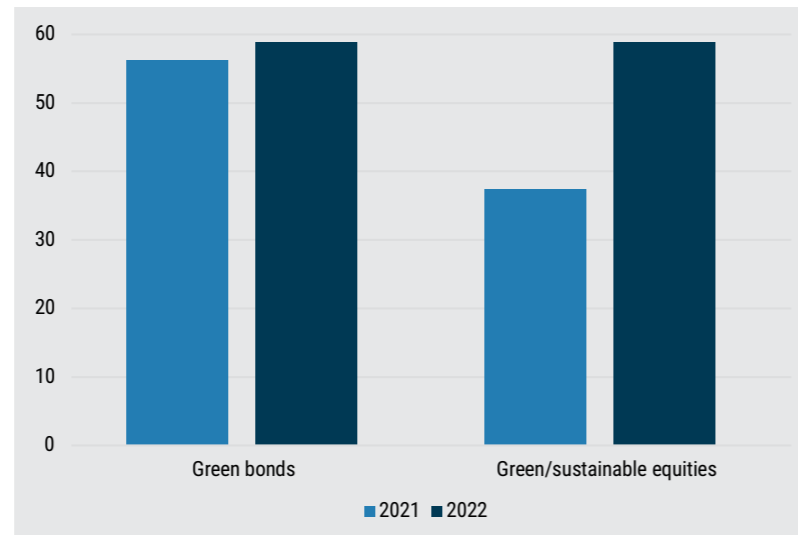
**FUTURE OPPORTUNITIES: SUSTAINABLE ALTERNATIVES**

Alongside ESG assets, there is broad-based interest among GPFs to finance the green transition through new and innovative projects. A majority (84%) of surveyed GPFs intend to invest in renewable industries (Figure 3.4). Several GPFs reported investing in 'growth capital focused on climate change solutions,' 'real assets like renewables' and 'renewable infrastructure'. In this way, GPFs appear to be linking their interest in alternative investments (as explored in Chapter 2) with the sustainability agenda.

Only half as many surveyed funds are looking to reduce their investments to fossil fuel industries (42%). Our survey revealed anecdotal cases of GPFs'

**3.2: Increase in GPFs' green bond and sustainable equities holdings**

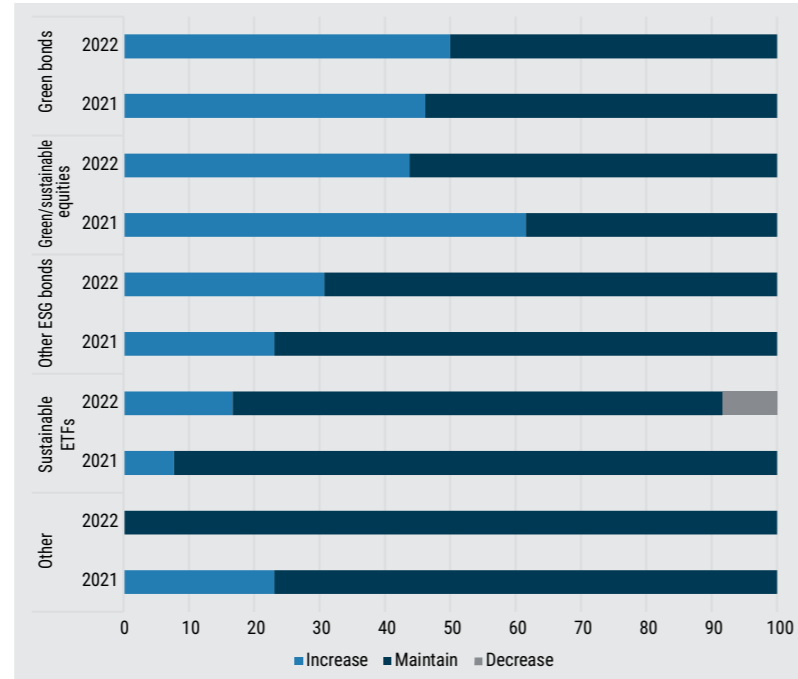
Which sustainable assets do you invest in? Share of respondents, %



Source: OMFIF GPP survey 2022, OMFIF GPI survey 2021

**3.3: Broad interest to increase exposure to sustainable assets, particularly green bonds**

Do you plan to increase, reduce or maintain your allocation to the following sustainable assets over the next 12-24 months? Share of respondents, %



Source: OMFIF GPP survey 2022, OMFIF GPI survey 2021

Note: 'Maintain' includes 'Do not invest'.

**84%**  
The vast majority of surveyed GPFs intend to invest in renewable industries

**76%**  
Over three-quarters of surveyed GPFs are investing in ESG assets

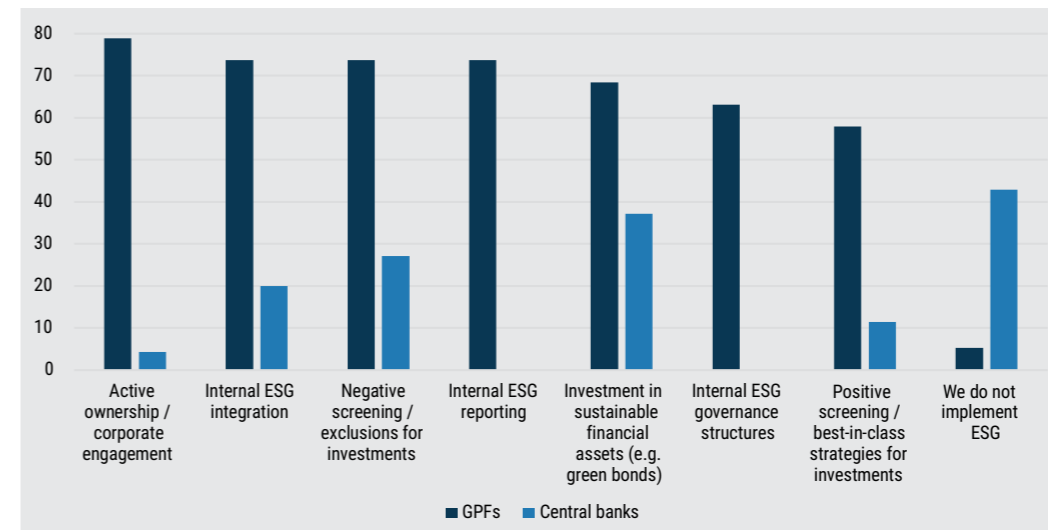
divestment, including survey respondents' comments that their 'largest client has announced complete divestment from fossil industry,' and another stating 'we have excluded companies generating more than 10% of revenues from thermal coal, as well as oil and gas companies with no strong commitment towards cleaner energy'. But this is by no means a common approach. Notably, a survey respondent from one fund remarked that they expect fossil fuel exposure as a percentage of the fund to reduce over time, but also indicated that this was not yet a strategy in their investment decisions.

Another respondent reflected that their fund would consider ESG investments 'as long as they provide the same returns as other investments and not for the sake of investing in the green transition,' a sentiment that is likely to be echoed by many funds which have not yet entered the ESG investment space. Overall, GPFs' transition plans in the aggregate seem to involve more investment in green technologies than disinvestment from fossil fuels – if there are positive prospects for returns.

**GPFs LEAD THE WAY ON ESG PRACTICES**

Our survey found that this year, once again, GPFs generally surpass central banks across ESG practices and strategies. This includes active ownership and corporate engagement, internal ESG integration and reporting, negative and positive screening, and internal ESG governance structures. One survey respondent went as far as to say that 'ESG is integral to every investment decision,' although another reported that it is still in the exploration stage of strategies and tools for integration. Even so, only 5% of GPFs reported not implementing any form of ESG practices, compared to 43% of central banks in OMFIF's survey earlier this year (Figure 3.5). Notably, the share of GPFs implementing ESG practices increased across all categories from the previous year (Figure 3.6).

One example of a major pension fund recently



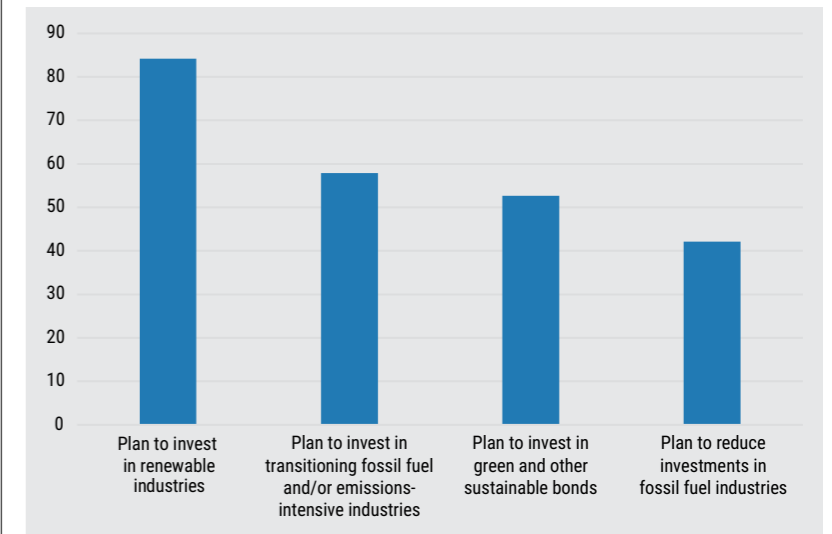
**3.5: Across all categories, a greater share of GPFs engage in ESG practices than central banks**

In which of the following ways do you implement ESG criteria? Share of respondents, %

Source: OMFIF GPP survey 2022, OMFIF GPI survey 2022

**3.4: Share of GPFs planning to invest in renewables is twice that of those aiming to divest from fossil fuels**

How is the green transition affecting your investment plans? Share of respondents, %



Source: OMFIF GPP survey 2022

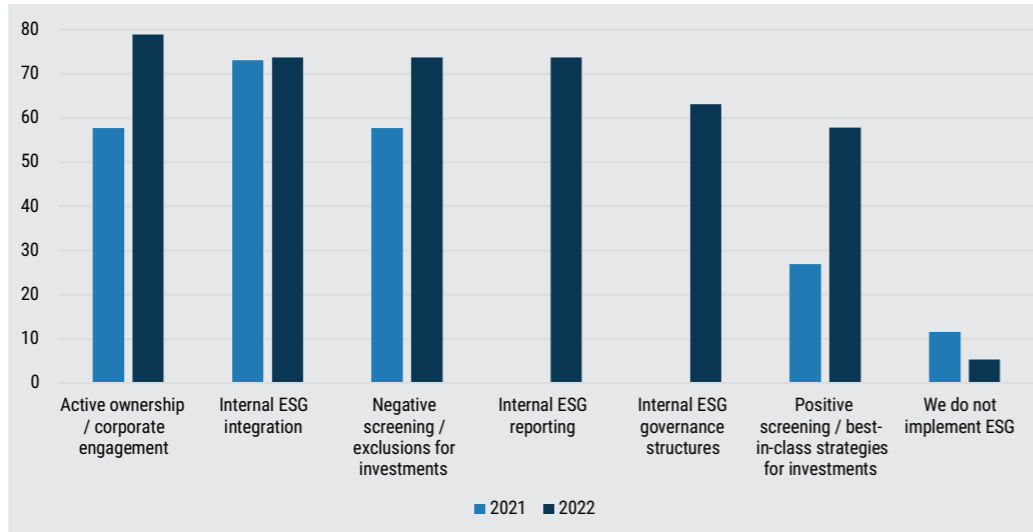
adopting ESG practices is the Investment Management Corporation of Ontario. This year, IMCO identified interim targets for emissions reductions to achieve their commitment to a 'net-zero emissions portfolio by 2050 or earlier'. IMCO's annual report stated: 'Starting in 2022, we will produce a dedicated report that describes ESG in our investment and corporate processes, summarises our sustainable investments, and discusses our stewardship activities.' Other North American funds are now moving forward with the ESG agenda. In response to the Investment Equity Law signed into law by the governor of Massachusetts in January 2021, the Massachusetts Pension Reserves Investment Management Board has 'create[d] an enhanced pathway for diverse investment managers and vendors'. The PRIM

**3.6: Share of GPFs implementing ESG practices increases across all categories from previous year**

In which of the following ways do you implement ESG criteria? Share of respondents, %

Source: OMFIF GPP survey 2022, OMFIF GPI survey 2021

Note: Internal ESG reporting and internal ESG governance structures not included as option in 2021.

