December 2022

PENSION FUNDS LETTER

Confidence must be earned

Amundi ASSET MANAGEMENT

Building together smart solutions to face a challenging environment

Francesca CICERI
Global Head of Institutional Coverage

Sandrine ROUGERON
Global Head of Corporates and Corporate Pension Funds Clients

EXECUTIVE SUMMARY

Contemplating the unknowns, responding to the unknowable

December, the month where festive end-of-year preparations and celebrations shift into top gear, just as commentators become busy reflecting on the past year and making predictions for the next. In the finance sector, our inboxes overflow with analysis of likely economic and market developments in 2023. But even the best forecasting powers are not a crystal ball. What lies ahead this year is not one single challenge, but rather a series of global challenges that are both interconnected and overlapping, defined above all by uncertainty and overshadowed by the unknown and the unknowable.

2022 saw the 40-year period of low inflation and low interest rates come to an abrupt, if not unforeseen end[1]. Both Covid-19 and the Russia/Ukraine war accelerated long-brewing shifts in macroeconomics and geopolitics, illuminating in parallel the multitude of structural weaknesses in global systems.

The 2022 Amundi-CREATE pension survey explores how pension funds perceive these shifts and their potential repercussions. It also looks at the likely impacts of higher inflation and increased asset class correlation on asset allocation and how current market uncertainty may prove positive for active management as selectivity will prove key.

For pension funds, the key question going forward will come down to how to adapt their portfolios to face structurally higher inflation and volatility, less accommodative monetary policy and increased geopolitical turmoil.

2022 has demonstrated how investors can never be too prepared for the unexpected. We look at how the turbulence in the UK gilts markets in September sent ripples through the pensions markets and put into question the whole notion of safe haven and liquid assets.

Liquidity and correlation are just two of the aspects pension funds should take into account when constructing their portfolio. Our article on asset segmentation analyses some of the arguments for and against segmentation and the possible approaches.

Finally, we take our regular look at how the pension funding ratios have reacted to recent volatility and poor performance for both equities and bonds.

1 June 2019 – Pascal Blanqué
https://www.bankofengland.co.uk/-/media/boe/files/speech/2022/november/sarah-breeden-speech-at-isda-aima.

Amin RAJAN
Chief Executive
Officer of CREATE

Reorienting pensions portfolios in an inflation-fuelled world

After a prolonged era of cheap money and double-digit returns, the **sharp spike in inflation** to 40-year highs in 2022 was a **game changer**.

That the Goldilocks scenario of moderate growth and low inflation has been rudely interrupted of late is not in doubt; nor, for that matter, is central banks' resolve to tame price pressures. In the developed world, policymakers are now walking a perilous tightrope, after virtually abolishing risk pricing in capital markets over the last 12 years. The scope for **policy missteps** now is enormous as central banks seek to pull off the highly desirable 'soft landing' that minimises both inflation and recession risks at the same time.

For pension plans, with their long planning horizons and multi-decade liabilities, there are **many open-ended and unknowable risks**, not least whether central banks are actually able to halt the current inflationary spiral and ensure that inflation expectations remain anchored to their policy targets.

The **2022 Amundi–CREATE institutional survey** seeks to shed light on how pension plans are responding to the market impact of the latest surge in inflation in Western economies.

Regime shift driven by the unknowable

Both Covid-19 and the Russian invasion of Ukraine have **accelerated shifts** that have been reshaping global capitalism in the last decade. Various shifts are already evident, according to our survey (Figure 1.1). Some focus on capital markets, others on systemic forces that affect markets as well as wider society.

74% of respondents believe that it is 'likely' that **deflation will give way to inflation** and 62% that interest rates will move from low to high. On the societal side, 58% see trends moving from **globalism to nationalism**, which subsequently will drive inflation, and 49% from **freer markets to more governmental intervention,** a contributor to lower growth.

Figure 1.1 - How likely is it that the Covid-19 and the Russian invasion of Ukraine are causing the following regime shifts in the global economy ?

Source: Amundi Asset Management/CREATE-Research Survey 2022

Quotes from survey participants:

"For governments, fighting inflation is one of many priorities that require low rates and debt monetisation"

"The marriage of convenience between the East and the West is unravelling because of the Russian invasion."

Figure 1.2 - What are the key drivers of growing inflationary pressures in the global economy currently?

Source: Amundi Asset Management/CREATE-Research Survey 2022

The newly emerging economic order manifests as follows. First, **globalisation is being diluted by 'reshoring'**: producing more at home or trading with friendly nations to ensure national security and avoid supply chain disruptions. Second, the **'cost of living crisis**' requires governments to do more to ensure **self-sufficiency**, particularly in energy supply and key materials. They also need to tackle the economic inequalities that have long built up as the side effects of globalisation. This comes at a time when governments in all the key economies are also committing huge investments to their **net zero climate goals**.

As a result, major economies will continue to run large deficits: Low rates to keep the debt manageable and higher inflation to vaporise it. Key central banks must perform a **near impossible balancing act**: tackling inflation and supporting national policies. Such trade-offs will vary across the globe, causing desynchronisation between economic regions.

Inflation: Drivers clear, outcome uncertain

The immediate drivers of the current inflation are not hard to discern, according to our survey. But there is **profound uncertainty** around their relative impacts.

The challenge is immense because the recent revival of inflation is believed by respondents to be mostly structural, rather than judging it to be driven by ultra-loose monetary policy (Figure 1.2).

The current bout of inflation could prove to be temporary if its sole cause is supply bottlenecks that could dissipate over time, and/or if it reflects one-off changes in relative prices, as consumers have switched from services to goods during the pandemic. Modern economies cannot realistically just snap

Figure 1.3 - Which structural weaknesses, exposed by the pandemic and the invasion of Ukraine, are creating inflationary pressures?

Source: Amundi Asset Management/CREATE-Research Survey 2022 back, with no lasting scars from the pandemic or the Ukraine invasion.

The Global Financial Crisis of 2008 brought the world economy to its knees and **triggered a prolonged era of cheap money**. Central banks artificially stretched out economic recoveries as three sets of structural problems continued to build unheeded. Firstly, an overreliance on global supply chains (66% - Figure 1.3). Driven by cost efficiencies, offshoring manufacturing has caused a shakeout of jobs and factory closures in the West. Now, the **reversal of this process is likely to prove expensive**: former production capacity cannot be revived as if it were simply mothballed. Secondly, underinvestment in 'old' industrial sectors (55%) and in education and training for the skills of tomorrow (48%) alongside overinvestment in the tech sector (52%) at the expense of traditional sectors has done nothing to address low productivity growth in the West this century.

The third set of problems relates to the over-financialisation of capital markets, decoupling them from the real economy (50%). The role of equity markets has gone from a source of raising capital for growing companies to a vehicle for cash distribution and balance sheet management.

Looking to the future. What comes next?

