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PENSION FUNDS LETTER

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Building together smart solutions to face a challenging environment

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Unexpected opportunities for pension funds

In the wake of the Covid-19 pandemic, a lot of discussion has focused on the worsening of the retirement prospects of savers around the world. Indeed, exceptional policies, such as the possibility of raiding retirement pots in advance and the low interest rate environment supported by dovish monetary policies, could potentially have dramatic impacts on the availability of pensions in the long run.

However, the first quarter of 2021 brought about some welcome and, to some extent, surprising news. The funding ratios of pension funds around the world have generally improved, in contrast to what had been happening in previous years, mostly thanks to the exceptional performance of growth assets. In turn, this improved funding status will eventually lead to a much-desired reduction in the pressure on pension funds' financial leverage, cash flows and P&L.

The next big question then, is how to lock in the gains in the funded status. This context is ideal for de-risking, i.e., buying long-dated bonds and selling equities. Pension funds might also decide to step up their liability-driven investments (LDI), with different hedging strategies depending on their market structure and specific needs. Regulatory changes pushing for an acceleration in the shift towards defined contribution schemes will also have a major impact on the selection of liability hedging strategies.

Another risk on the horizon that must be taken into account is inflation, which affects defined benefit and defined contribution pension funds differently. Indeed, the inflation-hedging power of the single asset classes strongly depends on the present macroeconomic regime: there is no one-size-fits-all for the optimal strategic allocation to hedge against inflation risk.

Overall, the improvement in the funded status is expected to remain stable in the medium term, according to our analysis. However, this central scenario does not take into account market narratives, drivers of long-term expectations that push existing trends in one direction or another: for example, the "road back to the 70s" narrative, focused on higher growth and higher inflation, could drive a real regime shift with unexpected consequences.

Pension funds should be aware of these narratives and be prepared if a return of inflation does materialise.

Karin FRANCERIES
Head of OCIO Advisory

Looking back to explain the increase in funding

European corporates are not used to good news when it comes to their pension exposure. Over the last 20 years, lower rates (pushing liability value up), more stringent funding rules and tougher regulations have put ever-increasing pressure on those companies still providing defined benefit ("DB") pensions to their employees.

2021 marks a big change: the funding status of pension funds across the world has improved drastically and, according to some measures, is at a three- to five-year high.

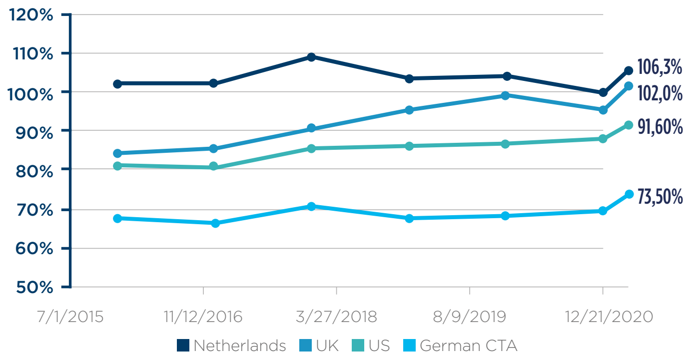
Considering 85% of the 600 largest European companies[1] offer DB pension funds, this increase in funded status is excellent news, as it could lead to a reduction in pressure on:

- their financial leverage — an increase in funding will translate into a one-for-one increase in shareholders' equity and a reduction of the same amount in their net debt;
- their cash flows — contributions are likely to be lower as pension funds are at or approaching full funding; and
- their profit and loss (P&L) — pension costs are proportional to liabilities.

In the below dashboard, you will see that the average European pension fund is now fully funded in the UK and the Netherlands, close to fully funded in the US and significantly improving for German CTAs (74% as of Amundi estimates).

In defined benefit pension investment theory, an improvement in funded status should be protected (as plan sponsors usually have an asymmetry towards risk: a surplus does not benefit them, while they are responsible for the deficit). This means that now should be the time to reduce risk, which generally means an increase in long duration fixed income for pension funds.

Chart 1: funded status evolution of selected countries over the last five years



	31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020	31/03/2021
Netherlands	102.3%	102.4%	109.1%	103.6%	104.3%	100.2%	106.3%
UK	84.2%	85.8%	90.5%	95.7%	99.2%	95.5%	102.0%
US	81.10%	80.90%	85.60%	86.10%	86.80%	87.90%	91.60%
German CTA	67.8%	66.0%	70.5%	67.3%	67.9%	69.1%	73.5%

Sources: UK data: Purple Book, PPF S179 funded status, for 31/12/15 until 31/03/21 - Netherlands data: DnB - German CTA data: FactSet, based on average pension exposure of German corporates of EUROSTOXX 600 from 31/12/15 until 31/12/20. Amundi estimate for 31/03/21 - US data: Aon Pension Risk Tracker as at 31/03/21