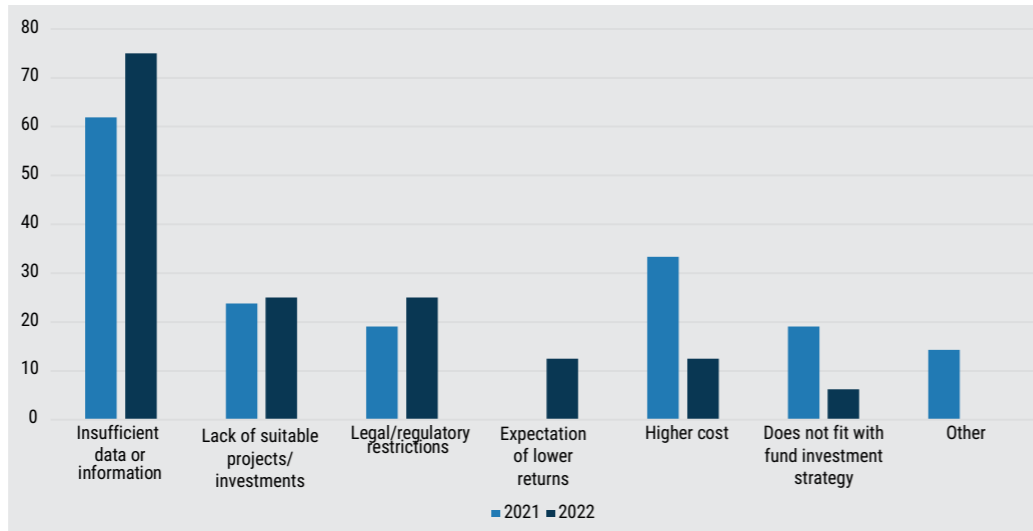


**3.7: Insufficient data still largest barrier for GPFs to further ESG adoption**

What are the main barriers to ESG adoption/further integration in your portfolio? Share of respondents, %

Source: OMFIF GPP survey 2022, OMFIF GPI survey 2021

Note: 'Expectation of lower returns' not included as option in 2021. 'More complex than traditional asset classes' not included as option in 2022.



Board has also been recognised as the first founding member of an initiative in collaboration with the Massachusetts Institute of Technology’s Sloan School to create more reliable and transparent ESG data and benchmarks for investors. These are promising initiatives coming from a region which has historically been slow to take up ESG considerations.

Another stand out case is the UK-based University Superannuation Scheme, which has been reporting its exposure to emissions and transition plan in line with the Financial Stability Board’s Task Force on Climate-related Financial Disclosure guidance since 2018 (which the UK Department of Work and Pensions made mandatory for large pension funds in 2021). According to the fund’s 2022 TCFD report, ‘By all [funds] following the same reporting structure, it is easier to compare our efforts to address climate change.’ This is working to close data gaps within the financial industry and across jurisdictions (see Chapter 5).

**ESG DISCLOSURE AND DATA CHALLENGES**

For now, though, the lack of international standardisation of ESG practices remains an issue. This may help to explain the wide range of reported ESG practices among GPFs. A number of US pension funds, for example, list negative screening on investments in the tobacco industry, gun manufacturers and/ or Iran under ESG practices – none of which would be captured

within, for example, the European Union’s Taxonomy on Sustainable Activities. Regulatory initiatives such as the TCFD and the EU’s Sustainable Finance Disclosure Regulation may provide a baseline for potential development of international or cross-jurisdictional standards. But, for now, mandatory disclosures of ESG activities and risks, as well as standardisation of what counts as ‘sustainable’ investments, are lacking.

This may be feeding into information challenges. Data continues to be the biggest barrier for the further incorporation of ESG practices and strategies among GPFs. The share of funds reporting insufficient data or lack of information as a hindrance to ESG adoption increased to 75% of funds from 62% in 2021 (Figure 3.7). An increase in the share of funds reporting data paucity as a barrier to ESG is also consistent with OMFIF’s GPI survey of central bank reserve managers. However, when considered alongside a smaller share of funds reporting higher costs and/or ESG going against their investment strategies as compared with last year (falling by 20 and 13 percentage points respectively), this could be evidence of a greater share of funds looking to move into the ESG space.

For more funds to continue to move in the direction of sustainable investments and practices, ESG integration and sustainable transition plans will be crucial, which – without regulatory measures which bridge data gaps – can be difficult barriers to entry, especially for smaller funds. •

OPINION



**REGULATORS AND CENTRAL BANKS WON’T SOLVE CLIMATE CHANGE ON THEIR OWN**

**Political will and carbon pricing needed to stop the world from warming, writes Øystein Olsen, former governor of Norges Bank and member of OMFIF’s advisory council**

THE earth is getting warmer. Climate change will lead to more extreme weather events, such as droughts and floods, which can destroy crops, buildings and infrastructure. Measures to curb global warming will affect the structure of the economy. The goal of the Paris agreement is to limit global warming to two degrees celsius and preferably no more than one-and-a-half degrees. To achieve this, greenhouse gas emissions must be cut sharply. A number of countries have committed themselves to reducing emissions markedly compared to 1990 levels by 2030, aiming at low-carbon economies by 2050. Achieving this goal requires an economic restructuring – through new instruments, changes in preferences and technology.

Climate change and the transition to a low-carbon economy will be one of the biggest challenges for companies and investors over the years to come. Borrowers who are unable to cope adequately with these changes will pose risks to the banking sector.

Faced with climate-related financial risks of uncertain implications, regulators are setting expectations and prescribing requirements for the disclosure of climate-related financial information. An important initiative to promote more effective corporate climate disclosure to support investment decisions is the Task Force on Climate-related Financial Disclosures. The TCFD encourages disclosure on how companies consider climate change factors in their governance, strategy and risk management. It has played a pivotal role in promoting more standardised corporate climate disclosure and has led to a series of regulatory developments at a global scale. In 2020, New Zealand became the first country to implement mandatory disclosures by financial institutions in line with TCFD recommendations. The UK government announced its intention to make TCFD-aligned disclosures mandatory across the economy by 2025.

Despite risks to companies and investors, climate change also provides economic opportunities. Some companies are exploring ways to strengthen their

competitive position or develop products to access untapped market opportunities. Companies can also realise efficiency gains and cost reductions by increasing resource productivity, reducing energy consumption and strengthening supply chains to minimise climate-related disruptions. Companies also have the opportunity to invest in adaptation measures to make themselves more resilient to climate change.

Although the economic and financial impacts of climate-related events are becoming more evident, opinions differ on the extent to which markets are already pricing climate risks and under what conditions they can be expected to do so. There is a lack of sufficient evidence to claim that climate risk is systematically mispriced. This creates dilemmas for regulators. On the one hand, there is a need to ensure climate risks are being sufficiently addressed. On the other hand, if there is really not much that regulations could add to what the market already knows, there is an obvious danger of regulations being either excessive or misplaced.

Climate change is a global challenge that political authorities must first and foremost meet with instruments other than those available to central banks and regulators. Over time, carbon pricing is the only route forward to combat global warming. Central banks and supervisory authorities may, within their mandates, promote financial stability by ensuring that the financial sector includes climate risks in their assessments, communicates relevant information and ensures that all risks are backed by sufficient capital. •



**CLIMATE CHANGE AND THE TRANSITION TO A LOW-CARBON ECONOMY WILL BE ONE OF THE BIGGEST CHALLENGES FOR COMPANIES AND INVESTORS OVER THE YEARS TO COME**



## FINANCING THE GREEN TRANSITION IN ASIA

**Supporting a more sustainable model will need united effort from multiple stakeholders, writes Simon Ong, global head of financial institutions group at DBS Bank**

PENSION funds are leading the drive among institutional investors towards sustainable investment. The assets under management of the largest 300 pension funds globally stood at \$23.6tn in 2021. Of this, Asia Pacific comprises 25.5% of AUM, having registered 8% annualised growth between 2016 and 2021.

Given their sheer weight and strong growth, pension funds can steer global institutional investment. Pension funds have increasingly aligned themselves with the sustainability agenda and supported the green transition. Green and transition taxonomies in Asia provide clear direction for pension funds to invest sustainably while mitigating the risk of greenwashing.

As macroeconomic headwinds gathered, a greater share of institutional investors is partaking in sustainable investing, increasing to 89% in 2022 from 76% in 2021. Moreover, 44% of institutional investors are considering how to incorporate climate or sustainability within their asset allocations, while 24% already do. Across regions, a larger share of investors in Asia (72%) prioritise broader environmental considerations compared to those in the Americas (53%) or Europe, the Middle East and Africa (48%).

Mitigating risk is one of the key reasons for this mindset change. But there is urgent action required to support the green transition. This is an area in which pension funds are leading the change.

The green transition push is seen across financial markets, with bond issuers and lenders looking to facilitate investments in clean technologies and decarbonisation. This is now a core strategy at Singapore-headquartered DBS Bank.

As one of the largest lenders in Asia, DBS is intimately familiar with the economic environment its clients operate in and mindful of the nuances involved in striking the balance between economic growth and returns, and sustainable outcomes. DBS provides a gateway for institutional investors – that may not be particularly familiar with Asia – to access the ESG investment and lending opportunities in the region. In addition to direct financing using its balance sheet, via ESG bonds, DBS aims to also unlock institutional investors' balance sheets and channel more capital market financing towards sustainable and climate-resilient projects and businesses.

For the first ten months of 2022, DBS has helped clients raise over S\$24bn in funding for various ESG purposes, a 26% year-on-year growth over the same period in 2021, in what has been an unfavourable year for bond issuances characterised by particularly challenging macroeconomic conditions.

In the past five years, the bank has helped its clients raise about S\$65bn in funding via ESG bond issuances at a CAGR of about 55%. Notable transactions include raising S\$2.4bn on a 50-year transaction for the Singapore government in the inaugural Singapore sovereign green bond issuance, which also marks a milestone for being the longest-dated green bond ever issued by any sovereign entity; assisting the State Grid International Development in its inaugural offshore green bond issuance of S\$350m; and helping Greenko tap the international green bonds market to raise S\$750m for its operations.

Additionally, DBS published its sustainable and transition finance framework and taxonomy in 2020, which forms the bedrock for the bank to engage with clients who are furthering their sustainability agenda. In May 2021, DBS partnered with Singapore Exchange, Standard Chartered and Temasek to set up Climate Impact X, a global exchange and marketplace for the trading of tokenised high-quality carbon credits.

Separately, DBS is engaging with clients to help them decarbonise their operations through its lending. The bank set decarbonisation targets for seven sectors – power, oil and gas, automotive, steel, aviation, real estate, and shipping. Data coverage targets have also been set for two sectors – food and agribusiness, and chemicals – paving the way for future emission reduction targets.

Responsible investing in Asia will be driven by a regulatory push on environmental and social objectives, and a strong focus on sustainable finance. Governments in the region are accelerating and intensifying efforts to achieve net zero goals, which support the need for climate financing.

Supporting the green transition will need united effort from multiple stakeholders. A combination of technological innovation, business willingness and supportive government policies will help its acceleration. Driving these changes will be institutional investors, including pension funds. •



# More about being better tomorrow, less about being the best today.

**What we do for you tomorrow needs to be better than what we do for you today.**

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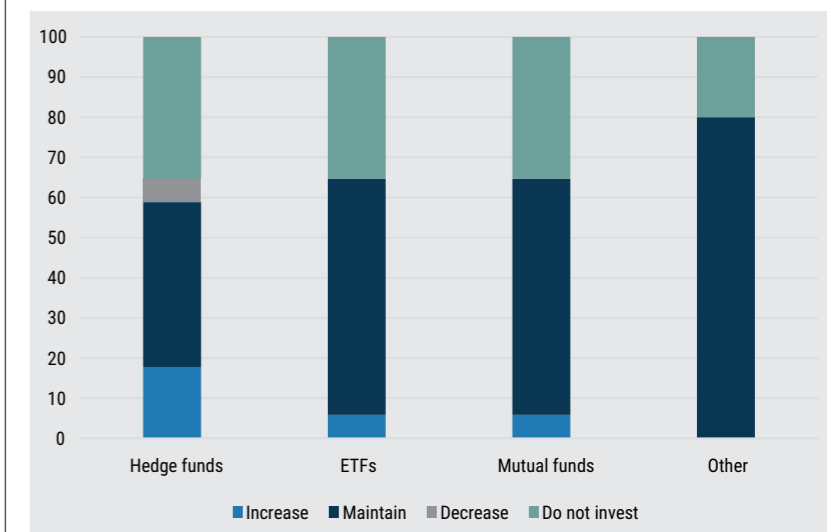
## GLOBAL PUBLIC FUNDS WEIGH UP OUTSIDE ASSISTANCE

**External managers are helping to diversify and navigate complex markets.**  
 By Julian Jacobs

THIS year’s survey results indicate that global public funds use external managers largely to allocate funds to foreign markets – particularly equities. Correspondingly, GPFs cite diversification and accessing new complex asset classes as the primary reason for using external managers.