For our survey participants, the question is less whether inflation will decline from its recent highs, but rather if it will come down to an acceptable level. History shows us that once inflation is this high, it is also prone to rise further and become more volatile, unless central banks resort to Volcker's playbook of the 1980s, which triggered two recessions.

Unsurprisingly, only 11% of survey participants believe that the impact of inflation on their investment portfolio will be positive, while 59% say it will be negative. As for asset returns, 59% believe that they will be a lot lower than in the last decade.

Central banks are left in a difficult position. 40% of respondents consider central banks will lose their potency in influencing market prices, 18% disagree and 42% say maybe.

Three reference scenarios emerged in our survey:

1. **'Roaring twenties'** scenario where price pressures from the supply bottlenecks ease notably alongside robust growth, driven by productivity gains from innovation that also keep inflation low (12%).
2. A **'secular stagnation'** scenario, in which price pressures from the supply side ease alongside decreases in aggregate demand from rate rises (38%).
3. A **stagflation** scenario – foreseeing an 'anti-Goldilocks' economy that is too hot in terms of inflation and too cold in terms of growth (50%).

Rising asset class correlation is a game changer

Inflation is now a big factor in asset allocation. Many pension portfolios that were constructed during and for the disinflationary environment of the past 40 years now have to be recalibrated for a new inflationary era.

Major sell-offs in stocks and bonds have moved in step in 2022 – as they did during the Great Stagflation between 1978 and 1982. Bonds' role as ballast in pension portfolios has been weakening. This role was strong when central banks could influence inflation expectations. Now, respondants believe **positive correlation is likely to persist over extended periods**. Not only have correlations risen in down markets, they have also decreased disproportionately in up markets. The implied asymmetry wreaked havoc on asset allocation.

As a result, asset allocation is being reoriented along **five** lines:

1. **Real assets** in private markets for inflation protection
2. **Dynamic investing** in an agnostic search for decent returns
3. **Regional dispersion**, as key markets become desynchronised
4. **Value investing**, as central bank support melts away and asset prices revert to fundamentals
5. **Passive funds**, as cost becomes vital in a low nominal return era.

Asset allocation now has three buckets, each with its own distinct goal (Figure 1.4). The first goal seeks **decent returns** via high-quality equities for the portfolio's key growth engine. The second goal is **inflation protection** via assets that are seen as having a built-in mechanism to keep up with inflation. The third goal is **capital conservation** via bonds to hedge risky assets.

However, future-proofing a pension portfolio is proving ultra-challenging due to rising correlation and limited issuance of inflation-protection assets and their illiquidity features. Worse still, the debacle in the UK gilt market in September 2022 questions the whole notion of safe havens while markets remain so fearful.

On the upside, however, **tighter monetary policy could prove positive for pension portfolios.** First, higher rates will reduce the present value of future pension liabilities and reduce pressure on funding ratios. Second, higher rates will make markets more rational and value-oriented.

Third, higher rates will intensify the search for better returns as periodic market storms create bargains in underpriced distressed assets; especially in fixed income where wild swings could create many 'fallen angels' as spreads widen.

Fourth, higher rates will enhance the appeal of inflation protection assets in private markets – such as infrastructure, real estate and private debt – if policymakers turn out to be more tolerant of inflation than they publicly acknowledge.

Figure 1.4 - Over the next 3 years, which of the following asset classes will be most suited to delivering your investment goals?

Return seeking assets	% of respondents	Inflation-protection assets	% of respondents	Hedging assets	% of respondents
Global equities	70	High quality equities	62	US goverment bonds	44
US Equities	58	Real estate	49	European goverment bonds	40
European Equities	47	Infrastructure	49	Chinese government bonds	36
Chinese equities	40	Inflation SWAPS	46	IG corporate bonds in China	32
EM equities (excl. China)	22	Private debt	44	IG corporate bonds in the US	29

Asset growth ← → Liability matching

Source: Amundi Asset Management/CREATE-Research Survey 2022

Climate investing on the up, yet under pressure… temporarily at least

In the post-pandemic era, the spotlight has turned on megatrends that are driving disruptive innovations, reshaping business models and moulding public and corporate policies. As a result, 60% expect to increase their allocations to such themes.

Climate action remains the predominant initiative as it envisages the rechannelling of capital on an unprecedented scale. Themes of clean technology (54%) and hydrogen (31%) rank highly amongst respondents.

But in 2022, the Ukraine war unleashed a larger geopolitical dynamic that has nothing to do with ESG per se, but has nevertheless hit ESG funds as markets turned ultra-volatile. ESG funds have been trailing in 2022 after outperforming over the past 10 years. This is because, by design, most are underweight in the energy and defence sectors – those that have surged most in the wake of the war.

The reliability of ESG ratings from data providers has also been in the spotlight, given the notable differences in their proprietary methodologies, weighting systems and measurement tools. In the political arena, ESG has also invoked a backlash, especially in the US.

But our survey participants see these problems as **a setback, not backsliding**. More positively, the pledges at COP26 and COP27 have ensured that 87% of global emissions are now covered by net zero targets. Meanwhile, on the corporate side, new disclosure rules in America, Europe and China are expected to ease the net zero path. 64% of our survey participants expect allocations to ESG funds to increase over the next three years and only 6% see allocations decreasing.

With performance faltering lately, the **approach to ESG investing is under review** and the next stage will be shaped by the many policy tools that are now in place worldwide.

A return to fundamentals will favour stock picking

With deteriorating fundamentals now defining the global economy, the search for predictable sources of value creation has intensified.

Passive funds enjoyed strong tailwinds from central banks' quantitative easing. It effectively put a floor under asset prices and dampened volatility. Active funds struggled as asset prices unmoored from their fundamentals.

In the turbulent environment since the market falls at the start of the pandemic in March 2020, passive funds have retained their attraction due to their low cost (86%) and performance predictability (48%). They are also seen as an effective tool of dynamic investing, liquidity management (58%) and an international diversifier (49%).

Over 80% of our respondents now have passive allocations in excess of 20%. Taking a forward view, 29% of participants expect to increase their share, 16% expect to decrease it, with the remaining 55% unchanged.