Table 1: funding status evolution in Q1 2020

Q1 Evolution	UK	German CTA	USD
Funding status change	+6% (to 102%)	+4% (to 73.5%)	+4% (to 91.6%)
Liability change	-10%	-7%	-7%
Asset performance	-4%	-1%	-3%

Source: PPF, Aon Pension Tracker, Amundi, as of 31/03/21

In the first quarter of 2021, the volatility in financial markets had a significant impact on pension funds across all jurisdictions. One of the most recurring stories was the return of the inflation narrative[2] and the massive rise in yields. This began in January in the US, when the Democrats won the runoff election for Georgia, giving the Biden administration some leeway to pursue substantial fiscal stimulus.

1. Source: Factset, Amundi calculations. Based on their 2019 annual figures, 89% of the EURO STOXX 600 constituents had a defined benefit obligation above 0
2. See Amundi, Do not give up on fundamental valuations. Something has to give in a regime shift. Be prepared, there will be opportunities for value investors, CIO Insights, March 2021

In response, Treasury yields rose by approx. 80bps[3] on the 10y to 30y tenors, affecting yield curves across the board. The UK 10y and 30y gilts increased by 65bps and the German Bund by 25bps. This fast steepening of yield curves, and its consequences on the overall market, affected pension funds' balance sheets in a similar way across jurisdictions (as shown **in table 1**):

- rising yields significantly decreased the DBO (defined benefit obligation) of marked to market **liabilities**, but as hedge ratios were usually below 100%, hedging assets tended to decrease less than liabilities;
- **growth assets** were supported by the strong resistance of the credit market and strong performances across asset classes; and
- as a consequence, **funded ratios** generally improved over the period.

In detail, positive macro data supported this movement. In the US, the acceleration in the vaccination campaign and the large fiscal stimulus are boosting expectations that the US will achieve a relatively quick return to economic normality and an investor focus on growth and its consequences, such as potential higher inflation (the 10-year US breakeven inflation rate started the year at about 2% and finished the quarter at nearly 2.4%). In the UK, manufacturing output rose again, with the Purchasing Managers' Index (PMI) reaching 58.9 in March, a decade high. Supported by an impressive vaccine roll-out and the expected loosening of lockdown restrictions, the domestic market remained a major source of new orders.

In Europe, macro data was generally positive, with confidence in a recovery post the vaccination programme boosting economic confidence in Q1, particularly in March as the Eurozone manufacturing sector expanded at a record rate, with both consumers and businesses expressing stronger optimism about the ongoing recovery. However, this has not changed the dovish tone of monetary policies in the US, Europe or the UK. The improving economic outlook should not affect the monetary stimuli in the short to medium term.

With this overall economic backdrop, it was therefore a mixed quarter for financial markets, with growth assets being the winners while safe-haven assets struggled. Equities, oil and high yield credit mostly recorded positive performances. Conversely, hedging assets lost ground due to optimism over the economic recovery. In addition, investors fear a rebound in the economy could boost inflation.

Looking into specific growth asset classes:

- global equity markets displayed a very strong performance (MSCI World Equity index grew by 4.9% in Q1). In a major reversal from 2020, European indices saw the largest advances, with the US lagging behind (+8.7% for the MSCI EMU vs. +6.2% for the S&P500 and +5% for the FTSE100), albeit rising to fresh highs in March, while emerging market indices were even further back. The acceleration of the rise in long-term yields has favoured a shift from growth to value stocks.
- credit markets remained supported by positive risk sentiment and central banks' quantitative easing, but the sharp increase in bond yields had a sizeable impact (particularly in the US where the Bloomberg Barclays US Aggregate Corporate index posted a return of -4.6% over the quarter, vs. -0.7% for the Bloomberg Barclays Euro Aggregate Corporate index).
- the growth premium in favour of emerging markets is getting thinner as global financial conditions are getting tighter, mainly through rising US yields. This reiterated the fragility of Emerging Markets (EM), though March has seen the first decisive changes in the policy mix and related market expectations, with some EM countries needing to start removing their extraordinary accommodative policies.
- in the FX markets, the dollar strengthened as real yields increased in the US. Investors are now pricing in the fact that the fiscal boost is building a growth premium for the US versus the rest of the world, favouring international capital inflows on dollar-denominated assets that offset the US inflation and imbalances concerns.

3. Source: Bloomberg, 31/12/2020 to 31/03/2021

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Improvement in funding levels: two strategies to protect it

The extraordinary policy responses from central banks and their governments were timely and vital. But they also inflicted toxic side effects regarding pension finances via falling asset values due to plunging markets and ballooning liabilities from falling interest rates. The latter have also hit cash flows essential for regular pay-outs.