Amid a period of uncertainty, GPFs appear to be leaning towards a greater use of external partners. GPFs participating in this year’s survey dedicate an average of 4% of their holdings to mutual funds, 1.5% to hedge funds and around 10% to other institutions, such as client-specific partners. While this average is small, there is significant variation – for instance one fund is dedicating 55% of its assets under management to mutual funds. Respondents have also indicated that they plan to move towards a greater use of hedge funds and mutual funds too (Figure 4.1). This may serve as a way for GPFs to better-preserve capital and generate returns amid a period of market volatility.

**4.1: Planned movement towards hedge funds and mutual funds**  
 For which of the following reasons do you employ external managers?  
 Share of respondents, %

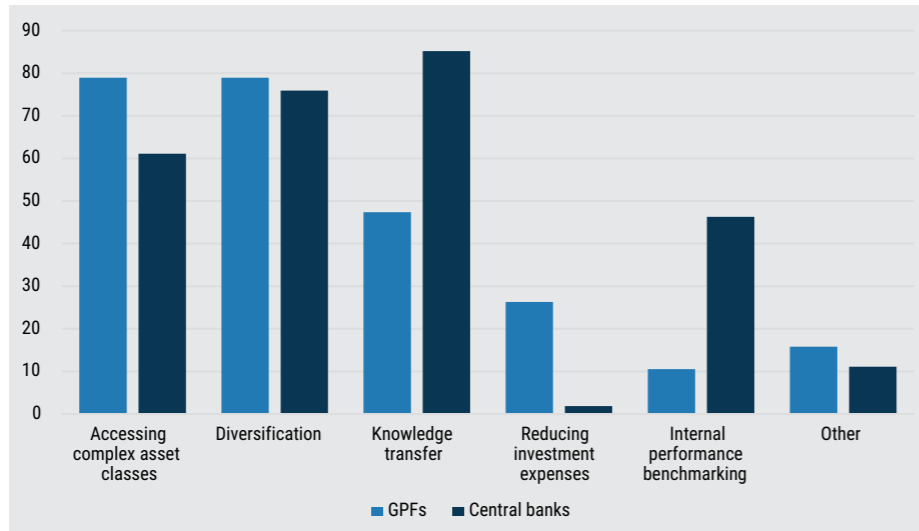


Source: OMFIF GPP survey 2022



**4.2: Global public funds use external managers to diversify and access complex asset classes**

For which of the following reasons do you employ external managers? Share of respondents, %



Source: OMFIF GPP survey 2022

More broadly, external managers play an important role for GPFs. On average, respondents reported that external managers are responsible for 40% of their assets under management. This is compared with roughly 13% for central bank reserves managers, as reported in OMFIF’s Global Public Investor 2022. The range between funds, however, is significant. Some respondents held all their assets with external managers, but others held none.

The reasons for using external managers also differ significantly between global public investors. For central banks, the most important reason is to help with knowledge transfer (such as improving internal expertise of new markets, tools and financial products), while also providing an opportunity for central banks to benchmark their performance. For GPFs, which are driven by different investment objectives, their relationship with external managers is clearly motivated by other goals.

Figure 4.2 shows that external managers are primarily used by GPFs for diversification and accessing complex asset classes. This suggests that external managers help to plug gaps in GPFs’ resources and information, particularly for financial markets in which they have less experience or expertise. Meanwhile, only about half of pension funds use external managers for knowledge transfer (compared with 85% of central banks). Accordingly, GPFs primarily go to external managers to support portfolio allocation in cases where they have more limited resources, as opposed to using such external partnerships chiefly as an internal learning or benchmarking opportunity.

The asset classes for which external managers are primarily used vary. Figure 4.3 shows that GPFs use external managers mainly to access foreign equities (over 80% of respondents). The majority of surveyed GPFs (58%) also use them for foreign corporate bonds. In contrast, outsourcing

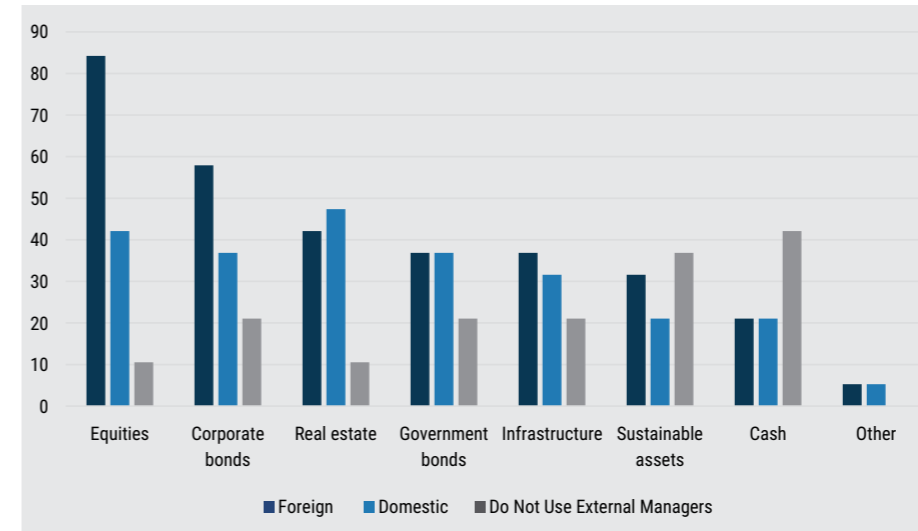
**40%**  
GPF survey respondents reported that, on average, external managers are responsible for nearly half their assets under management

**42%**  
Proportion of surveyed GPFs that cite internal administration and governance set-up as a hurdle to the introduction of new asset classes

**↑** **International Departures**

**↑** **Domestic Departures**

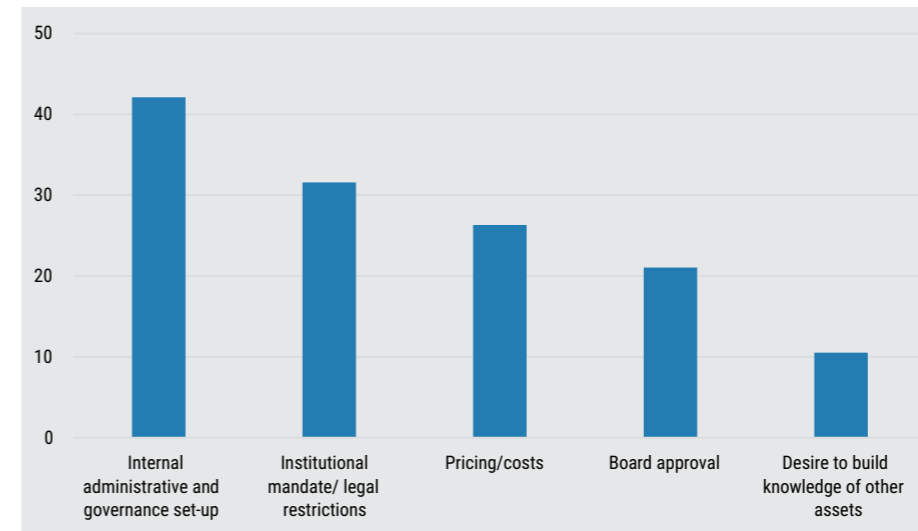
“  
ACROSS ALL ASSET CLASSES, ONLY A MINORITY OF GPFs USE EXTERNAL MANAGERS FOR DOMESTIC PRODUCTS. INSTEAD, EXTERNAL MANAGERS ARE EMPLOYED FOR FOREIGN CORPORATE BOND AND EQUITY MARKETS, WHICH MAY BE MORE DIFFICULT TO ACCESS



**4.3: External managers engaged mainly to access foreign financial markets**

If you use external managers, which asset classes do you use them for? Share of respondents, %

Source: OMFIF GPP survey 2022



**4.4: Administrative barriers to introducing new asset classes**

What are the greatest obstacles you face to introduce new asset classes? Share of respondents, %

Source: OMFIF GPP survey 2022

management of alternative assets such as real estate, infrastructure and sustainable assets is less prevalent. Across all asset classes, only a minority of GPFs use external managers for domestic products. Instead, external managers are employed for foreign corporate bond and equity markets, which may be more difficult to access. External managers can serve as a way to outsource a pension funds’ demands for diversification in markets where that fund has more limited institutional knowledge.

Beyond aiding pension funds to diversify, external managers can also help pension funds overcome some of the institutional barriers they face in portfolio management. Accessing new asset classes, for example, can be useful to improve diversification and returns. However, internal barriers are relatively high. Figure 4.4 shows that 42% of surveyed GPFs cite internal administration and governance set-up as a hurdle to the introduction of new asset classes, followed by their institutional mandate and the costs of exploring new products. GPFs can be slow moving

– often deliberately, as a matter of prudence and caution. External managers, therefore, can offer an opportunity to explore new asset classes and financial market opportunities without needing to fully invest in the internal infrastructure necessary to price and account for the risk-return of such financial products. This can allow GPFs to slowly integrate new asset classes into their portfolios.

This year’s Global Public Pensions survey shows that external managers are of great importance to pension funds for two central reasons. First, they provide valuable knowledge that can allow funds to access complex financial markets and to diversify their portfolio. Second, external managers can play a crucial role in helping GPFs overcome institutional barriers to exploring new management practices and opportunities. In a moment of global market tumult where funds are moving towards more active management and alternative investments, external managers are likely to increase in importance for GPFs, just as they have become more important for central banks. •



## OPINION



## AUSTRALIAN PENSION FUNDS EXPERIENCING WIDESPREAD AND RAPID CHANGE

**The industry is growing in size and competitiveness, writes Mark Burgess, Chairman, OMFIF Asia, and Chairman of the Investment Committee, HESTA.**

THE Australian pension system is a highly successful pensions programme which is evolving quickly. In the past three years, the industry has undertaken a major evolution in its size, composition and competitive environment.

Supported by mandatory salary contributions which will grow to 12.5% of salaries by 2025, the total pension pool of A\$3.3tn is expected to expand to over A\$6.5tn by 2030. New government regulations have increased competition between funds, resulting in a focus on peer returns and significant increases in marketing and competitive positioning.

One major trend has been the consolidation between funds with a focus on gaining scale and competitive positioning. Three large funds with greater than A\$150bn in assets have emerged, primarily from mergers which doubled their sizes. The next level sit between A\$70bn-A\$120bn and then a group of smaller funds which are also consolidating quickly. Almost all funds have been involved in merger activity.

Greater size is resulting in more exposure to global markets and unlisted asset classes. Fortunately, funds have operated in these areas for many years, although the increased global exposure and rising levels of direct and co-investments will require larger teams and careful skill selection.

The internal structure and scale of investment teams are also evolving. Many funds are internalising investment (away from the use of

external managers) looking to lower costs and gain economies of scale while increasing investment skill within their teams.

The growth in team size is altering cultures and investment practices. Studies of organisational structure note that team dynamics and cultures can alter significantly when teams rise above 100 members. Many of the funds are passing through these levels with team sizes more than doubling in recent years.

Better personnel selection and delegations are required, as well as mature management practices such as a careful approach to compensation structures and oversight of internal culture. Large teams can quickly develop to be more bureaucratic and political if not managed well. Changes at this stage of growth can lead to long-term cultural and other challenges that then become difficult to fix if they go wrong. The Australians will need to be careful in this evolution.

Having previously been largely Australian-based, some funds are developing offshore offices. Maintaining strong cultures, good communications and consistent investment processes will be challenging but also rewarding if done right. The Australians will need to be sure that they can attract strong offshore talent. Despite their size, unlike the domestic market, they will not necessarily be employers of choice once offshore, and compromises on talent selection can undermine investment practices and culture.

This is understood by most funds, but it will remain a challenge with many senior leaders not having deep experience in managing global teams. This is all occurring at a time when investment returns are more likely to be challenging and real skill will be increasingly important in driving excess returns.

Investment in technology and data solutions is



growing rapidly as funds merge teams, implement new investment practices and recognise that complex portfolios require significant data uplift and skill growth. New regulations are requiring deeper stress testing and risk analysis. Legacy systems and concern over cyber risk is seeing all funds focus on technology investment.

Asset allocators are investing in look-through risk and portfolio analysis with many funds taking a 'total portfolio approach' – a challenging objective in complex multi-asset portfolios. Internalisation of funds management also requires more trading and portfolio systems. Most in the industry have introduced ESG and climate targets and risk analysis, which also require a lot of data. Increased spending on technologies and data will be required for all funds over the next decade.

As funds grow in size, complexity can develop quickly within portfolios. This requires improved sizing of holdings and a more considered approach to post-investment management (holding assets for longer and growing specific skills in this area). Some funds are doing this well, but others will need to think more deeply about the implications of size creating complexity. Growth in holdings without clear processes to control complexity and develop strong selling and sizing skills can lead to stale and complex positions which drag on performance.