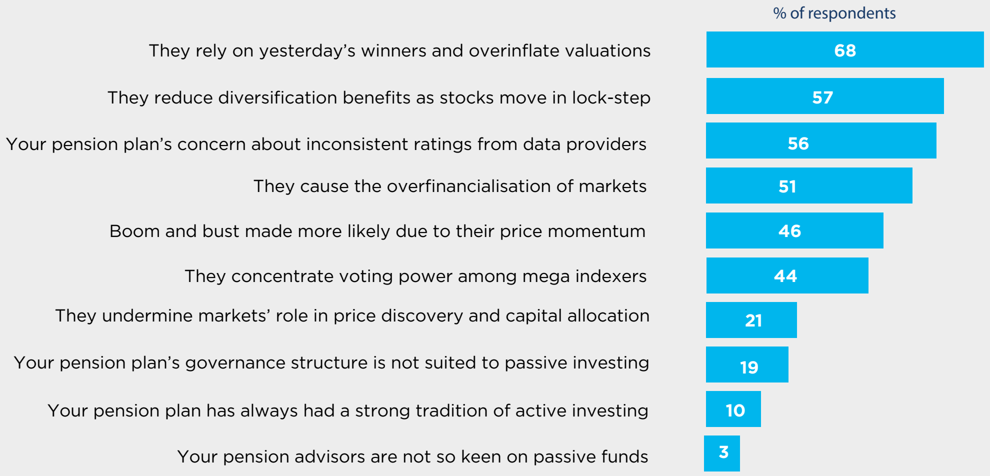
Whilst their popularity is still on the rise, some of passive investment's inherent downsides rear their heads as the unique environment of zero-bound interest rates ends (Figure 1.5). 68% of respondents agree that passive investments rely on yesterday's winners and overinflate the price of their component companies. By buying bulk, passive funds ignore the merits or demerits of each component. Conventional value drivers like earnings growth, currency trends and macro economy are overlooked. This ensures that the most valuable companies continue to remain so, irrespective of their future prospects. 58% are concerned by the inconsistency of ESG ratings from data providers for ESG indices.

Another design issue is that passive investment reduce diversification benefits as their components move in lockstep (57%). Furthermore, the growing concentration of voting powers among mega indexers is becoming a matter of concern (44%).

Overall, the environment is turning positive for active management. The post-pandemic economy favours companies on the 'right' side of change. There will be **new opportunities for actives** to prove their worth, as central banks' effectiveness at artificially propping up market prices and suppressing volatility wanes.

As central bank support decreases, market prices are increasingly likely to reconnect with their fair value via mean reversion and a renewed focus on earnings. Indeed, in the key markets, the prices of components in passive indices are already showing rising cross-sectional dispersion that favours active stock picking. Growth in passives is expected to slow down. **A complementary approach to actives and passives in a diversified portfolio is likely.**

Figure 1.5 - What do you see as main drawbacks of passive funds ?



Source: Amundi Asset Management/CREATE-Research Survey 2022

Quotes from survey participants:

"Alpha is no longer possible to harvest in deep liquid markets. So, active managers are now focusing on inefficient markets."

"Passive investing is not all that passive. Investors have to make some active decisions on the choice of indices."

In taking stock of the current state of mind of pension funds in Europe in a particularly volatile and evolving environment, our 2022 Amundi Create survey highlights many interesting issues that will be the basis for future themes addressed in the next Amundi Pension Fund Letters and future CREATE surveys.

Amundi-CREATE 2022 survey: Highlights

(% of pension plan respondents)

Future scenarios

74%	63%	50%	59%
Expect a regime shift from deflation to inflation	Expect rising inflation expectations as central banks were too slow to react in 2021	Expect a 1970s-style stagflation foreshadowing an 'anti-Goldilocks' economy	Expect inflation to have a negative effect on pension funding ratios

Asset Allocation

59%	70%	49%	44%
Expect asset returns to be significantly lower than in the last decade	Expect global equities to provide the best relative returns	Expect real estate to be ideal for inflation protection	Expect US government bonds to be an ideal hedging asset

Thematic Investing

46%	66%	52%	60%
Expect a thematic premium in the post-pandemic period	Expect rising interest in ESG as the main driver of thematic investing	Think it is too early to say how their thematic funds have performed since the pandemic	Expect to increase allocations over the next three years

Active-passive Investing

86%	58%	68%	52%
Like passive investment on account of their low cost in a low nominal return environment	Prefer passive investment in liquidity management to meet cash flow needs	Think passive investment rely on yesterday's winners and overinflate valuations	See active and passive investment as complementing each other in a diversified portfolio

About the survey: each year, Amundi and CREATE interview pension plans to highlight insightful convictions for the year to come. The 2022 edition aims to find out how DB plans are juggling with conflicting priorities at a time when asset values are trading at nosebleed levels that are far removed from reality. Taking a 3-year forward view, the survey pursued four lines of enquiry:

- Which scenarios are likely in response to the recent surge in inflation?
- How are pension investors changing their asset allocation?
- Why is theme investing likely to become a key pillar of investing?
- Will the balance between active and passive funds become more even?

The survey is based on 152 respondents from 17 pension markets, collectively managing €1.98 trillion of assets.

Read the full Amundi-CREATE report

Karin FRANCERIES
Head of OCIO Advisory

Ripples for pension funds around the world from the UK LDI crisis

1 Context

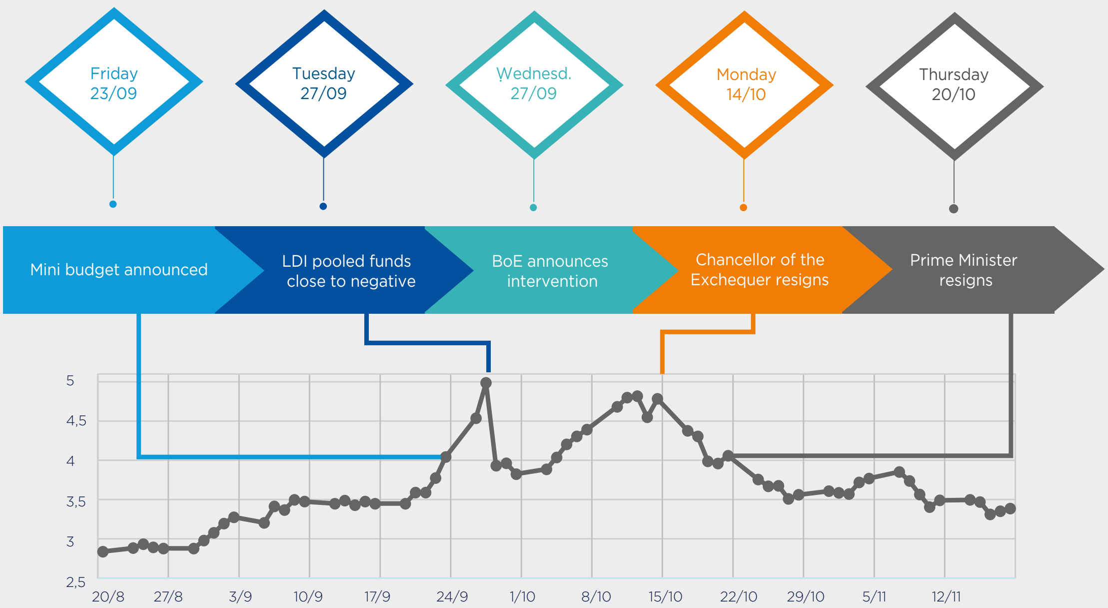
Trigger: Given yield increases at the announcement of the UK accommodative "mini budget", pension schemes suffered a massive liquidity crisis related to their levered LDI strategies.