Focus on the UK and Dutch pension fund markets

With an improved funding status, pension funds may decide to increase their liability hedging to protect their improved funding. We consider the UK and Dutch defined benefit pension markets to present different options. As they are the two largest markets in the European landscape, they can be used as bellwethers for the whole industry. That being said, it is important to underline first the fundamental differences between them, especially in terms of pension maturity:

- the UK DB landscape is in runoff, with new business mainly written in the defined contribution DC format;
- the Dutch market is still open for business as: (i) deteriorating funding ratios pushed the regulator to grant funding rules' flexibility (such as inflation indexation of pension liabilities contingent to the scheme funding level), thereby lowering guarantee targets when needed by pension funds; and (ii) the regulatory framework is radically evolving towards a hybrid solution, mixing DB and DC features, from 2022 onwards (as discussed in greater detail in "Regulatory changes that matter: the case of the Netherlands and Germany");
- in both countries, funded ratios have been very resilient over the past few years thanks to a steady performance of growth assets coupled with efficient liability hedging strategies (LDI, liability driven investment). As shown in chart 1, this movement has even accelerated in the past few months, with the funded ratio recently reaching the highest peak for several years.

As a consequence of their different states, those two DB markets have different needs:

- in the UK, pension funds are looking to de-risk their investments as they get ready for a buy-out; but
- in the Netherlands, DB pension funds need to continue running the funds, meaning investing in risky assets on one side and liability hedging on the other.

i. UK market : from LDI to CDI

In the UK, most of the DB funds are closed to new entrants. Consequently, a number are moving out of LDI hedging towards a strategy that combines cash flow hedging through the use of credit instruments and the reduction of risky assets. By doing so, they retain longevity risk, reducing drastically their investment risk but keeping some upside thanks to the credit return of their portfolio. The end goal is usually to transfer all of their liabilities to insurers, which is equivalent to a complete outsourcing of both the financial and longevity risks. A number of pension schemes have already gone down that route over the last few years, as shown by the dramatic increase in pension buyout activity (total premium volumes of £24bn[4] in 2018, £40bn in 2019 and £30bn in 2020).

Those cash flow hedging solutions are structured and managed by asset managers. They are usually called "CDI" (cash-flow liability driven investment).

The first generation of CDI solutions used mainly investment grade assets for cash flow matching strategies: stable credit assets for shorter maturities (up to 10 years) and sub sovereigns, supranationals, gilt and/or agencies for longer ones. Those portfolios usually have a low turnover, with a buy-and-maintain investment style. The "natural" life of each instrument (coupons and par redemption) offers occasions for liquidity and reinvestments throughout the scheme life. DB pension schemes usually target an average spread expressed over gilt, such as gilt + [100 to 150] bps.

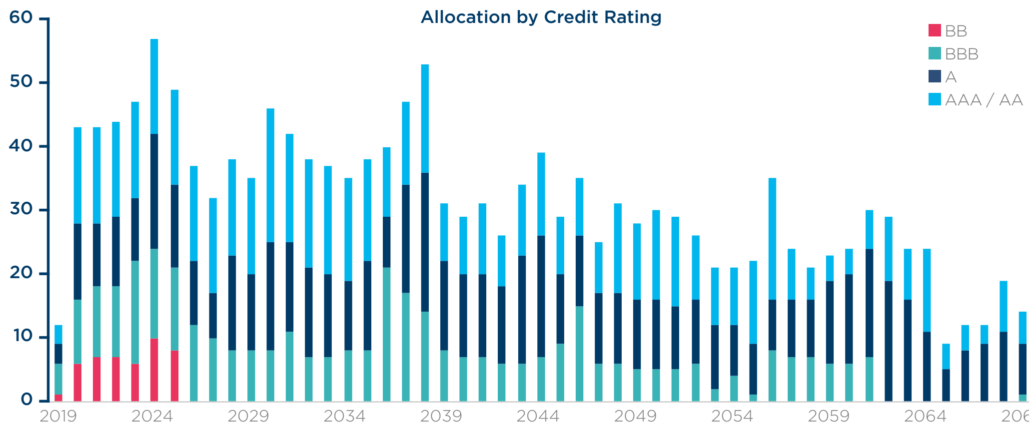
In terms of products, bonds are favoured over swaps for operational reasons (e.g., EMIR[5]) and assets are preferably GBP denominated (usually no more than 30% in non-GBP assets, all FX hedged) even if additional flexibility exists to invest in USD assets to diversify the return potential.