There are many more lessons for the Australian

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**SUPPORTED BY MANDATORY SALARY CONTRIBUTIONS WHICH WILL GROW TO 12.5% OF SALARIES BY 2025, THE TOTAL PENSION POOL OF A\$3.3TN IS EXPECTED TO EXPAND TO OVER A\$6.5TN BY 2030**

market. Fortunately, Australian funds tend to be innovative in their approach and consider the experiences of others around the world. But in a more competitive environment for returns and quality staff, those that are able to adapt to managing larger funds – with larger teams and complexity and often in global locations – are likely to remain near the top in performance. Those that fail risk embedding legacy mistakes which may then drag on culture and performance for many years. It is an important time in this period of evolution.

Consideration of true comparative strengths (and weaknesses) will be key. Boards and investment committees will need to evolve their thinking (including attracting stronger independent expertise onto governance bodies) if they are to achieve their competitive goals to grow their funds. This will be in an interesting study in the evolution of an important industry. •

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**INVESTMENT IN TECHNOLOGY AND DATA SOLUTIONS IS GROWING RAPIDLY AS FUNDS MERGE TEAMS, IMPLEMENT NEW INVESTMENT PRACTICES AND RECOGNISE THAT COMPLEX PORTFOLIOS REQUIRE SIGNIFICANT DATA UPLIFT AND SKILL GROWTH**

## GPFs EMBRACE NEW TECHNOLOGIES, DESPITE BARRIERS

**Pension and sovereign funds are slowly moving towards greater use of cloud computing, AI and data management tools. By Julian Jacobs**

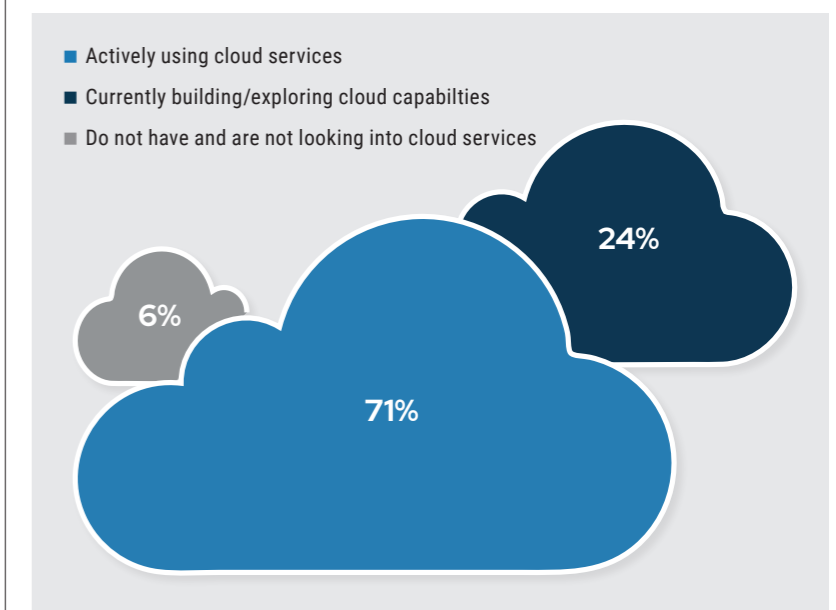
FROM robust and complex financial modelling to cloud-based storage systems, the bend of modern finance has overwhelmingly been one orientated towards greater use of algorithms, complex data processing tools and neural networks capable of storing and developing complex risk models.

Amid this advent of technological growth, some GPFs may not fully embrace these tools. Part of this may be a consequence of prudence and their long-term investment horizons – GPFs hold massive amounts of capital and do not necessarily require tools for high frequency trading. The results of the GPP survey show that pension funds are increasingly embracing digitalisation, including cloud services. Pension funds are aware of the benefits of these technologies, but they are approaching them with caution in the face of administrative barriers, security risks and high costs.

Artificial intelligence and cloud services are among the digital tools that have most transformed modern finance. According to a report by Nvidia, roughly 80% of global financial firms use AI today, and nearly all firms use the cloud. The results from this year's survey show that over 70% of GPF respondents are already using cloud services and a further 24% are exploring doing so (Figure 5.1).

### 5.1. GPFs increasingly using cloud services

What role does cloud technology play in your tech stack? Share of respondents, %

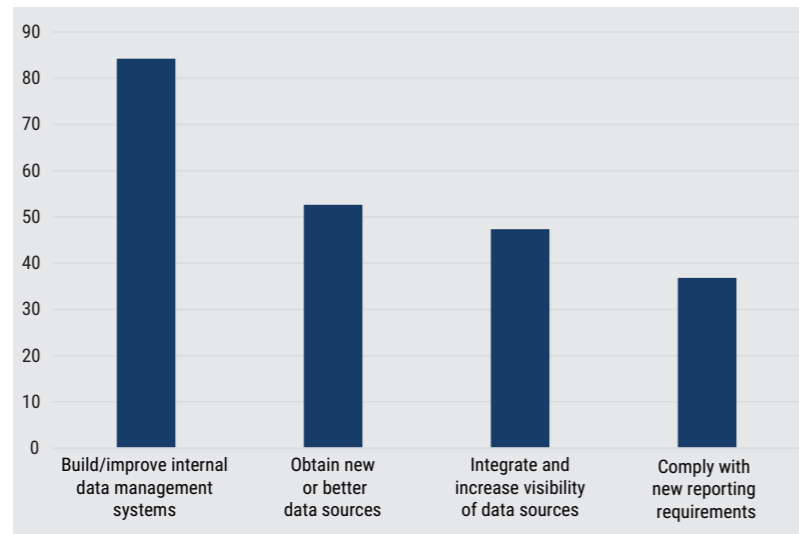


Source: OMFIF GPP survey 2022



### 5.2: Pension funds looking to improve data management systems and data sources

What are your data priorities for the next 12-24 months?  
Share of respondents, %



Source: OMFIF GPP survey 2022

Although some pension funds are hesitant to fully embrace cloud computing – one respondent said it is primarily a ‘backup’ system of data storage – pension funds were generally optimistic that improved data management systems could strengthen their practices. If embraced more widely, cloud systems could reduce the need for significant data storage, memory and computing power to run complex analyses using large quantities of information. This would allow pension funds to conduct more robust modelling, even with fewer technical resources and hardware. It would also support data centralisation, which can improve both security and the usefulness of otherwise unstructured data.

GPFs seem to recognise the importance of digital data management tools. Over 80% of respondents indicated a desire to improve their internal data management systems over the next 24 months, and over 50% sought to obtain new sources of data (Figure 5.2). Both of these interventions would help promote more efficient scanning of data, processing of information and modelling. Improved data management would allow pension funds to make more adaptive, flexible and accurate predictions of market risk and expected returns. Moreover, Figure 5.2 suggests that pension funds tend to value such bolstered data management more than

improvements to their data sources. It suggests that the key barrier GPFs face is not their access to data, but rather their ability to mobilise and effectively use such data to support their management goals.

A greater embrace of digital technology would also support movement into new asset classes. GPFs often outsource aspects of their portfolio management to external financial entities and products that have a more robust and tailored expertise. By better using available digital tools, funds might take a meaningful step towards greater self-sufficiency, even though the shift towards external products and managers appears to be growing.

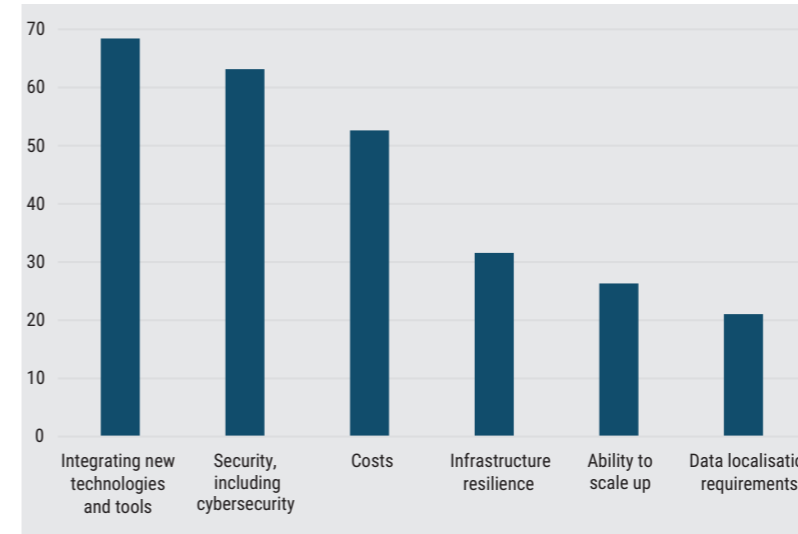
AI might also abet greater personalised support in the form of machine learning-driven chat boxes, automated online services and a better user experience. A review of a pension scheme showed that these kinds of digital solutions can increase member engagement by up to 30%. This can support greater pension fund responsiveness and provide a source of consistent data accumulation, as customer interactions can encourage direct and aggregated feedback to funds.

With greater capacity to efficiently analyse large troves of data comes a capacity to better fulfil institutional mandates and requirements. Through data management tools like AI-driven risk modelling, funds could assess an estimated 6,000 pension schemes for risk and use machine learning to develop a structure and delivery method for these plans.

More robust data management can also support adherence to ESG goals (see Chapter 3) and other sustainability objectives. Many pension funds consult external entities to develop a sense of how best to structure their portfolios in line with ESG objectives. More robust data processing could help pension funds do much of this internally. However, there remain institutional, technological and environmental barriers that make it difficult for pension funds to

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IF EMBRACED MORE WIDELY, CLOUD SYSTEMS COULD REDUCE THE NEED FOR SIGNIFICANT DATA STORAGE, MEMORY AND COMPUTING POWER TO RUN COMPLEX ANALYSES USING LARGE QUANTITIES OF INFORMATION



### 5.3: Data integration, cybersecurity and costs key barriers to using new technologies

What are your top technology challenges?  
Share of respondents, %

Source: OMFIF GPP survey 2022

fully embrace new technologies.

Figure 5.3 shows that almost 70% of respondents emphasised the difficulties that come through integrating new technologies and tools into existing systems. Pension funds do not necessarily have the disposable capital expenditure that is so often necessary to invest in the key technologies, data tools and computer scientists that ensure the swift and seamless integration of new digital solutions. The best data scientists can cost companies upwards of \$250,000 and even a static AI software could cost a pension fund as much as \$300,000. This can partly explain the emphasis among survey respondents on the barriers to innovation presented by cumbersome data system integration and high costs.

Beyond this, pension funds also shared concerns about data security. With high-profile hacks of digital finance and cloud-based systems, there are good reasons to be wary of hasty shifts in data management. If digital transitions are done poorly or without sufficient resources dedicated to ensuring security, pension funds could become quickly susceptible to hacks. This is why it is so important for pension funds to be deliberate and cautious in greater data integration.

Such caution around data solutions may not only be warranted with respect to cloud systems.

AI management systems produce erratic results and violent reactions to financial market data if not calibrated properly. Any machine learning system would therefore need to be improved and stress-tested periodically, as the cases and circumstances it interacts with grow in diversity and complexity. Continuous monitoring and improvement can be very expensive. The nature of the complexities that emerge from digital integration also explains why some pension funds are looking towards external technology partners to design and maintain their data management systems. This can be far more efficient than attempting to develop such digital solutions in-house.

Despite these barriers, there is good reason to expect pension funds’ embrace of digitalisation to grow considerably. Although there are significant challenges and costs in implementing new data management technologies, the remarkable efficiency gains and improvements to security that can be achieved through digital tools are compelling GPFs to continue modernising their systems. The time horizon of this may understandably be slower moving and cautious. Yet the results of this report strongly suggest that GPFs will work to meet the increasingly complex technological demands of modern finance. •

80%+

Over 80% of respondents indicated a desire to improve their internal data management systems over the next 24 months, and over 50% sought to obtain new sources of data

71%

Over 70% of GPF respondents are already using cloud services and a further 24% are exploring doing so



## WHAT STARTS WITH ESG DOES NOT END THERE

**The conflict in Ukraine has forced a maturation of ESG considerations but the downstream benefits of ESG analysis aren't limited to ESG-related risk management. By Adnan Memon, COO and head of data & analytics, Citi Business Advisory Services.**

OVER THE course of 2022, and especially since the conflict in Ukraine, the dialogue around environmental, social and governance investing has evolved as both investors and managers grapple with the reality of a global energy crisis and markets declining. For some, a downmarket heralds the beginning of the end of ESG, while for others, the crisis forces a healthy shaking out of the industry to remove the weaker players and leave those with enhanced analytics as the winners.