Bank of England reaction: In the words of Sarah Breeden[1] from the Bank of England: *"the self-reinforcing spiral it led to meant that around £200 billion of pooled LDI funds threatened the £1.4 trillion traded gilt market, which itself acts as the foundation of the UK financial system, underlying around £2 trillion of lending to the real economy through wider credit markets."* This drove the Bank of England to temporarily halt its quantitative tightening and support liquidity in the gilts' market to preserve financial stability.

Political consequences: The events were so severe that it certainly contributed to the fall of the UK Prime Minister, Liz Truss, who had to first reconsider her government tax cut plan a week later and then subsequently resign.

So far, this crisis has been focused on the UK, but the questions it has raised are valid for pension funds around the world.

Figure 1 - Timeline of the LDI crisis in parallel to 30yr gilt rates' evolution



Source: Amundi Asset Management/CREATE-Research Survey 2022

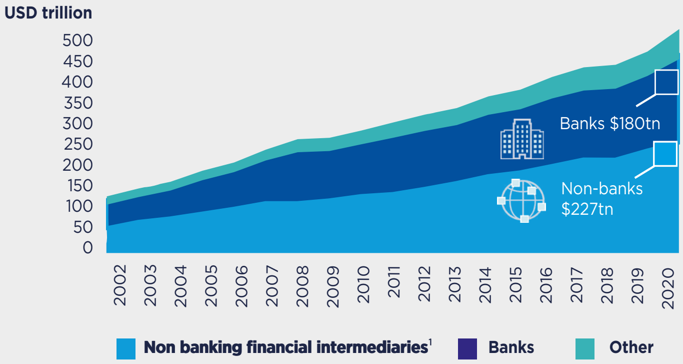
1. https://www.bankofengland.co.uk/-/media/boe/files/speech/2022/november/sarah-breeden-speech-at-isda-aima.pdf?la=en&hash=C73C37392EB4D7A7A9CDFDDAE035C3A1CDBF85D4

2 Lessons learned

- **Lesson 1: Be aware of leverage**

Reassess leverage risk in investments.

Figure 2 - Importance of non-banks in global financial assets



Source: Financial Stability Board, as of 31/12/2021. [1]NBFI include corporations, pension funds, other financial intermediairies and financial auxiliaries.

As Amundi's CIO Vincent Mortier put it in an FT interview[2] on 25th October 22, *"the [LDI crisis] amounts at stake are huge and it is a further reminder of the depth of leverage in the system, which is in multiple places that are difficult to track".*

In the case of the UK, the situation was the direst for **pooled LDI funds**. Whilst they represent around 10-15% of the LDI market, they accelerated the crisis. The incredibly rapid rate increase left the holders of these highly levered funds with only one to two weeks to find the liquidity needed to rebalance their positions. They had to fire sale investments. As pension schemes hold about 30% of gilts in issuance (and even more for long dated gilts), this sale triggered a large rate increase.

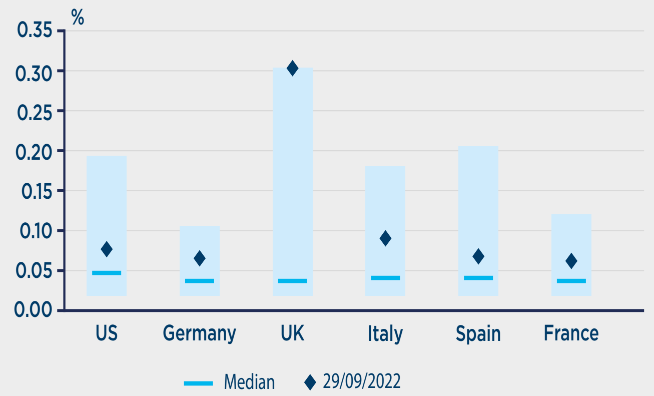
Higher rates do not just impact LDI investors. Theoretically, all levered assets may be penalised by higher rates. For pension fund investors, special care should be paid to risks within high leverage investments: hedge funds, real estate, private equity, etc...

- **Lesson 2: Adapt**

Adapt the leverage strategy to the environment: more volatility in rates should lead to higher liquidity buffers and to looser LDI constraints (e.g. lower leverage targets). Whilst the UK situation looked very serious initially, UK pension schemes did manage to show agility despite this unprecedented situation. As Sarah Breeden puts it[3] , *"LDI funds raised over £40 billion in funds and made over £30 billion of gilt sales during our operations, both of which have contributed to significantly lower leverage.... As a result, LDI funds report that their liquidity buffers can withstand very much larger increases in yields than before, well in excess of the previously unprecedented move in gilt yields"*. It should be noted that the UK's Work and Pensions Select Committee has launched an enquiry that should help draw lessons on what can be learned from the crisis.

Whilst less acute, **the picture is similar in the rest of Europe:** volatility was between 1.5 to 2.25 times their historical median level during the UK LDI crisis. One would expect therefore that pension funds with an LDI strategy calibrated for a median volatility level would adjust their liquidity and leverage to reflect the current environment. Pension funds might find that tight constraints on their LDI strategy relative to their liabilities could be enlarged: in a highly volatile environment, breaches are more likely. Resolving them will entail frequent and costly trading. It might be wiser to **1) relax interest rate volatility-based constraints until markets cool down but 2) to increase liquidity buffers to preserve enough cash for derivatives' management.**

Figure 3 - Daily volatility ranges of 30yr government yields



Source: Amundi Asset Management, Bloomberg

NOTES Daily Volatility of interest rate changes is calculated on a rolling basis assuming a 20-day window. The sample spans from 1st October 2002 to 28th September 2022.

2. "Amundi warns on hidden leverage in the financial system", FT, 25/10/22
3. https://www.bankofengland.co.uk/-/media/boe/files/speech/2022/november/sarah-breeden-speech-at-isda-aima.pdf?la=en&hash=C73C37392EB4D7A7A9CDFDDAE035C3A1CDBF85D4

Indeed, we have seen numerous reactions on diverse aspects of LDI in Europe:

- **More stress testing** from our clients in Continental Europe for closer monitoring of the leverage of their LDI strategies.
- **More involvement from regulators**: for example, the Irish regulator has asked the trustees of the thirty largest pension schemes to provide information about their LDI strategies.
- **Better leverage practice**: Danish pension funds reflected in IPE[4] on the need to use *"central clearing for derivatives. This is particularly relevant now that the EU is ending the exemption for pension funds to clear derivatives on a central counterparty (CCP) clearing house from next year."*

- **Lessons 3: Be careful what you call liquid.**

In an incredibly time-sensitive situation, pension funds found themselves in a forced asset sale and felt the pain of low liquidity in their asset base.