4. Mercer Global Pension Buyout Index Q4 2020 and Q3 2019
5. European Market Infrastructure Regulation

Chart 2: example of a CDI portfolio cash flow profile and investments

Source: Amundi 2021, for illustrative purposes only

Annual cashflows of the proposed portfolio



	Medium-term	Long-term
Focus on	Intermediate credit quality (financials and cyclicals)	High credit quality bonds from defensive sectors
Benefit from	Best-risk-adjusted yield	Long-term cashflows to match your future liabilities

A second generation of products has been rolled out, introducing a sleeve of complex and/or illiquid credit products mixing commercial real estate debt, CLO senior tranches, loans (broadly syndicated loan or middle market loans), high yield, infrastructure debt and long leases. However, those developments have been partly hampered for now, as illiquid assets can be costly to onboard under insurance solvency regimes during an insurance buyout. Moving from LDI to CDI means there is a need to find good entry points on the rates and credit market. The GBP rate market volatility has been helping in that context as nimble investors have had the opportunity to take advantage of better entry points. On the inflation front, activity is limited, similar to the overall LDI hedging strategy, and the focus has recently been concentrated on the change in the inflation referencing index (from RPI to CPI) and its impact on existing books.

ii. Dutch pension fund market

Activity in the Dutch market is quite different.
As they wait for the pension reform[6] to enter into effect, DB schemes are focused on interest rate hedging via LDI, and are less focused on CDI strategies. LDI strategies are meant to primarily hedge liability risk such as duration or inflation and not to increase returns thanks to cash flow-oriented growth strategies such as credit, loans or infrastructure. LDI tools will primarily be derivatives such as swaps, government bonds, and, to a lesser extent, investment grade credit.

The average interest rate hedge ratio is circa 40% across the industry. There are, meanwhile, big discrepancies between the large funds (lower hedging ratio) and the smaller company pension funds (higher level of hedging in order to avoid volatility risk on their balance sheets). It is worth noting that several pension funds have moved from a dynamic hedging programme based on market triggers (e.g., moving the interest rate hedging ratio by 10% if 30y EUR swaps reaches a certain level such as 1.5%) to a systematic time-based increase (e.g., by regular increments of 1% at a set frequency). This means that we have seen a certain form of regular activity on the rates side. This could also be due to the change in the discount rate regulation that is to be implemented over the next four years. This so-called ultimate forward rate[7] reform will reward more precise duration hedging, thus increasing the need for it.

On the inflation side, sourcing inflation to hedge liabilities is not really a theme in vogue: since most funding ratios moved below the FTK[8] trigger of 104% a few years ago, inflation indexation of pensions was paused. In fact, since 2019, we have even seen a noticeable decrease in inflation exposures (through cash and derivatives), partially compensated by investments into real assets, which tend to be seen as diversifiers against inflation risk. We develop this idea inflation hedging strategies: watch out for a return to the 70s.

Looking forward, as the new collective DC schemes proposed by the Dutch government will not guarantee any liability, the need for hedging inflation and interest rate risk might significantly decrease. As the regulation is not yet finalised and will be the result of a plan-by-plan discussion spanned over several years, the market seems for now to be in a wait-and-see mode.

6. See regulatory changes that matter: the case of the Netherlands and Germany on regulations for more details - 7. Ultimate forward rate (UFR): Methodology used to extrapolate the liability discount curve beyond the tenor that is considered liquid enough to be representative (referred to as the last liquid point, or LLP). The method is similar to the one used by EIPOA for the solvency requirements of European insurance companies. It assumes forward rates will regularly converge to a long-term equilibrium rate, the ultimate forward rate, and reconstructs the yield curve for long tenors based on this trajectory. A reform of the UFR methodology was approved by DNB in 2020. The main changes are a shift in the LLP from 20y to 30y and a reduction of the speed of convergence to the UFR. Consequently, tenors up to 40y will now be very close to the actual swap curve (vs. a UFR currently well above 1%). This will increase PF balance sheet interest rate sensitivity (by aligning long tenors with market rates) and deteriorate funding ratios (by flattening the liability discount curve). In order to avoid a shock to the Dutch PF market, it has been decided to smooth the impact of over a four-year period (Jan 2021 to Jan 2024). For more detail on the EIPOA UFR methodology, see Amundi Research Paper, Solvency II - A change to the Ultimate Forward Rate in June 2017? (2016) - 8. FTK: Financieel Toezichtskader (financial assessment framework)

Jean-Xavier BOURRE
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Strategy Advisory

Regulatory changes that matter:
the cases of the Netherlands and Germany

i. The Netherlands: a pension trendsetter in Europe

The secular trends of the decreasing rate environment and increasing longevity have been putting pressure on the Dutch pension fund system for some time, and an in-depth reform of the pension system has been contemplated for several years. A milestone was reached a few months ago when the government and social partners reached an agreement to transition the current defined benefit framework to a defined contribution model in January 2022, with a transition period ending in January 2026 (see details **in Box 1**). Noticeably, this reform coincides with the modification of the ultimate forward rate (UFR) framework that defines the discount rate for liabilities of Dutch pension funds (to be implemented between January 2021 and January 2024). Having a structural impact on the second-biggest pension fund market in Europe, the reform could have implications on the overall market and, if successful, could suggest to other countries a way forward to gradually relax guarantees and transition out of a DB system, while maintaining intergenerational solidarity.