The arguments against ESG are usually based on the view that the pursuit of ESG means accepting lower returns. The extension of this argument is that, in a market where returns become harder to generate and many portfolios fall in value, investors would therefore look for the products generating the highest returns. This would mean overlooking ESG funds because of their desire for yield regardless of how this is generated. They might be right for some investors.

Similar arguments have been made about passive investing for years, yet global growth in passive has outstripped actively managed non-ESG investments during the boom years of the 2010s. What has emerged is an industry that has learnt how to deploy passive instruments in ever more creative – and active – ways. The same could well be shown to be true of ESG in the years to come.

Naturally, regulation has been a major driving force for ESG adoption by many investors and investment managers. The European Union set out a taxonomy for categorising investments as environmentally sustainable according to at least one of six objectives, while not creating harm to any of the remaining objectives. In-scope firms would use this taxonomy to report their progress against the stated objectives. This was supplemented by the EU's Sustainable Finance Disclosure Regulation.

The EU's SFDR rules require investment

managers in the EU to explicitly disclose how they integrate sustainability risks into their investment processes and any financial advice, and how individual products are meeting sustainability criteria and aligning with ESG-related objectives. Analysing year-end 2021 ESG assets under management over the following quarter demonstrates how significant the shift in emphasis has been across the industry. In Q1 2022 alone, a further \$1tn was recategorised as ESG AUM for that same year-end data point (i.e. restating 2021 ESG AUM from \$8.3tn to \$9.3tn by the next data release a quarter later).

Investors considering ESG might be most directly impacted by the EU regulatory emphasis when it comes to manager selection. Some investors and managers have disclosed to us that an increasing number of investors have made ESG considerations the primary filtering criterion for selecting managers and that, if managers are unable to demonstrate their ESG credentials, the conversations do not progress further. The regulatory emphasis and recategorisation of AUM have not been limited to Europe: 14% of the \$1tn recategorised in Q1 2022 was from managers in Asia Pacific, and 12% was from managers in North America, i.e. well over 100 billion dollar recategorisations per region.

Many ESG funds outperformed the broader market during the Covid-19 pandemic, partly due to their fossil fuel exclusion policies, for which prices had been falling as the real economy slowed and fewer people travelled. Some ESG funds were able to outperform because their drive to avoid carbon emissions led to outsized allocations to technology stocks which were able to continue – and in this case accelerate – their growth despite the tougher economic conditions for other firms, in addition to the relative underperformance of fossil fuels.

That outperformance of ESG funds during the worst of the pandemic did not continue. Over the first three quarters of 2022, ESG AUM



globally fell by 25% versus 17% for non-ESG AUM. This was supposedly for the exact inverse of the reasons why those funds had previously outperformed: natural gas spiked and tech stocks tumbled from their highs.

This global statistic is perhaps overly simplistic. With 78% of ESG AUM in Q3 2022 from European, Middle Eastern and African investors, a dramatic fall in EMEA AUM would necessarily have an outsized impact on ESG performance relative to non-ESG AUM, which skews towards the Americas (64% of non-ESG AUM globally as of Q3 2022). With AUM from EMEA investors as a whole falling 24% over the first three quarters of 2022, a 26% fall of ESG AUM is not as dramatic, nor is the 18% fall in Americas ESG AUM versus 17% fall for non-ESG. Obviously underperformance shouldn't be simply overlooked but the near-term context of ESG's developing strategies is important to consider.

Taking a step back, the conflict in Ukraine illustrated the shortcomings of deploying a simple exclusion policy in all investment scenarios and the limitation of high-level data to accurately

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**LONGER-TERM, SOME INVESTORS AND MANAGERS SAY THAT EVENTUALLY THE INDUSTRY WILL STOP THINKING ABOUT ESG AS A SEPARATE CATEGORY OF INVESTMENTS AND WILL THINK OF ESG AS AN INVESTMENT HYGIENE FACTOR.**

reflect risks across the portfolio. One such example was the disconnect between country-level ESG ratings and corporate ratings, i.e. risks identified on the country level were treated as considerations for the sovereign debt but were not always fully accounted as risk factors to the companies with exposure to that country, whether that was to do with access to consumers or along the supply chain.

However, even if we looked on the global level and described ESG strategies as having underperformed non-ESG strategies in the first three quarters of 2022, there are still grounds to argue in favour of its resilience longer term,





FOR SOME, A DOWNMARKET HERALDS THE BEGINNING OF THE END OF ESG, WHILE FOR OTHERS, THE CRISIS FORCES A HEALTHY SHAKING OUT OF THE INDUSTRY TO REMOVE THE WEAKER PLAYERS.

even if they are not sufficient today to offset the near-term losses. Our analysis of data from Broadridge Global Market Intelligence shows that 58% of ESG AUM (\$4.3tn of the \$7.5tn total, as of Q3 2022) was from retail investors. Institutional investors, however, are growing their AUM faster (+12% 5.75-year compound annual growth rate, 2016-Q3 2022) than retail investors (+7%). Some managers privately noted that the detail of conversations with and depth of industry knowledge of institutional investors allows them to build more sophisticated and targeted products rather than requiring simpler messaging for retail investors. The upshot for investors is that there are opportunities for greater partnerships with managers around specific objectives and that many managers are already looking into how they can facilitate this flow. For example, Japan's Government Pension Investment Fund's announcements on ESG allocations prompted moves by other public pension funds, such as the Regional Pension Fund Association for Local Government Officials, and led to a recategorisation of ESG AUM in Japan with a heavy bias towards institutional AUM (6% of the global trillion dollar recategorisation in Q1 2022).

Building on the idea of moving towards more targeted investments, the majority of ESG AUM is in integration and engagement strategies, but this share has fallen, to 52% in Q3 2022 from 62% of AUM in 2016, as institutional allocations have increased. Part of this share shifted towards thematic and impact strategies, which increased to 11% of ESG AUM from 4% over the same period. In order to capitalise on this demand for more objective-orientated investments, many investment managers are having to increase their use of different data providers. Of the largest 50 asset managers, 76% use two or more ESG ratings and data providers and 40% use four or more providers.

The most common issue for ESG raised by both investors and managers in Citi Business Advisory Services' annual industry reports is the lack of good quality, standardised data. Consequently, some market participants have been looking to expand their analysis of the data disclosed by corporates, as well as by identifying

alternative data which could be analysed in proprietary models. Market participants have described building an ESG analytic platform as one of the potential avenues to expand their capabilities in a systematic way. These sorts of platforms could be used to analyse data for ESG and non-ESG insights, and link to the industry trend towards quantamental investing.

The need to justify and disclose the impact of investments further leads to enhanced analysis of corporates' supply chains. If we take carbon emissions as an example, analysing the supply chain of a corporate to establish the total carbon emitted for the end corporate's products requires data on the location of factories along its supply chain and the energy mix used to supply those factories. That would require more detailed data than many in the industry have considered necessary to date. There are numerous implications of this enhanced analysis, which span across ESG as well as financial returns.

The first implication pertains to broader ESG insights for investment decision-making and risk assessment: by analysing the source of component parts, we also identify where and how the parts of an end product are assembled. That could lead an investor to identify where other ESG risks are posed. These ESG risks may be varied and span other environmental concerns such as water pollution, social concerns such as child labour and governance risks such as questionable procurement contracts between the target entity and their suppliers. The expanded scope of ESG insights may assist investors and managers with their regulatory or stakeholder reporting, adjusting investments according to their tolerance for those other ESG risks. Furthermore, for investment managers, insights extracted from one product may lead to investment or divestment decisions across their other products and/or their financial risk assessment.

The second implication is in expanding the knowledge of the upstream companies: by building the analysis of the corporate's supply chain, investors are building up data on all suppliers they may not have otherwise considered for investment. That could lead to an

expansion of investable opportunities to target those suppliers.

The third implication is the wider view of the target company's ability to deliver against production targets: by building an understanding of those suppliers and where they are located, a sophisticated investor could use other economic and political indicators to trade on news faster than others. This is because the investor could establish connections between indicators which may not otherwise have been found. To put this into real terms, in November 2022 Apple announced a delay in shipments of their iPhones. The investors who had deeper supply chain analysis of Apple would have known that when Zhengzhou announced a Covid-19-related shutdown that it would impact one of Foxconn's plants (the largest iPhone factory in the world), which would then impact Apple's ability to ship as many units as previously envisaged. This analysis wasn't dependent on starting from an ESG perspective but could be enabled and enhanced as firms use that perspective.

Longer term, some investors and managers say that eventually the industry will stop thinking about ESG as a separate category of investments and will think of ESG as an investment hygiene factor. That means ESG would become a part of investments even where there isn't an explicit ESG objective for the fund, similar to some of the ESG strategies we see developing today. In our 2020 ESG-focused whitepaper, we discussed the concept of considering investments through the lens of dual returns, which is being explored by a small but growing share of investors and managers. Many investors may choose to continue engaging both the managers they work with and the corporates they invest in to achieve their desired objectives.

Building analytic platforms to enable performance assessment against ESG objectives could lead to the identification of other ESG risks, open up other investment opportunities, enable faster decision-making and trading on relevant indicators and enhance financial risk analytics. We may have started with ESG, but we need not end there. In fact, we may have to go even further in terms of data, technology and talent to unlock its potential for alpha generation. •

#### Footnotes

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## WEALTH VEHICLES DRIVEN TO NEW HEIGHTS

**After a stellar 2021, sovereign funds are moving to add more diversity in their portfolios. By Edward Maling**

SOVEREIGN funds fared well last year and, like pension funds, are now focusing on diversifying their portfolios during the current period of market volatility. Our research of annual statements from the 50 largest SFs suggests that greater emphasis is being paid to alternative asset classes, such as infrastructure and real estate. Green investments linked to the energy transition are a common theme, as oil-producing nations look to diversify. But some funds are still undertaking fresh investments in carbon-intensive industries to take advantage of higher commodity prices.

### TOTAL ASSETS REACH NEW HEIGHTS, DRIVEN BY THE MIDDLE EAST

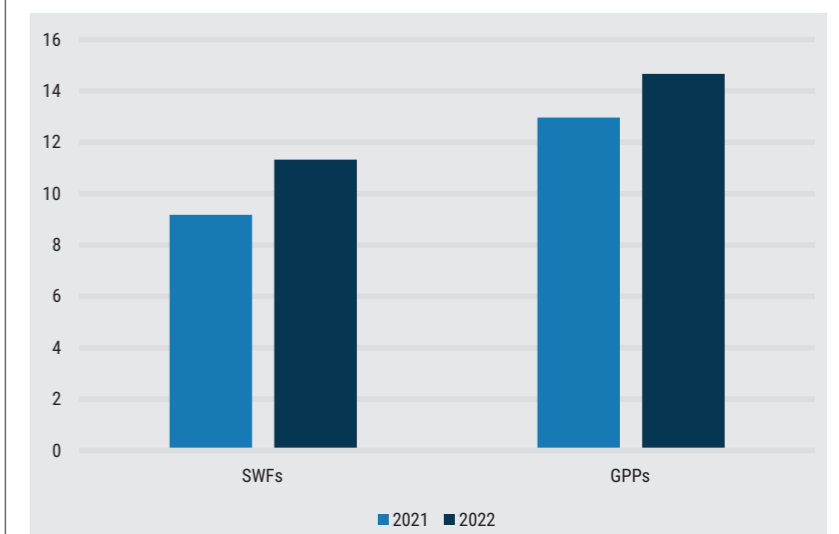
Sovereign funds are growing and playing an increasingly important role as long-term institutional investors. Last year, alongside good market conditions, higher commodity prices led to a windfall for resource-rich nations, much of which was funnelled to their sovereign funds.

As a result, sovereign fund assets under management have risen to new highs. At the start of 2022, the AuM of the 50 largest SFs was \$11.3tn (Figure 6.1). This is an annual increase of 23%, slightly more than \$2tn. By comparison, the top 50 global pension funds grew their AuM by 13%, to \$14.7tn.

The assets of these largest of institutional investors amount to \$26tn – almost \$10tn more than the total value of central bank reserve assets.

**6.1: Largest sovereign funds and pension funds total more than \$25 trillion**

Latest assets under management of the top 50 GPPs and top 50 SFs, \$tn



Source: Annual reports, OMFIF analysis

The regional composition of the largest sovereign funds is different to those of GPPs. The majority of GPPs are based in developed economies, particularly in North America, where savings are higher and there are obligations governing contributions to pension funds. In contrast, SFs are a more geographically diverse group. Many of them were established to save windfalls from commodity booms in resource-rich economies. Accordingly, there is a large and growing concentration of sovereign funds in emerging markets (Figure 6.2).