Government Bonds? What stands out this time is that even UK gilts experienced impaired liquidity due to the massive market impact from strongly rising yields and the pure size of UK LDI assets. It must be noted that there have been some qualms about the liquidity of US Treasury bonds. On 20th October 2022, the FT[5] mentions for example that Janet Yellen is "worried about a loss of liquidity in the market". This could be favoured by quantitative tightening measures, which reduces demand on government bonds.

Growth assets? Due to the LDI crisis, we have seen some large UK asset managers reduce the liquidity conditions of their funds.

- **Lesson 4: Be ready to derisk even further**

On 30th September 2022, IPE asked "Goodbye, LDI?[6] ". Indeed, when EU pension investors look at the tense situation of their UK peers, they might become scared of the high volatility. However, it is advisable to keep a cool head. The recent regime shift in rates did not only bring volatility up but also strongly improved funding ratios (see article 4: *Pension funding ratios: winning on the liability side*). As most of EU pensions were short duration versus their liabilities, the market impact from rates helped to outperform liabilities to a much greater extent than could have been achieved through common growth assets.

Therefore, the better funding ratios at today's rate and spread levels can show an interesting opportunity to revisit the split between LDI and growth assets. Apart from the present turmoil, pension funds may take advantage of the changed market environment to de-risk their pension strategy from a strategic standpoint.

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4. UK LDI woes raise wider European questions, IPE, November 2022 Edition
5. The Market in Treasuries is soaring trouble, Gillian Tett, FT, 20/10/22
6. https://www.ipe.com/news/analysis-goodbye-ldi-too-early-to-say/10062488.article

Eric TAZE-BERNARD
Senior Advisor, Amundi Institue

How do institutions segment their investment universe?

Benefits and drawbacks of asset segmentation

The issue of asset segmentation is far less trivial than it may sound. Indeed, segmenting the investment universe can be a useful way of looking at a portfolio and ensuring it is **appropriately diversified** across the major return drivers. A two-step portfolio construction process, whereby a strategic asset allocation is defined first, and then implemented at asset class level (as opposed to a single-step portfolio optimization) has been underlined in academic research[7] as sub-optimal. Yet this drawback has not prevented segmentation of asset classes from being a common practice within institutions: their investment management departments are **typically divided and structured by asset classes** such as equities, fixed income and alternative investments[8], and sometimes sub-asset classes like regions, sectors or themes. This is because, in order to achieve superior returns through active management, portfolio managers need to have a high level of specialisation on which they can build an informational advantage.

How do institutions approach the issue?

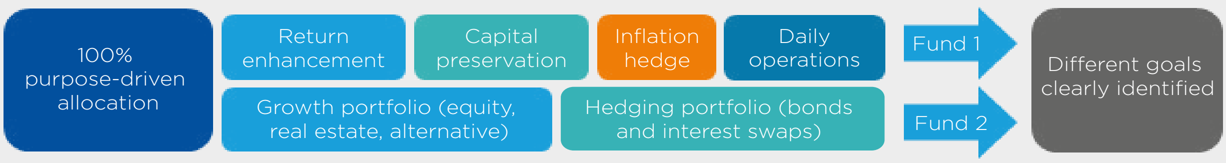
According to our observations, the most common investor practice seems to remain traditional allocation across asset classes, with a segmentation between equity and fixed-income, due to the practical advantages already mentioned. Alternatively, some institutions segment their allocation in terms of economic purpose or risk, encompassing a **growth/hedging** or a **return/income-generation** segmentation. Pension funds in particular usually split their allocation between **growth**, largely composed of equity-related strategies, and **hedging** (or safe-haven) assets composed of high-quality bonds. This approach has a significant overlap with the traditional equity/fixed income allocation split, but it has the advantage of providing investors **more flexibility** to allocate to other types of assets that may have equity-like or bond-like features, including for instance real estate or infrastructure. Some investors also allocate their portfolio along **risk premia** identified as offering potential reward, such as illiquidity, credit, FX carry, etc... rather than by asset class. Others define allocation between active and passive strategies as one key portfolio construction driver, as each of these implementation modes can be adapted to different asset classes and contexts[9].

The following illustration (see Figure 1) presents two distinct examples of purpose-based asset segmentation.

Some investors have adopted a mixed approach, combining traditional allocation by asset class with additional categories such as "liquidity", "overlay" or "opportunities". This mixed approach can also combine an allocation to traditional asset classes with implementation via specific, inherent factors. For instance, a given allocation to equities could invest in equity factor strategies that, in the case of high dividend or low volatility strategies, are designed to help mitigate portfolio volatility.

Liquidity is an additional segmentation axis. This involves splitting assets between those that are fully liquid (especially during times of crisis), those that offer limited liquidity (most private assets) and those in-between (such as high yield debt) whose liquidity depends on market conditions and on the size of trades. Such liquidity segmentation helps ensure that the investor remains able to meet liability requirements while benefiting from the illiquidity premium.

Figure 1 - Examples of institutions' purpose-based asset segmentation



Source: Amundi Asset Management/CREATE-Research Survey 2022

7. Marie Brière, Strategic Asset Allocation for a Default Pension Plan, Amundi Discussion Paper # 51, October 2021
8. This is despite the heterogeneity of alternative assets, as already stressed in particular in "Allocating to real and alternative assets", Amundi Insights paper, April 2021
9. https://research-center.amundi.com/article/combining-active-and-passive-investing-multi-asset-institutional-investor-framework

Governance considerations

Segmentation decisions are not merely an investment approach, but may also have implications for investment governance.

First, as the main benefit of asset segmentation is to focus the allocation decision process on the **key drivers of asset returns**, investors should spend time formulating their beliefs about what they consider such drivers to be: broad asset classes, factors, geographies, investment styles or themes, investment purpose (return, income, hedging)... Taking the example of thematic investing, which according to Create Report is expected to gain interest, investors need to position it within their investment universe, either as one core axis of segmentation or as a satellite implementation type of strategy. **Any definition should be adaptable** if the investor anticipates a change of macro regime and given its importance, it should be validated at the highest level of the organisation, typically the Board.

We then recommend **defining a limited number of segments** (possibly up to 4 or 5) to avoid the complexity linked to excessive granularity and to ensure that the selected segments are specific and not highly correlated to each other. These groupings or clusters should ideally be statistically independent from each other, to ensure that asset classes within the same cluster behave relatively similarly. Operationally it is also better to minimize the number of clusters as the more you create, the more difficult it is to explain and monitor their behaviour over time.

To avoid the potential sub-efficiency of asset allocation segmentation compared to a total portfolio approach, a strong, central team should be in charge of piloting the return/risk/liquidity allocation of the portfolio, based on quantitative tools designed to compare asset classes within a coherent framework and to test their behaviour in different scenarios. Adding an integrated portfolio construction layer to the different allocation buckets can therefore help overcome the limitations of an overly segmented investment approach. This team can also foster a regular dialogue between asset class specialists in order to calibrate and structure the portfolio, and in particular the inflation cluster that we advise institutions to set up.