The current DB framework in the Netherlands, which does not require explicit guarantees on liabilities, will be transitioned to a DC framework that will be strongly liability-aware via different asset allocation, risk sharing and distribution mechanisms. Therefore, even if an additional part of the liability risk is transferred to members, the **asset allocation of Dutch pension funds overall should not radically nor quickly change.**

If the current framework imposes strict liquidity rules on Dutch pension funds, the new DC plans would potentially be allowed to invest in **a higher proportion of illiquid and alternative assets** (more in line with the UK market).

Finally, changes in the liability risk hedging strategy in the new DC plan framework will probably **put pressure on the swap market**, leading to a **steepening of the swap curve**, for tenors of 10y to 20y in particular[9]. This would, however, be **temporarily offset by the ultimate forward rate reform**, which aims to gradually reconnect the liabilities discount curve with market rates for long tenors (as described in the previous article). Similarly, relaxing the FTK rules should restart the inflation indexation of pensions, hence their inflation hedging needs, but only for the limited time of the transition period.

ii. Germany: unaffected by the recent increase in market rates, pension liabilities keep moving up

Box 1: Dutch pension fund reform framework :

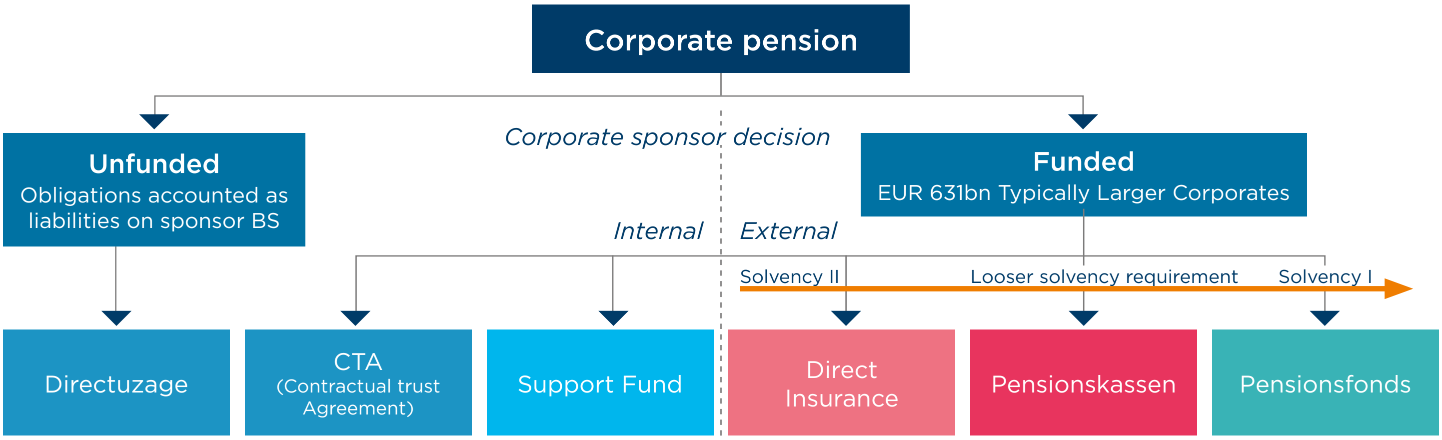
Reform timeline:
- **22 June 2020:** draft bill "Hoofdlijnennotitie door minister van sociale zaken" (framework memorandum from the Minister of Social Affairs) was submitted to parliament
- **January-February 2021:** online market consultation
- **By June 2021:** government will amend and finalise the bill
- **Q3 2021:** submission of final bill to both chambers of Dutch parliament
- **January 2022:** legislation enters into effect
- **Before 1 January 2024:** social partners decide (with pension fund trustees' agreement) on the transition arrangements, in particular if and how past benefit accruals are transferred into the new plan. If no agreement on transition arrangement is made, past benefit accruals remain under the old framework, but relaxed FTK rules could not be used anymore after 31 Dec 2025 (hence potentially triggering benefit cuts)
- **31 December 2025:** end of the transition period

On May 11th 2021 (after the final edition of this Pension Fund Letter), Dutch Minister for Social Affairs and Employment, Wouter Koolmees, wrote in a letter to parliament that, given the complexity of the reform and the need for further consultation of stakeholders, the Future of Pensions Act will be delayed by one year maximum, and enter into effect no later than 1 January 2023.

As shown in chart 3, the German market offers a wide diversity of options for plan sponsors, with specific regulations and constraints. Very often large corporates use all of these pension management possibilities simultaneously, but CTA and Pensionskassen now represent 74% of the pension market in Germany.