Most of the growth in EM sovereign fund assets last year was in the Middle East. Savings from higher oil prices alongside strong investment returns boosted assets there. The region's top five funds saw their assets grow by 40%, an increase of \$850bn to just shy of \$3tn. In the United Arab Emirates, the Abu Dhabi Investment Authority reportedly saw the largest nominal increase in the region of \$250bn. Saudi Arabia's Public Investment Fund, one of the region's most active sovereign investors (including with the recent purchase of Newcastle Football Club), reportedly saw its AuM increase by \$220bn. Investment authorities in both Kuwait and Qatar grew too, with increases of \$235bn and \$150bn respectively.

Sovereign funds in other oil-exporting countries also fared well. Norway's Norges Bank Investment Management, which oversees the Government Pension Fund Global, the world's largest SF, started 2022 with over \$1.5tn in assets, following an increase of \$306bn in 2021. However, comparable rises were not observed across all funds. There were declines in a handful of countries, mostly concentrated in central Asia, including Kazakhstan, Uzbekistan and Russia.

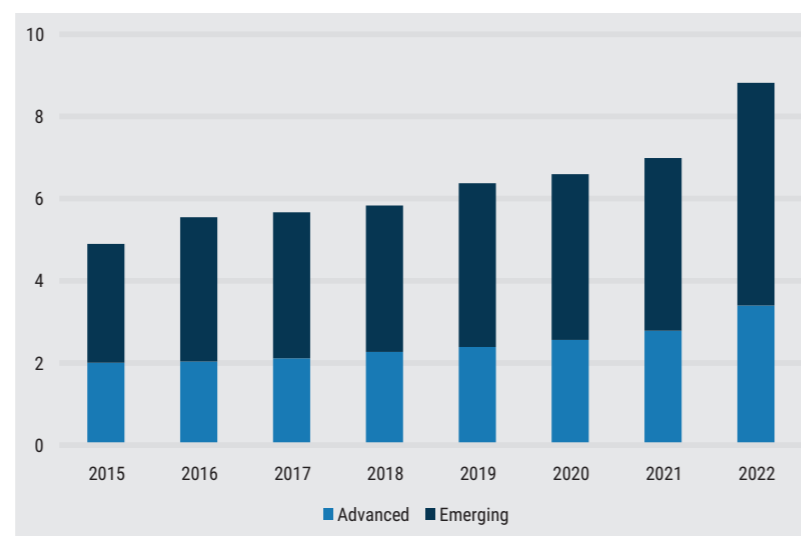
### LATEST RISKS BRING ALTERNATIVE ASSETS INTO FAVOUR

The macroeconomic outlook has deteriorated this year owing to the emergence of high inflation and tighter monetary policy, compounded by rising geopolitical tensions. Against this backdrop, SFs are facing more turbulent market conditions. Admittedly, an uptick in commodity prices since the start of the Russia-Ukraine war may have boosted savings in oil-rich nations. But this will be at least partly offset by the drop in asset prices across global markets.

In this high inflation environment, SFs are diversifying their portfolios towards real assets, such as property and infrastructure, to secure higher returns and preserve capital. This is a trend followed by global public funds more broadly (see Chapters 1 and 2 for more). For some sovereign funds, the move towards alternative investments began last year. The Korea Investment Corporation – the fourth largest SF in Asia Pacific with assets of \$205bn – saw its total exposure to alternative asset classes rise by more than 2 percentage points (to 17.5%) on the back of their better returns than traditional asset classes, particularly fixed income investments. KIC has stated

### 6.2: Emerging markets driving growth in SF assets

Assets under management of the top 15 SFs, \$tn



Source: Annual reports, OMFIF analysis

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**MOST OF THE GROWTH IN EM SOVEREIGN FUND ASSETS LAST YEAR WAS IN THE MIDDLE EAST. SAVINGS FROM HIGHER OIL PRICES ALONGSIDE STRONG INVESTMENT RETURNS BOOSTED ASSETS THERE**

its intent to further grow exposure to alternative assets, reportedly to as much as 25% by the latter half of this decade. Real estate and infrastructure currently make up more than a third of KIC's existing pool of alternative assets, valued at \$13.4bn. The majority of the remaining \$22.5bn is allocated to private equity (\$15.7bn), with smaller amounts split between hedge funds and cash equivalents.

Elsewhere in the region, Singapore's GIC – which saw its assets under management rise by 52% in the year to March 2022, to \$690bn – has been increasing its share of real estate investments. In its latest annual report, GIC reported real estate assets rose to 10% of its overall portfolio from 8% previously. Reliable income streams and inflation-hedging properties are helping to rationalise continued investment in these asset classes. In September, GIC acquired a controlling position in Sani/Ikos – a luxury resort operator in the Mediterranean – marking the latest in a string of real estate investments across a range of property sectors.

### GREEN TRANSITION IN THE LIMELIGHT FOR SFs

Near-term diversification concerns are not the only catalyst behind this shift towards real assets. Climate risks are particularly acute for long-term investors. Their close ties to governments mean

that sovereign funds are set to play a crucial role in achieving national decarbonisation agendas. This may also provide an opportunity for commodity-producing countries to diversify their future income streams away from carbon-intensive industries. This is culminating in many SFs investing in renewable energy.

Saudi Arabia's PIF has assumed responsibility for progressing most (70%) of the domestic drive for renewable power generation under the Vision 2030 banner, which sets an interim target of 50% renewable electricity generation by 2030. Going beyond the remits of more traditionally structured sovereign funds, this push has also seen the fund expand its presence in capital markets. The PIF recently issued its inaugural green bond – the first SF to undertake such a venture – with \$3bn raised under the its green finance framework. With the listing oversubscribed eight-times over, this sends a strong signal of investor demand for highly rated ESG products and bodes well for the PIF's own targets to issue a further \$7bn in green bonds by 2026.

Furthermore, PIF is one of several SFs to have made its own portfolio-based net zero commitment. This is currently set to 2050 – a decade earlier than Saudi Arabia's own neutrality pledge for the whole economy. Others have made similar promises. Norway's NBIM and Singapore's Temasek have both pledged to reach net zero across their portfolios by 2050. Temasek has also set an interim target to cut its 2010 emissions in half by the end of this decade.

Active ownership practices are becoming more commonplace among institutional investors, including SFs pursuing these goals. Singaporean funds GIC and Temasek apply similar approaches by engaging with companies they invest in on their climate transition plans and provide capital to support their efforts to mitigate climate risks. In its annual report, GIC cited examples of active engagement with the companies it invests in, including encouraging one to start disclosing climate-related data. The fund also cited more direct mechanisms, including using its shareholder voting rights to move another business's portfolio towards renewable projects.

Our survey findings also suggested that the number of funds invested in green, social and sustainability-linked bonds will continue its upward trajectory. The rising number of corporate and sovereign issuers of GSS-bonds provides a different route by which institutional investors can reduce their exposure to climate-related risks. GIC has recently expanded its coverage of green bonds to include other labelled fixed income products, such as sustainability-linked securitisations. Wider availability and standardisation of similar products may provide future alternatives for investors to diversifying their exposure to debt products and simultaneously access more specific sustainable asset classes.

While there is growing appetite for investments in

**\$11.3tn**

Combined assets under management of the top 50 sovereign funds

**\$1.5tn**

Assets under management of Norges Bank Investment Management, the largest sovereign fund in the world at the end of 2021

**\$3bn**

Money raised by PIF as it became the first sovereign fund to issue a green bond

renewables and other sustainability-linked products, some SFs seem reluctant to divest from carbon-intensive investments. In line with our survey findings, which shows there is half as much willingness to reduce investments in fossil fuels as there is for investments in renewable energy, sovereign funds are holding back from prematurely distancing themselves from their pre-existing investments.

NBIM has demonstrated greater willingness than most to divest. The Government Pension Fund Global sold its holdings in 52 companies in 2021, the majority due to human rights considerations. This round of divestments also included the first seven based on unacceptable biodiversity risks. More recently, the fund also announced that it would sell off its Russian investments following the invasion of Ukraine. Super funds in Australia and New Zealand have followed suit, while sanctions in other jurisdictions have seen other funds turn away from any new investment in Russia.

Divestments, however, have been limited, reflecting the wider sentiment of institutional investors that they be reserved for instances where transition seems unlikely or impossible. Since 2012, Norwegian divestments on climate change grounds have amounted to around 0.1% of current assets under management. Divestments of this kind may also be slowing down. Despite being the most cited justification to divest since 2012, on just four occasions in 2021 were divestments attributed to an overreliance on coal-intensive power production.

Higher oil and gas prices risk slowing this process further. The significance of oil and gas in a number of transition plans, compounded by energy security concerns across Europe and lower investment when prices were suppressed, means investment in this sector is likely to become increasingly important, running the risk of reducing the relative rewards of renewable investments, as well as in nascent technologies. •

# GLOBAL DISTRIBUTION OF GPF ASSETS

Derived from sample of top 100 global public pension funds and top 50 sovereign wealth funds

Total number of GPFs	Latest AuM (\$bn)	Previous year AuM (\$bn)	Change from previous year (\$bn)	Change from previous year (%)
150	28,928	24,615	4,313	17.5

## NORTH AMERICA

35.4%

Number of GPFs 66  
 Latest AUM \$10,236bn  
 2021 AUM \$8,844bn  
 Change from 2021 \$1,399bn  
 Change from 2021 15.7%  
 Regional % of 2022 total 35.4%

## EUROPE

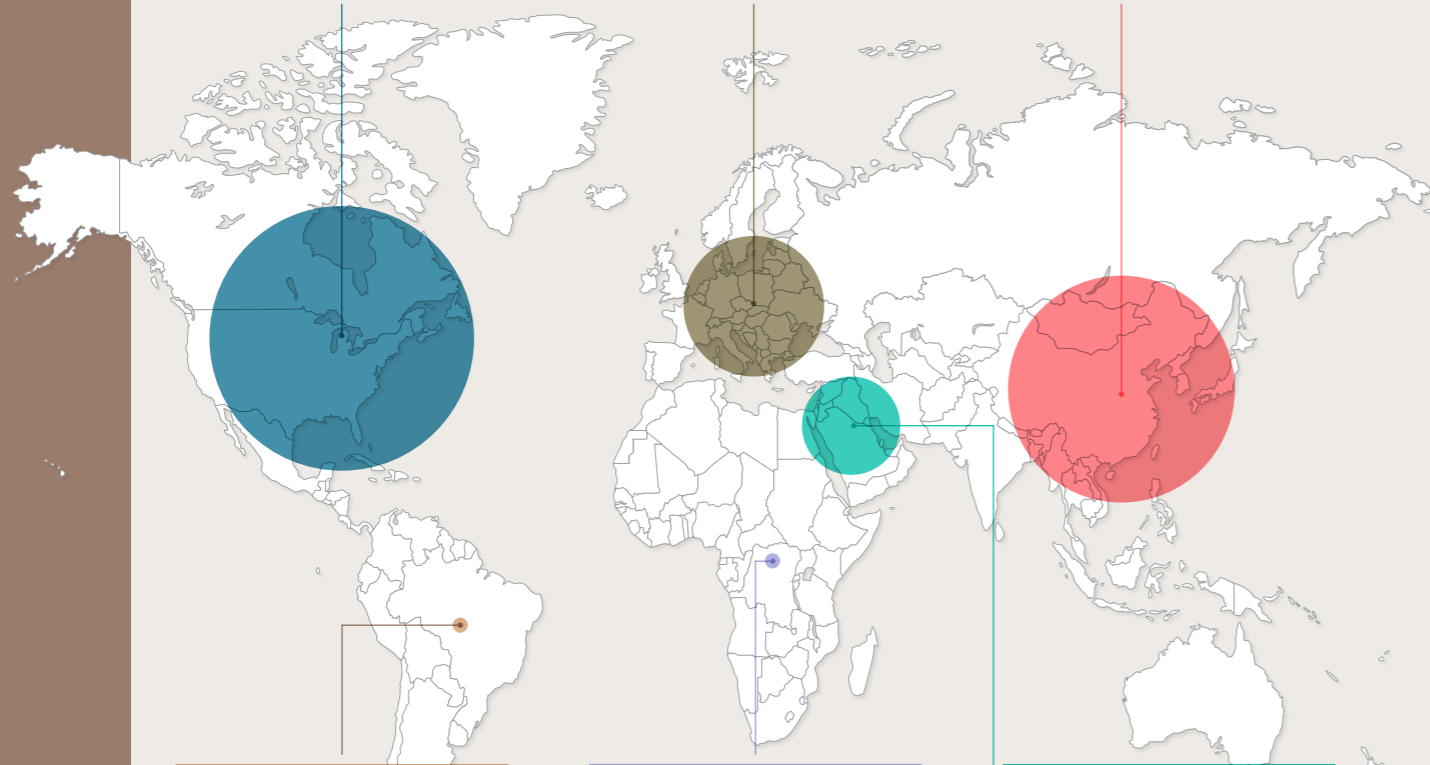
18.6%

Number of GPFs 30  
 Latest AUM \$5,377bn  
 2021 AUM \$4,590bn  
 Change from 2021 \$786bn  
 Change from 2021 17.1%  
 Regional % of 2022 total 18.6%