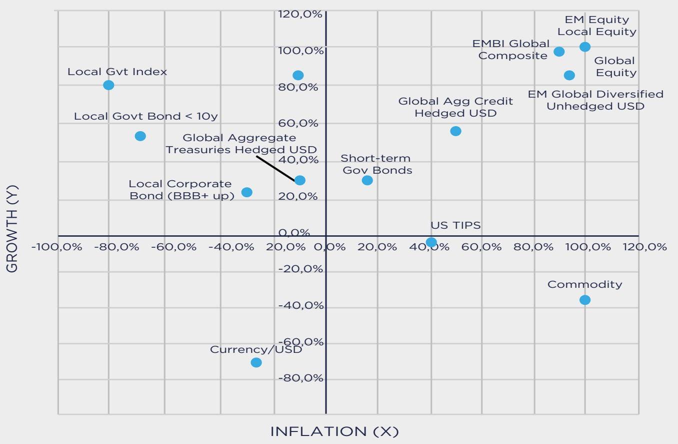
Coping with the risk of higher inflation persisting in the long term

The definition of segmentation needs to be revisited as we are entering a new regime[10][11]. As the 2022 Create Report discusses in more detail, the probability of higher inflation persisting in the long term calls into question the diversification effect between bonds and equities that has been the basis of traditional allocation segmentation, as correlation between bonds and equities tends to significantly increase during times of high and volatile inflation.

Higher inflation is clearly negative for bonds, and it also negatively impacts equities, at least in the medium term, until indexation mechanisms allow earnings to keep up with the higher nominal growth trend. This calls for **diversifying** allocation **beyond the traditional bond/equity** split and for defining an inflation-hedging category of assets. Using the terminology in the Create Report, obvious candidates for this inflation-hedging cluster are those that "seek to overtly hedge inflation", such as inflation-linked bonds and commodities. For some investors, "implicit inflation-hedging assets" such as real estate and infrastructure may also be included, as their return is partly impacted by inflation trends. Clustering methodologies can be used to analyse how various asset classes behave in different macroeconomic regimes, defined around the growth and inflation factors that we believe are two major drivers of asset returns. They can also help position asset classes based on their behaviour in different types of scenarios, as illustrated in Figure 2 based on Amundi's proprietary clustering methodology.

It underlines:

Figure 2 - Asset segmentation along Inflation and Growth based on clustering analysis



Source:Amundi Asset Management Cross asset Research, as of August 2022

- **a growth cluster** - on the top right of the graph - that includes equities but also emerging debt which, like equities, is sensitive to both growth and inflation,
- **an inflation cluster** - on the lower right of the graph - principally consisting of commodities,
- **an interest-rate cluster** - in the upper left quadrant of the graph - including domestic government bonds, global treasuries and domestic credit, with a clear distinction between IG – closer to safe-haven assets - and HY - more similar to growth assets -,
- **the exchange rate** of the local currency vs USD on the lower left, confirming the attractive diversification potential of currency in asset allocation.

10. https://research-center.amundi.com/article/embarrassing-legacy-financial-capitalism-implications-investors
11. https://research-center.amundi.com/article/road-back-70s-implications-investors

Jean-Xavier BOURRE
Head of OCIO Investment Strategy Advisory

Benjamin BRUDER
Senior OCIO Advisor

Pension funding ratios: winning on the liability side

	31/12/2018	31/12/2019	31/12/2020	31/12/2021	31/03/2022	31/06/2022	31/07/2022	31/08/2022	30/09/2022	30/10/2022
Netherlands	103.6%	104.3%	100.2%	114.3%	118.8%	122.4%	119.9%	125.4%	124.6%	126.1%
UK	95.7%	99.2%	95.5%	107.7%	111.4%	120.1%	118.2%	125.1%	134.8%	133.6%
US	86.10%	86.80%	87.90%	95.5%	95.1%	93.9%	93.5%	93.0%	93.8%	97.3%
German CTA	67.3%	67.9%	69.1%	77.0%	79%	90.7%			91.7%	

Sources: - UK data: Purple Book, PPF S179 funded status
- Netherlands data: Dnb
- US data: Aon Pension Risk Tracker.
- German CTA data: FactSet, based on average pension exposure of German corporates of EUROSTOXX 600 for 31/12/18 until 30/12/20. Amundi estimate from 30/12/21.

Since our publication in July 2022, funding status of DB pension funds **improved moderately** in the US and the Eurozone, and **significantly** in the UK. This improvement occurred despite poor equity and bond performances.

The shift was mainly driven by **large interest rate increases**, which had an overall positive effect on the funding ratios due to the balance sheet being typically only partially hedged to interest rates. This is particularly the case in the UK, where the government's "mini-budget" triggered unprecedented moves.

Q3 2022 Market review

The third quarter of 2022 was another difficult period for the markets with the **majority of assets losing ground** with few exceptions. The quarter started well and the summer season temporarily brought some sunshine to investors as the main equity markets had rallied until mid-August. Supporting this trend was a series of assumptions on key themes that drove the market: inflation was assumed to be at its peak and starting to recede, growth was judged to be on a soft landing path and it was concluded that central banks had done most of their required work. Then starting from mid-August markets inverted their trends and started to decline due to persistent inflationary pressure and hawkish stances from central banks. Overall, during the quarter, investors grew more concerned about **growth slowdown, high levels of inflation** and **aggressive rate hikes**. This led to a broad-based sell-off across equities and sovereign yields rising to levels not seen in a decade, whilst the U.S. dollar remained one of the few positions worth committing to. October was another **volatile month**, but most assets closed in positive territory with markets characterized by phases of optimism countered by moments of fading hopes over whether central banks would start pivoting away from their campaign of rapid rate hikes.

Impact on funding ratios

For the third quarter, the **MSCI World Equity** index experienced a -6.2% depreciation in net USD total return terms. In October, the index experienced a +7.2% appreciation in net USD total return terms.