9. The liabilities discount curve is currently anchored to the ultimate forward rate for tenors beyond 20y, thus limiting balance sheet sensitivity to long tenors.

Chart 3: an overview of the German corporate pension landscape

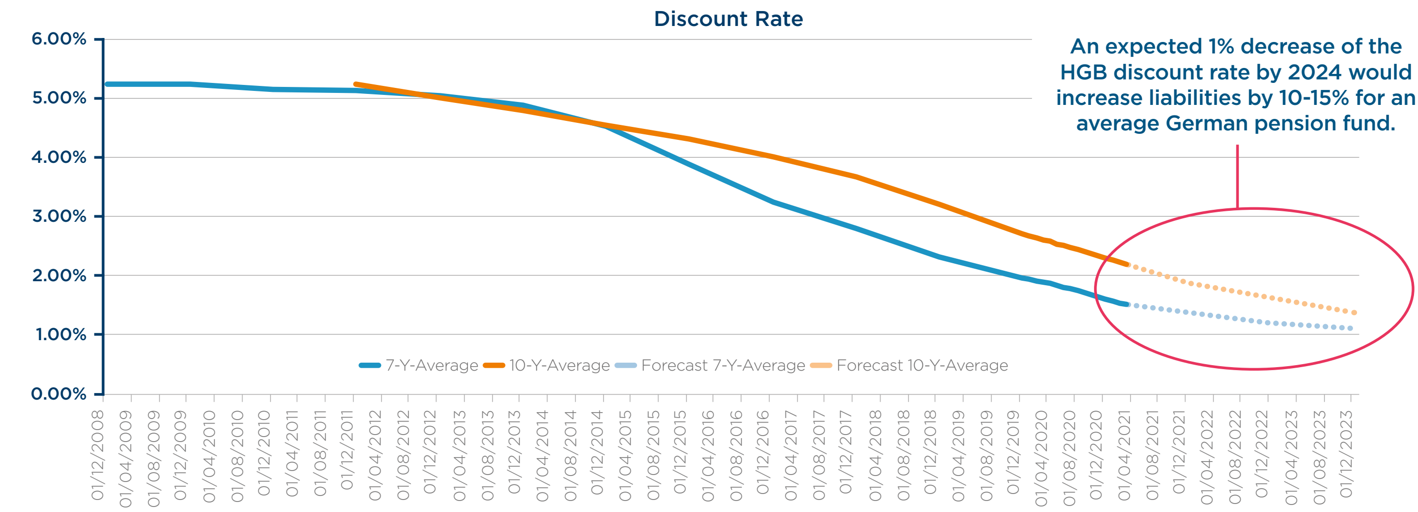


Source: Amundi, As of April 2021

Large corporates usually report their pension exposure using IFRS in their consolidated accounts, where all pension liabilities are valued with market rates and assets are accounted for at market value. Under IFRS, corporates with German pension exposure have usually seen an improvement in funded status in Q1 2021.

Unlike IFRS, however, German accounting standards (HGB) offer the possibility to discount liabilities with an interest rate reference smoothed over seven to ten years (see chart 4). As such, the recent increase in interest rates and the resulting impact on the funding ratio under HGB is less dynamic than under IFRS accounting.

Chart 4: HGB discount rate evolution (2008-2021)



Source: Bundesbank, Amundi, as of January 2021

As far as Pensionfonds and Pensionskassen are concerned, they do not mark-to-market their assets and use a regulated reference to discount liabilities, i.e., the maximum technical interest rate. This rate will most likely be reduced from 0.9% to 0.25%, according to a recent ministerial draft, but given this change will only affect new business, it will have limited impact in the near future.

In addition, the regulatory landscape for Pensionfonds and Pensionskassen in Germany is further developing along European IORP aspirations and domestic conditions. This will not directly affect the sponsors and members, but will likely increase the complexity and cost of running a pension fund. The main expected changes involve transparency and reporting requirements, stress tests, new solvency measures and governance organisation.

In that context, the key priority for pension funds in Germany is to increase asset returns and reduce costs in the prevailing low interest rate environment.

Marie BRIÈRE
Head of the Investor Research Center

Inflation hedging strategies: watch out for a return to the 70s

What is the optimal strategic asset allocation for investors seeking to hedge inflation risk? The answer to this simple question crucially depends on the macroeconomic regime. Diversification is also key.

While the long-term economic consequences of the Covid shock are still uncertain, the exceptional rise in government deficits and huge debt levels have resurfaced as potential risks for many countries. Discussions about financial repression (Reinhart and Sbrancia, 2011)[10] re-emerged after the Global Financial Crisis, and this trend might strengthen in the post-Covid 19 world, as a number of countries have resorted to unconventional policies, including extensive government and corporate bond purchases, which have contributed to flatten the yield curve and maintain low or even negative real interest rates[11]. In this environment, a key challenge for many institutional investors remains the preservation of capital in real terms. Individual investors need instead to build a portfolio keeping up with the cost of living. These objectives are essential for defined contribution pension funds.