## ASIA PACIFIC

30%

Number of GPFs 35  
 Latest AUM \$8,693bn  
 2021 AUM \$7,618bn  
 Change from 2021 \$1,075bn  
 Change from 2021 14.1%  
 Regional % of 2022 total 30%



## LATIN AMERICA

1.6%

Number of GPFs 4  
 Latest AUM \$465bn  
 2021 AUM \$418bn  
 Change from 2021 \$47bn  
 Change from 2021 11.3%  
 Regional % of 2022 total 1.6%

## AFRICA

1.3%

Number of GPFs 4  
 Latest AUM \$375bn  
 2021 AUM \$310bn  
 Change from 2021 \$65bn  
 Change from 2021 21.1%  
 Regional % of 2022 total 1.3%

## MIDDLE EAST

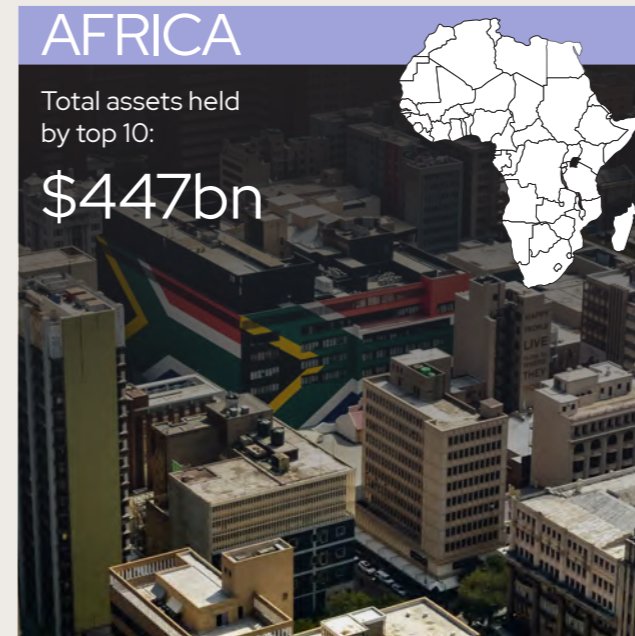
13.1%

Number of GPFs 11  
 Latest AUM \$3,783bn  
 2021 AUM \$2,836bn  
 Change from 2021 \$947bn  
 Change from 2021 33.4%  
 Regional % of 2022 total 13.1%

# DISTRIBUTION OF GPF ASSETS BY REGION

## AFRICA

Total assets held by top 10:  
**\$447bn**



## ASIA PACIFIC

Total assets held by top 10:  
**\$6,543bn**



### Top 10 overall

Rank	Name	Type	Country	AUM \$bn
1	Public Investment Corporation	SWF	South Africa	172.3
2	Sovereign Wealth Fund of Zimbabwe	SWF	Zimbabwe	97.5
3	Libyan Investment Authority	SWF	Libya	68.4
4	Caisse de Dépôt et de Gestion	GPP	Morocco	37.0
5	PenCom	GPP	Nigeria	34.8
6	The Sovereign Fund of Egypt	SWF	Egypt	12.7
7	La Caisse Marocaine des Retraites	GPP	Morocco	8.5
8	Botswana Public Officers Pension Fund	GPP	Botswana	7.4
9	National Social Security Fund	GPP	Uganda	4.8
10	Pula Fund	SWF	Botswana	3.8

### Pension funds

Rank	Name	Type	Country	AUM \$bn
1	Caisse de Dépôt et de Gestion	GPP	Morocco	37.0
2	PenCom	GPP	Nigeria	34.8
3	La Caisse Marocaine des Retraites	GPP	Morocco	8.5
4	Botswana Public Officers Pension Fund	GPP	Botswana	7.4
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### Sovereign funds

Rank	Name	Type	Country	AUM \$bn
1	Public Investment Corporation	SWF	South Africa	172.3
2	Sovereign Wealth Fund of Zimbabwe	SWF	Zimbabwe	97.5
3	Libyan Investment Authority	SWF	Libya	68.4
4	The Sovereign Fund of Egypt	SWF	Egypt	12.7
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### Top 10 overall

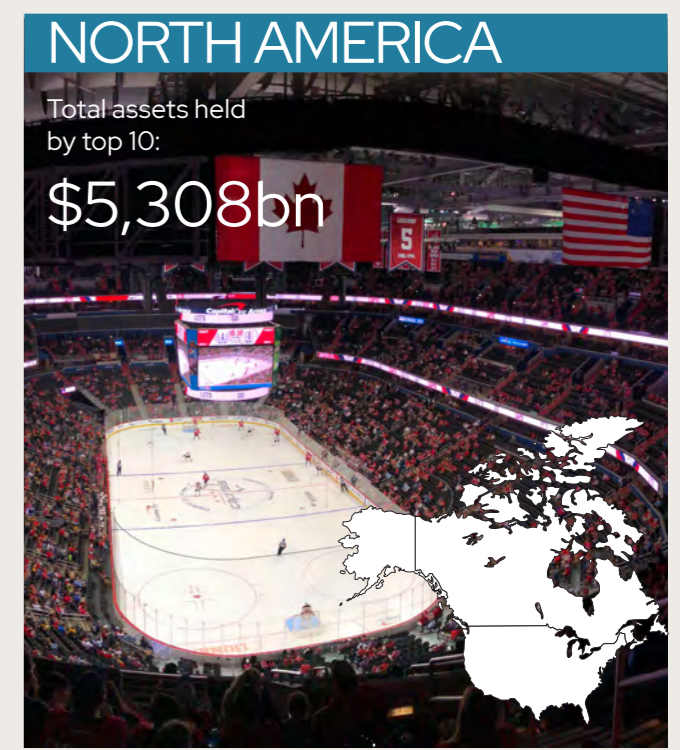
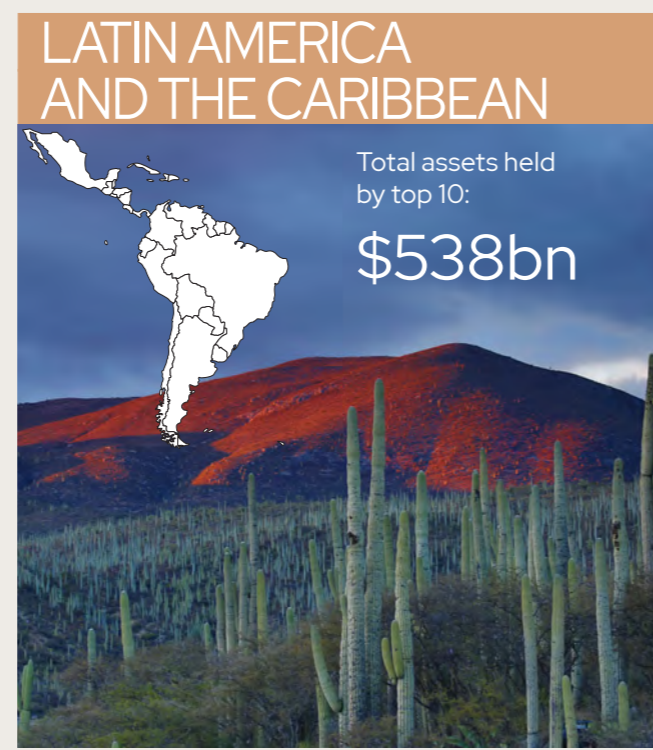
Rank	Name	Type	Country	AUM \$bn
1	Government Pension Investment Fund	GPP	Japan	1,757.0
2	China Investment Corporation	SWF	China	1,222.3
3	National Pension Service	GPP	Korea, Republic of	828.8
4	GIC	SWF	Singapore	690.0
5	Temasek	SWF	Singapore	500.3
6	National Social Security Fund	SWF	China	468.1
7	Central Provident Fund	GPP	Singapore	379.5
8	Pension Fund Association of Local Gov. Officials (Chikyoren)	GPP	Japan	253.6
9	Employees' Provident Fund	GPP	Malaysia	238.8
10	Korea Investment Corporation	SWF	Korea, Republic of	205.0

### Pension funds

Rank	Name	Type	Country	AUM \$bn
1	Government Pension Investment Fund	GPP	Japan	1,757.0
2	National Pension Service	GPP	Korea, Republic of	828.8
3	Central Provident Fund	GPP	Singapore	379.5
4	Pension Fund Association of Local Gov. Officials (Chikyoren)	GPP	Japan	253.6
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### Sovereign funds

Rank	Name	Type	Country	AUM \$bn
1	China Investment Corporation	SWF	China	1,222.3
2	GIC	SWF	Singapore	690.0
3	Temasek	SWF	Singapore	500.3
4	National Social Security Fund	SWF	China	468.1
5	Korea Investment Corporation	SWF	Korea, Republic of	205.0



Top 10 overall

Rank	Name	Type	Country	AUM \$bn
1	Norges Bank Investment Management	SWF	Norway	1,509.8
2	ABP	GPP	Netherlands	652.1
3	Cassa Depositi e Prestiti	SWF	Italy	492.0
4	PFZW	GPP	Netherlands	358.5
5	Turkiye Wealth Fund	SWF	Turkey	308.8
6	Caisse des Dépôts et Consignations	GPP	France	267.6
7	AP7	GPP	Sweden	177.2
8	National Welfare Fund	SWF	Russia	175.0
9	Arbejdsmarkedets Tillægspension	GPP	Denmark	172.8
10	Universities Superannuation Scheme	GPP	UK	135.4

Pension funds

Rank	Name	Type	Country	AUM \$bn
1	ABP	GPP	Netherlands	652.1
2	PFZW	GPP	Netherlands	358.5
3	Caisse des Dépôts et Consignations	GPP	France	267.6
4	AP7	GPP	Sweden	177.2
5	Arbejdsmarkedets Tillægspension	GPP	Denmark	172.8

Sovereign funds

Rank	Name	Type	Country	AUM \$bn
1	Norges Bank Investment Management	SWF	Norway	1,509.8
2	Cassa Depositi e Prestiti	SWF	Italy	492.0
3	Turkiye Wealth Fund	SWF	Turkey	308.8
4	National Welfare Fund	SWF	Russia	175.0
5	Bpifrance	SWF	France	82.2

Top 10 overall

Rank	Name	Type	Country	AUM \$bn
1	Comisión Nacional del Sistema de Ahorro para el Retiro	GPP	Mexico	245.3
2	Fundo de Garantia por Tempo de Serviço	GPP	Brazil	115.4
3	Fondo de Garantía de Sustentabilidad	SWF	Argentina	60.4
4	Caixa de Previdência dos Funcionários do Banco do Brasil	GPP	Brazil	44.0
5	Fundação dos Economizários Federais	GPP	Brazil	15.9
6	Instituto Mexicano del Seguro Social	GPP	Mexico	14.8
7	Instituto Guatemalteco de Seguridad Social	GPP	Guatemala	12.0
8	Social Security Fund	GPP	Panama	11.6
9	The National Insurance Board of Trinidad and Tobago	GPP	Trinidad and Tobago	11.5
10	Fondo de Estabilización Económica y Social	SWF	Chile	7.2

Pension funds

Rank	Name	Type	Country	AUM \$bn
1	Comisión Nacional del Sistema de Ahorro para el Retiro	GPP	Mexico	245.3
2	Fundo de Garantia por Tempo de Serviço	GPP	Brazil	115.4
3	Caixa de Previdência dos Funcionários do Banco do Brasil	GPP	Brazil	44.0
4	Fundação dos Economizários Federais	GPP	Brazil	15.9
5	Instituto Mexicano del Seguro Social	GPP	Mexico	14.8

Sovereign funds

Rank	Name	Type	Country	AUM \$bn
1	Fondo de Garantía de Sustentabilidad	SWF	Argentina	60.4
2	Fondo de Estabilización Económica y Social	SWF	Chile	7.2
3	Heritage and Stabilisation Fund	SWF	Trinidad and Tobago	4.8
4	Fondo de Ahorro y Estabilización	SWF	Colombia	3.9
5	Fondo de Estabilización de los Ingresos Presupuestarios	SWF	Mexico	1.3