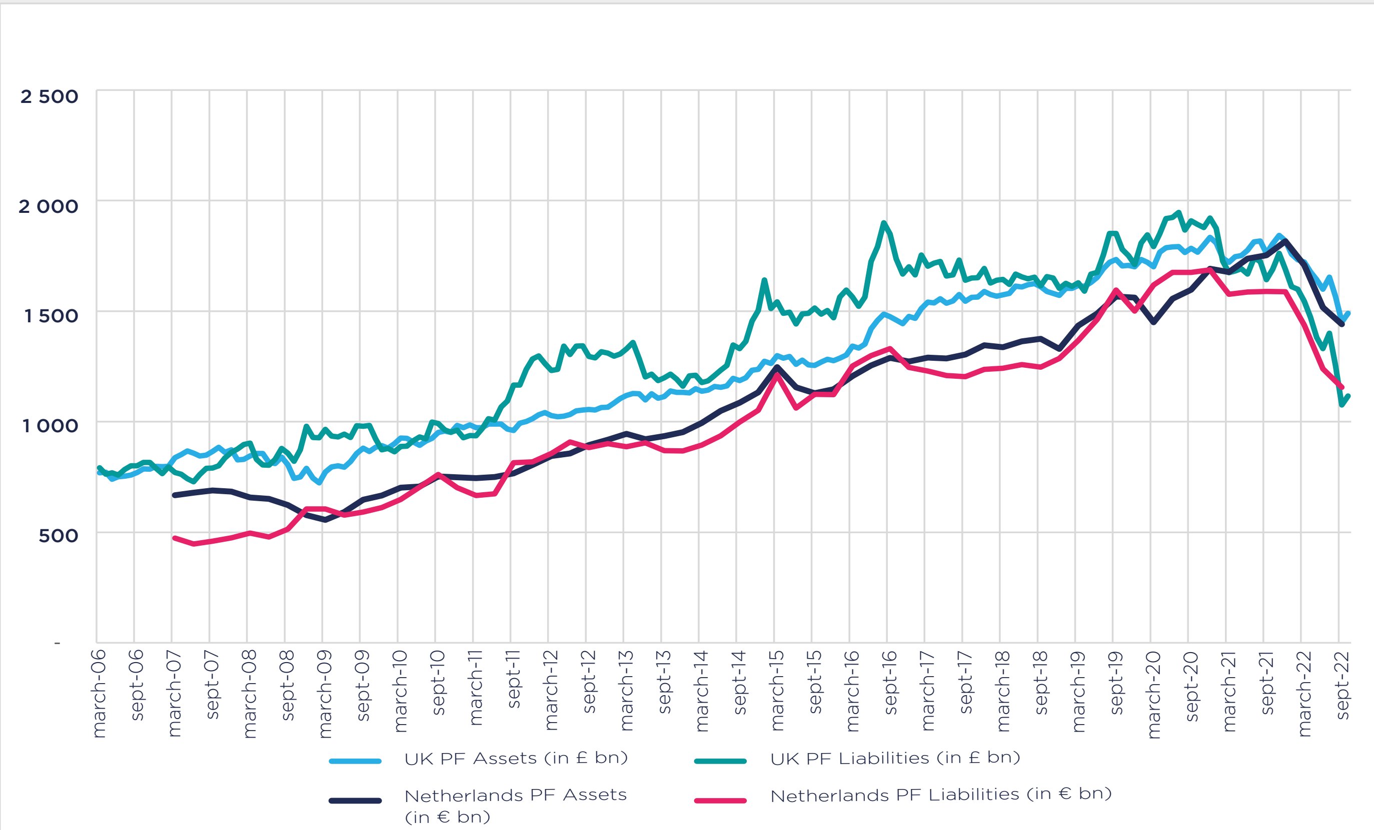
With regards to **sovereign bonds**, persistent inflation and more hawkish than expected central banks meant that sovereign bonds experienced their third negative quarter of the year, with a 15Y yield increase around 0.8% over the quarter in both US and the Eurozone. **US bonds** continued this negative trend in October, while **Eurozone bonds** sustained around the same levels.

The **UK Gilts** were the worst performer in Q3 given the market turmoil in the UK with a +1.5% 10Y rate increase during the third quarter. In October, 10Y rates moved down -0.25% following the UK government's reversal of their mini-budget and the arrival of a new Prime Minister.

Meanwhile, **long-term inflation swaps** across all zones were still volatile in Q3 and October, with no overall upward or downward trend.

Funding ratios of DB pension funds were mainly driven by interest rates effects, which dominated over the effects of equity returns over the period. In July, a fall in discount rates due to sovereign yields increased the present value of liabilities, which subsequently had an negative impact on funding ratios despite a positive asset performance. In contrast, the rest of Q3 showed a large rise in discount rates, with a **positive impact on funding ratios**, while equity and bonds performed negatively. As seen in the graph below, while the poor financial market performance in recent months has had a significant impact on assets, the **solvency situation of pension funds improved** due to an **even greater decrease of liabilities**[12]. Ironically, UK pensions experienced the highest funding ratio improvements (nearly +15% in Q3), in particular during the UK LDI turmoil, due to the spike in discount rates.

Pension fund asset and liability levels in UK and Netherlands



Sources: - UK data: PPF 7800 Index - Netherlands data: DnB

12. The interest rate sensitivity of Dutch PF liabilities is expected to gradually increase until 2024 (by aligning with market rates the long tenors of the liabilities discount curve), due to the transition to the new DnB Ultimate Forward Rate framework (see Pension Fund Letter # 11, May 2021, for more details).

INVESTMENT OUTLOOK 2023
SOME LIGHT AFTER THE STORM

Read the full article here

10 KEY CONVICTION FOR 2023 FROM CIOs

1. The Russia-Ukraine conflict is acting as an accelerator towards a regime shift.

2. The energy crisis will be the main economic driver in Europe, which will fall into recession.

3. China's economy could unveil positive surprises in 2023, depending on outcome of housing market and Covid-19 policy challenges.

4. Central banks will do whatever it takes to fight inflation and avoid a 1970s-style crisis.

5. After the great repricing, market valuations are more appealing. Prepare for gradual entry points.

6. 'Bonds are back' remains an investor theme entering 2023.

7. Equities will offer entry points during the year. Start cautiously.

8. Emerging markets divergences will intensify in 2023. Selection will remain crucial.

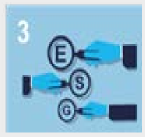
9. Long-term ESG themes were reinforced by the Covid-19 crisis and the Ukraine war.

10. The 60-40 allocation revival is in sight.

ESG THEMES FOR 2023

Energy transition, food security and infrastructure key top-down themes

Cyclical impact on ESG - Best-in-class and social themes back into focus



Deep dive into key E, S and G subthemes – improvements could lead to value repricing

Commitment towards net zero will be crucial

CROSS ASSET Investment Strategy

BASE AND ALTERNATIVE SCENARIOS AND RISKS

Upside — 15%

Inflation falls back ending the stagflationary episode

Central scenario — 70%

Stagflationary episode, with rising divergences and persistent inflation

- Stalemate in the Ukraine war.
- Inconsistent fiscal and monetary policy.
- Fed ends tightening in Q1 2023, more dovish stance in Q4 2023; BoE: soft hiking cycle; ECB raises rates / activates TPI; PBoC easing.
- EU activates rescue plan to deal with energy crisis.
- Softening energy crisis in H2 2023.
- Inflation: above CB target until 2024.
- Global nominal GDP growth trends higher with recession (EU), modest rebound (China), subpar growth (US).
- Corporate profit recession to go on in H1 2023, followed by recovery.
- Global financial conditions to deteriorate amid continuation of the tightening cycle.
- Limited spread widening.
- Climate change adds to stagflationary trends.
- Climate risk hampers growth.