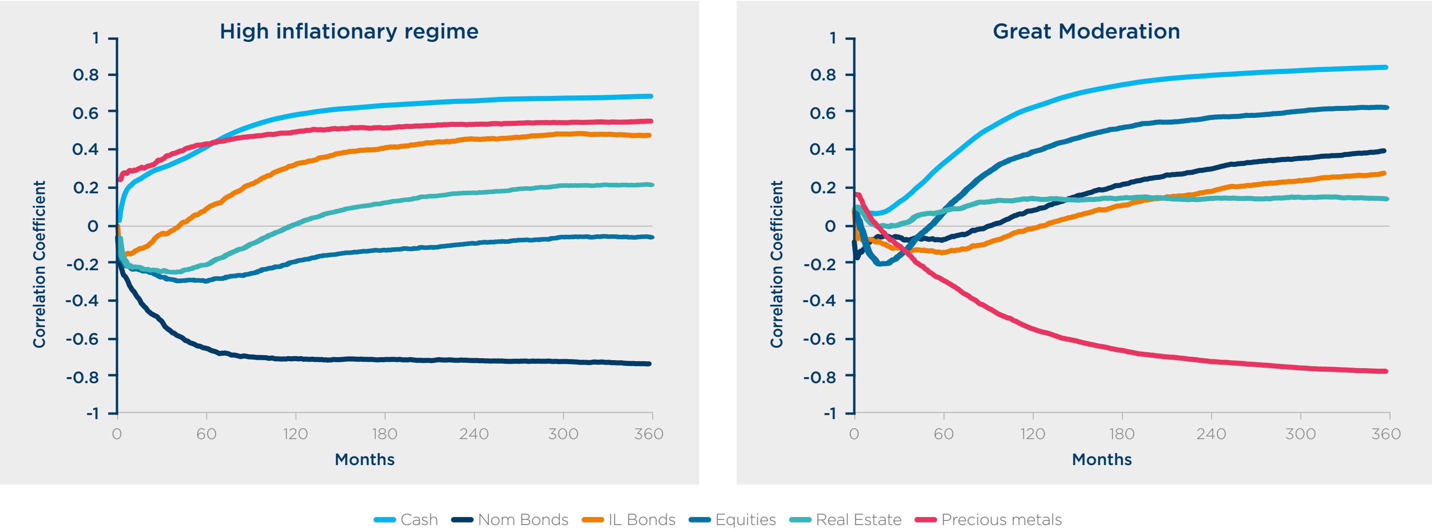
For defined benefit pension funds specifically, the sensitivity to inflation is more complex. If pension calculations are not indexed to inflation, a surge in inflation is likely to trigger an increase in nominal rates and therefore discount rates: it will make pension liabilities cheaper and therefore potentially easier to meet. This is the case, for example, for US corporate pension funds with limited or no cost of living adjustments, and for Dutch pension funds with a funding too low to offer indexation to inflation. For UK pension funds, where liabilities typically increase with inflation, having inflation-sensitive assets will be a key component of an LDI strategy.

An important observation is that the inflation-hedging power of different asset classes has changed significantly throughout history, depending on the macroeconomic environment. The past 50 years can be roughly divided into two regimes. The 1970s and 1980s were marked by high macroeconomic instability and supply-side inflationary shocks (e.g., the 1973 and 1979 oil shocks), which tended to be countercyclical. This implies that inflation shocks had an unfavourable effect on equity markets, as they did on bond markets. In contrast, the environment prevailing after the 1990s was totally different, with much weaker economic shocks (dubbed "the Great Moderation" by Alan Greenspan), which were procyclical. Any rise in inflation during this period was a sign of overheating. It often coincided with a run-up in equity markets but a decline in bond markets, albeit less pronounced. This is because, throughout the period, the inflation risk premium priced into bond yields contracted, as central banks gained credibility and inflation expectations stabilised.

In previous Amundi research[12], we addressed the problem of an investor seeking to preserve his capital against inflation risk and, where possible, generate excess returns over inflation. Using an adequate econometric model, we investigated the joint dynamics of six asset classes[13], inflation and economic variables, and we used this model to simulate long-term holding returns for these assets and inflation. This allowed us to investigate the long-term dynamics of assets with inflation and determine the optimal asset allocation that would keep the investor's capital safe from inflation with the smallest probability of shortfall, for different investment horizons. One initial observation from our findings was that correlations with inflation varied widely with economic regimes, as shown in chart 5 below. Equities, for example, for medium- to long-term horizons, displayed a negative correlation with inflation during the first regime marked by high supply inflation shocks, while there was a positive correlation with inflation during the Great Moderation.