Top 10 overall

Rank	Name	Type	Country	AUM \$bn
1	Abu Dhabi Investment Authority	SWF	UAE	829.0
2	Kuwait Investment Authority	SWF	Kuwait	769.0
3	Public Investment Fund	SWF	Saudi Arabia	620.0
4	Qatar Investment Authority	SWF	Qatar	445.0
5	Investment Corporation of Dubai	SWF	UAE	299.8
6	Mubadala Investment Company	SWF	UAE	284.5
7	Dubai World	SWF	UAE	175.3
8	Public Institute for Social Security	GPP	Kuwait	134.0
9	General Organisation for Social Insurance	GPP	Saudi Arabia	115.4
10	Emirates Investment Authority	SWF	UAE	87.0

Pension funds

Rank	Name	Type	Country	AUM \$bn
1	Public Institute for Social Security	GPP	Kuwait	134.0
2	General Organisation for Social Insurance	GPP	Saudi Arabia	115.4
3	Social Security Corporation	GPP	Jordan	19.1
4	General Organisation for Social Insurance Bahrain	GPP	Bahrain	8.5

Sovereign funds

Rank	Name	Type	Country	AUM \$bn
1	Abu Dhabi Investment Authority	SWF	UAE	829.0
2	Kuwait Investment Authority	SWF	Kuwait	769.0
3	Public Investment Fund	SWF	Saudi Arabia	620.0
4	Qatar Investment Authority	SWF	Qatar	445.0
5	Investment Corporation of Dubai	SWF	UAE	299.8

Top 10 overall

Rank	Name	Type	Country	AUM \$bn
1	Military Retirement Fund	GPP	US	1,106.5
2	Thrift Savings Fund	GPP	US	838.1
3	Federal Employees Retirement System	GPP	US	835.8
4	Canada Pension Plan Investment Board	GPP	Canada	548.6
5	California Public Employees' Retirement System	GPP	US	494.5
6	Caisse de Dépôt et Placement du Québec	GPP	Canada	376.8
7	California State Teachers' Retirement System	GPP	US	351.3
8	New York State Common Retirement Fund	GPP	US	273.7
9	Ontario Teachers' Pension Plan	GPP	Canada	259.5
10	Teacher Retirement System of Texas	GPP	US	223.2

Pension funds

Rank	Name	Type	Country	AUM \$bn
1	Military Retirement Fund	GPP	US	1,106.5
2	Thrift Savings Fund	GPP	US	838.1
3	Federal Employees Retirement System	GPP	US	835.8
4	Canada Pension Plan Investment Board	GPP	Canada	548.6
5	California Public Employees' Retirement System	GPP	US	494.5

Sovereign funds

Rank	Name	Type	Country	AUM \$bn
1	Alberta Investment Management Corporation	SWF	Canada	134.3
2	Oregon Investment Council	SWF	US	134.0
3	Texas Treasury Safekeeping Trust Company	SWF	US	102.3
4	State of Michigan Investment Board	SWF	US	93.4
5	Alaska Permanent Fund Corporation	SWF	US	76.3



# THE TOP 100 GPPs RANKED

	Pension fund	Country	Region	Total assets (\$bn)
1	Government Pension Investment Fund	Japan	AP	1,757
2	Military Retirement Fund	US	NA	1,106
3	Thrift Savings Fund	US	NA	838
4	Federal Employees Retirement System	US	NA	836
5	National Pension Service	Korea, Republic of	AP	829
6	ABP	Netherlands	EU	652
7	Canada Pension Plan Investment Board	Canada	NA	549
8	California Public Employees' Retirement System	US	NA	494
9	Central Provident Fund	Singapore	AP	379
10	Caisse de Dépôt et Placement du Québec	Canada	NA	377
11	PFZW	Netherlands	EU	359
12	California State Teachers' Retirement System	US	NA	351
13	New York State Common Retirement Fund	US	NA	274
14	Caisse des Dépôts et Consignations	France	EU	268
15	Ontario Teachers' Pension Plan	Canada	NA	259
16	Pension Fund Association of Local Government Officials (Chikyoren)	Japan	AP	254
17	Comisión Nacional del Sistema de Ahorro para el Retiro	Mexico	LA	245
18	Employees' Provident Fund	Malaysia	AP	239
19	Teacher Retirement System of Texas	US	NA	223
20	Public Sector Pension Investment Board	Canada	NA	211
21	State Board of Administration of Florida	US	NA	200
22	Commonwealth Superannuation Corporation	Australia	AP	184
23	Bureau of Labor Funds	Taiwan	AP	183
24	AP7	Sweden	EU	177
25	Healthcare of Ontario Pension Plan	Canada	NA	173
26	Arbejdsmarkedets Tillægspension	Denmark	EU	173
27	Employees' Provident Fund Organisation	India	AP	170
28	British Columbia Investment Management Corporation	Canada	NA	168
29	Civil Service Retirement System	US	NA	159
30	Washington State Investment Board	US	NA	159
31	Australian Retirement Trust	Australia	AP	150
32	New York State Teachers' Retirement System	US	NA	149
33	State of Wisconsin Investment Board	US	NA	148
34	North Carolina State Treasurer	US	NA	140
35	Ohio Public Employees' Retirement System	US	NA	135
36	Universities Superannuation Scheme	UK	EU	135
37	Public Institute for Social Security	Kuwait	ME	134
38	Minnesota State Board	US	NA	129
39	Bayerische Versorgungskammer	Germany	EU	127
40	Teachers' Retirement System of the City of New York	US	NA	116
41	General Organisation for Social Insurance	Saudi Arabia	ME	115
42	Fundo de Garantia por Tempo de Serviço	Brazil	LA	115
43	Aware Super	Australia	AP	115
44	Pension Fund Association	Japan	AP	115
45	Virginia Retirement System	US	NA	114
46	Ontario Municipal Employees' Retirement System	Canada	NA	110
47	New Jersey Division of Investment	US	NA	107
48	Kommunal Landspensjonskasse	Norway	EU	105

	Pension fund	Country	Region	Total assets (\$bn)
49	New York City Employee Retirement System	US	NA	103
50	Oregon Public Employees Retirement System	US	NA	103
51	Massachusetts Pension Reserves Investment Management	US	NA	102
52	Teachers' Retirement System of Georgia	US	NA	102
53	State Teachers Retirement System of Ohio	US	NA	100
54	National Pension System Trust	India	AP	100
55	Pennsylvania Public School Employees' Retirement System	US	NA	83
56	United Nations Joint Staff Pension Fund	US	NA	82
57	Kuntien eläkevakuutus	Finland	EU	81
58	Investment Management Corporation of Ontario	Canada	NA	79
59	Los Angeles County Employees Retirement Association	US	NA	75
60	Maryland State Retirement and Pension System	US	NA	74
61	National Public Service Personnel Mutual Aid	Japan	AP	72
62	Illinois Teachers Retirement System	US	NA	71
63	UniSuper	Australia	AP	71
64	Colorado Public Employees' Retirement Association	US	NA	70
65	Hydro-Québec Pension Fund	Canada	NA	66
66	Public School Retirement Systems of Missouri	US	NA	64
67	AP4	Sweden	EU	62
68	Nevada Public Employees Retirement Systems	US	NA	59
69	Illinois Municipal Retirement Fund	US	NA	58
70	AP3	Sweden	EU	58
71	AP1	Sweden	EU	55
72	Indiana Public Retirement System	US	NA	55
73	Tennessee Consolidated Retirement System	US	NA	55
74	British Transport Police Force Superannuation Fund	UK	EU	52
75	PensionDanmark	Denmark	EU	52
76	Sampension	Denmark	EU	52
77	Connecticut Retirement Plans & Trust Funds	US	NA	51
78	Arizona State Retirement System	US	NA	51
79	Health Employees Superannuation Trust Australia	Australia	AP	50
80	Construction and Buildings Union Superannuation	Australia	AP	50
81	AP2	Sweden	EU	49
82	Pensionskasse des Bundes PUBLICA	Switzerland	EU	48
83	Retirement Systems' of Alabama	US	NA	48
84	Utah State Retirement System	US	NA	47
85	Texas County and District Retirement System	US	NA	45
86	Iowa Public Employees Retirement System	US	NA	45
87	BVK Personalvorsorge des Kantons Zürich	Switzerland	EU	45
88	Caixa de Previdência dos Funcionários do Banco do Brasil	Brazil	LA	44
89	South Carolina Retirement System Investment Commission	US	NA	43
90	Compenswiss - Fonds de compensation AVS	Switzerland	EU	42
91	Pennsylvania State Employees' Retirement System	US	NA	41
92	Folketrygdfondet	Norway	EU	40
93	The Private School Mutual Aid System (Shigakukyosai)	Japan	AP	39
94	Texas Municipal Retirement System	US	NA	39
95	ERAFP	France	EU	39
96	Strathclyde Pension Fund	UK	EU	39
97	Greater Manchester Pension Fund	UK	EU	37
98	Caisse de Dépôt et de Gestion	Morocco	AF	37
99	Versorgungsanstalt des Bundes und der Länder	Germany	EU	36
100	Employees' Retirement System of Texas	US	NA	36



# THE TOP 50 SWFs RANKED

	Sovereign fund	Country	Region	Total assets (\$bn)
1	Norges Bank Investment Management	Norway	EU	1,510
2	China Investment Corporation	China	AP	1,222
3	Abu Dhabi Investment Authority	UAE	ME	829
4	Kuwait Investment Authority	Kuwait	ME	769
5	GIC	Singapore	AP	690
6	Public Investment Fund	Saudi Arabia	ME	620
7	Temasek	Singapore	AP	500
8	Cassa Depositi e Prestiti	Italy	EU	492
9	National Social Security Fund	China	AP	468
10	Qatar Investment Authority	Qatar	ME	445
11	Turkiye Wealth Fund	Turkey	EU	309
12	Investment Corporation of Dubai	UAE	ME	300
13	Mubadala Investment Company	UAE	ME	284
14	Korea Investment Corporation	Korea, Republic of	AP	205
15	Dubai World	UAE	ME	175
16	National Welfare Fund	Russia	EU	175
17	Public Investment Corporation	South Africa	AF	172
18	Future Fund	Australia	AP	149
19	Alberta Investment Management Corporation	Canada	NA	134
20	Oregon Investment Council	US	NA	134
21	Texas Treasury Safekeeping Trust Company	US	NA	102
22	Sovereign Wealth Fund of Zimbabwe	Zimbabwe	AF	98
23	State of Michigan Investment Board	US	NA	93
24	Emirates Investment Authority	UAE	ME	87
25	Victorian Funds Management Corporation	Australia	AP	85
26	TCorp	Australia	AP	83
27	Bpifrance	France	EU	82
28	Permodalan Nasional Berhad	Malaysia	AP	81
29	Alaska Permanent Fund Corporation	US	NA	76
30	Queensland Investment Corporation	Australia	AP	74
31	Brunei Investment Agency	Brunei Darussalam	AP	72
32	Samruk-Kazyna JSC	Kazakhstan	AP	71
33	Libyan Investment Authority	Libya	AF	68
34	Fondo de Garantia de Sustentabilidad	Argentina	LA	60
35	Texas Permanent School Fund	US	NA	59
36	Tennessee Retiree Group Trust	US	NA	56
37	Kazakhstan National Fund	Kazakhstan	AP	52
38	State Oil Fund of the Republic of Azerbaijan	Azerbaijan	AP	45
39	New Zealand Superannuation Fund	New Zealand	AP	44
40	Utah Office of State Treasurer	US	NA	40
41	Nebraska Investment Council	US	NA	40
42	BPJS Ketenagakerjaan	Indonesia	AP	40
43	Iowa Treasurer	US	NA	37
44	New Mexico State Investment Council	US	NA	37
45	Funds SA	Australia	AP	31
46	Texas Permanent University Fund	US	NA	31
47	KENFO (Nuclear Waste Management Fund)	Germany	EU	26
48	National Development Fund of Iran	Iran	ME	24
49	Fund for Reconstruction and Development of the Republic of Uzbekistan	Uzbekistan	AP	24
50	Wyoming State Loan and Investment Board	US	NA	23

## METHODOLOGY

SURVEY data collection was conducted between August–October 2022, with invitations sent to global public pension funds and sovereign funds across the world. Results include responses from 19 funds, made up of 13 pension funds and six sovereign wealth funds, with a cumulative assets under management of \$3.2tn. We received responses from six funds based in Asia Pacific, six based in Europe, four based in North America, two based in Latin America and one based in Middle East.

The ranking tables are based on OMFIF research of the latest data released in annual reports or annual financial disclosures, as of October 2022. In most cases, this refers to December 2021 data. Where no such data are available, OMFIF uses reliable sources from the financial industry or news sources.

Assets under management data refers to gross total assets in most cases and to net assets where no gross measures were available. These figures are expressed in dollars. Throughout the publication ‘dollar’ refers to US dollars. Where figures are not recorded in dollars, conversion rates between the reporting currency and dollars of the month in which the latest observation was published is used.

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