Downside — 15%

Deep global slump

CROSS ASSET Investment Strategy

AMUNDI ASSET CLASS VIEWS

	Asset Class	View	1M change	Rationale
EQUITY PLATFORM	US	=/+		We are witnessing a bear market rally in stocks as investors try to assess a potential change in Fed stance, which depends on inflation expectations and consumption strength. We navigate this phase via a selective approach & caution on mega caps, and focus on companies with strong business models & the ability to reward minority shareholders through dividends.
	US value	+		Value names with strong quality characteristics are preferred during times of slowing economic growth. However, in all cases, we are comparing the earnings resilience with the current stock valuations in search for opportunities.
	US growth	-		Growth names continued their underperformance this year amid tightening monetary policy. But we are watchful of some tech names that have corrected this year, but we remain cautious on growth as a group.
	Europe	-	▲	A cost of living crisis in Europe will affect corporate earnings and equities. But there is a possibility for a near-term rebound amid signs of CB dovish guidance that can boost markets temporarily, even as we continue to believe in a cautious stance. Concrete CB actions and upward earnings revisions are needed before we are convinced of a cyclical change in our views.
	Japan	=		The export-oriented Japanese market is led by cyclicals, including industrials and discretionary, which may be weighed down by a deceleration in global economic growth. However, yen movements can affect that, and we stay neutral.
	China	=		News flow around Covid is driving the markets, but we'd like to get more clarity on how government plans to proceed with its Covid policies from a medium-term perspective. For now, our stance remains neutral as we evaluate the country's shift towards a 'common prosperity' growth model and domestic consumption and geopolitical risks.
	Emerging markets ex China	=		Geopolitical tensions, idiosyncratic risks and domestic demand are driving our views on EM, which remain a playground for stock selection. We are positive on commodity exporting countries such as Brazil and the UAE, but are cautious on Taiwan and select south-east Asian countries, including the Philippines and Malaysia.
FIXED INCOME PLATFORM	US govies	=/+	▲	Markets pricing in a higher-than-before terminal rate, attractive UST valuations, and the risk of economic growth slowing paint a constructive picture for Treasuries. However, even though the latest inflation numbers came in below expectations, we think the Fed will assess the inflation trend before altering its tightening stance. We stay very active. Real yields are also becoming attractive, especially in the intermediate range.
	US IG corporate	=/+		IG spreads are likely to be driven by corporate fundamentals, US yields, and inflation expectations. Recent yield movements have supported spread tightening, but we remain slightly positive on the high-quality IG market. However, we think investors should be selective, with an eye on refinancing and liquidity issues.
	US HY corporate	-		With concerns over deterioration in the economic environment and earnings, we remain cautious on high yield, as companies with weak balance sheets and low cash levels will be more affected. We are watchful of liquidity risks.
	European govies	=		While the latest ECB rate hikes were in line with our expectations, the forward guidance sounded a bit dovish. On the other hand, economic recession looks likely in Europe, allowing us to stay close to neutrality on core European duration. On peripheral markets such as Italy, the new government's affirmation of fiscal discipline is positive, but we are still watchful.
	Euro IG corporate	=		Slower economic growth and geopolitical tensions are not favourable for credit and could increase spreads volatility, even though recent ECB comments supported the IG markets. For us, sustainable cash flows and abilities of businesses to navigate potential refinancing risks are key issues in the current economic environment.
	Euro HY corporate	-		HY spreads are holding up well, owing to limited supply and still acceptable corporate earnings, but risks of deterioration in fundamentals remain. As a result, with an emphasis on capital costs and liquidity, we are cautious on HY.
	China govies	=/+		We see a continuation of monetary policy support and diversification advantages of Chinese bonds for global investors. In addition, any growth slowdown in China should be supportive of the asset class.
	EM bonds HC	=/+		Despite the recent spread tightening, HC valuations are attractive from a historical perspective. Stabilising UST yields, high oil prices, and favourable EM-DM growth differentials should be positive for HC, where we prefer HY over IG. We are cautiously optimistic on Brazil (healthy economy, declining inflation) and watchful regarding defaults.
	EM bonds LC	=		In an environment of diverging inflation and consequently different pace of monetary policy tightening, we stay very selective in LC and maintain a cautious view on EM FX. In this respect, we monitor USD movements and any indications of policy changes from the Fed.
OTHER	Commodities			Supply side pressures and geopolitical tensions (Iran/Saudi Arabia, EU/Russia) should provide some support to oil, which could act as a diversifier in the near term. But we acknowledge the risks from an economic downturn. Gold suffered this year from rising real rates, but we think, it would now act as a safe haven if the economy deteriorates. Moving into 2023, a potential change in Fed stance will also be positive.
	Currencies			We remain constructive on the USD, but believe markets would now test the Fed for its dovish pivot. Our pessimistic view on the GBP is maintained.

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Negative view | Neutral | Positive view

▼ Downgrade vs previous month
▲ Upgraded vs previous month

Source: Amundi, as of November 2022, views relative to a EUR-based investor. This material represents an assessment of the market environment at a specific time and is not intended to be a forecast of future events or a guarantee of future results. This information should not be relied upon by the reader as research, investment advice or a recommendation regarding any fund or any security in particular. This information is strictly for illustrative and educational purposes and is subject to change. This information does not represent the actual current, past or future asset allocation or portfolio of any Amundi product.

IG = investment grade corporate bonds, HY = high yield corporate, EM bonds HC/LC = EM bonds hard currency/local currency, WTI = West Texas Intermediate, QE = quantitative easing.

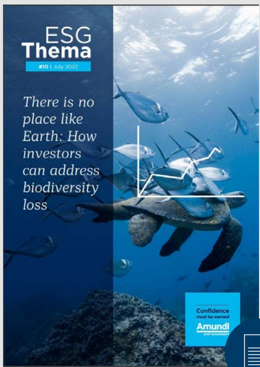
To go further: The Amundi Research Center

Amundi Institute

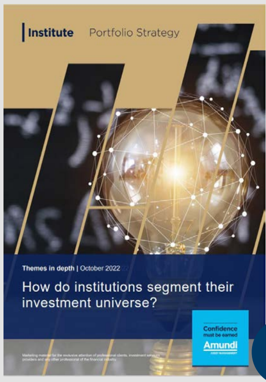
In an increasing complex and changing world, investors need to better understand their environment and the evolution of investment practices in order to define their asset allocation and help construct their portfolios. This environment spans across economic, financial, geopolitical, societal and environmental dimensions. To help meet this need, Amundi has created the Amundi Institute. This independent research platform brings together Amundi's research, market strategy, investment themes and asset allocation advisory activities under one umbrella; the Amundi Institute. Its aim is to produce and disseminate research and Thought Leadership publications which anticipate and innovate for the benefit of investment teams and clients alike.

2023 OUTLOOK

ESG Thema



Thematic Papers



DISCLAIMER