10. In their 2011 NBER Working Paper, Reinhart and Sbrancia speculate on a possible return by governments to this form of debt reduction (indirect capping of interest rates, maintenance of captive domestic market for government debt)
11. See Calice et al. (2020), "Interest rate repression: a new database", World Bank Policy Research Working Paper 9457
12. M. Brière and O. Signori, "Inflation Hedging Portfolios: Economic Regimes Matter", The Journal of Portfolio Management, Summer 2012, 38(4). See Amundi working paper: https://research-center.amundi.com/article/inflation-hedging-portfolios-economic-regimes-matter
13. Treasury bills, nominal bonds, inflation-linked bonds, equities, precious metals and real estate

Chart 5: asset classes' correlation with inflation depending on investment horizon*



Source: Authors' calculations, based on simulated asset returns dynamics (vector-auto-regressive model estimated on each economic regime: 1973-1990 and 1991-2010)
** Correlations estimated on simulated asset returns dynamics (vector-auto-regressive model estimated on each regime), horizons ranging from one month to 30 years*

Another piece of Amundi research[14] showed that within the stock market, there is also considerable heterogeneity in inflation hedging properties. Historically, stocks with low correlation with inflation and thus inflation betas, tended to be drawn from the technology and oil/gas sectors. The oil/gas sectors generally benefit from rising commodity prices, whereas technology companies often enjoy an advantage in setting or maintaining the prices of new products. There is also considerable heterogeneity across companies. Different companies have different levels of pricing power, which is the ability of a company to set prices for new or existing goods or to pass on to consumers price increases resulting from movements in the prices of inputs, such as commodities, labour costs and interest rates. We also found that inflation betas exhibit pronounced time variation. Up to 20% of stocks, on average, exhibit sign changes in inflation betas from year to year. The substantial variation of inflation betas makes it difficult to find stocks that are good ex ante inflation hedges. Time-varying inflation betas make sector portfolios and indices holding only high-dividend-paying stocks worse inflation hedges than those constructed by using company-level information.

Shortfall probabilities[15] of individual asset classes on these two periods also differed greatly, as can be seen from table 2 below. For all asset classes except T-bills, shortfall probabilities decreased strongly with the investment horizon. In the short run, T-bills have the lowest probability of not reaching inflation in the first regime, while nominal bonds have the lowest probability in the second regime. The excellent performance of nominal bonds is particular to the prolonged period of disinflation. In the long run, the lowest shortfall probabilities are achieved by equities, real estate and T-bills in the first regime; nominal bonds, precious metals, real estate and inflation-linked bonds in the second one.

Table 2: asset classes' real shortfall probabilities*

Horizon	2 years	5 years	10 years	30 years
Panel A: high inflationary regime				
T-bills	17%	21%	18%	9%
Nom bonds	38%	34%	30%	20%
IL bonds	48%	43%	39%	29%
Equities	38%	29%	21%	7%
Real estate	45%	41%	34%	22%
Precious metals	48%	47%	47%	46%
Panel B: high inflationary regime				
T-bills	17%	21%	18%	9%
Nom bonds	38%	34%	30%	20%
IL bonds	48%	43%	39%	29%
Equities	38%	29%	21%	7%
Real estate	45%	41%	34%	22%
Precious metals	48%	47%	47%	46%

Source: Authors' calculations, based on simulated asset returns dynamics (vector-auto-regressive model estimated on each economic regime: 1973-1990 and 1991-2010)

** Probability of not achieving the inflation target estimations based on simulated asset returns dynamics (vector-auto-regressive model estimated on each regime)*

14. Ang A., M. Brière and O. Signori, "Inflation and Individual Equities", Financial Analyst Journal, 68(4), July-August 2012, p. 36-55. See Amundi working paper: https://research-center.amundi.com/article/inflation-and-individual-equities
15. Probability of not achieving the inflation target

The optimal strategic allocation hedging against inflation risk differs sharply across macroeconomic regimes. In a volatile macroeconomic regime, marked by high inflation shocks, such as the one experienced in the 70s and 80s, an investor with a pure inflation target should mainly invest in T-bills when his investment horizon is short, and should increase his allocation to equities when his horizon increases. In a more stable economic environment (such as the one experienced since the 1990s, during the Great Moderation), the optimal portfolio changes radically. Though mainly invested in T-bills when the investment horizon is short, an investor should increase his investment in nominal bonds, but also, to a lesser extent, in precious metals and equities when his horizon increases. In both economic regimes, having a more ambitious real rate of return target (from 1% to 3%) automatically leads to being able to dedicate a larger weight to risky assets, especially equities, real estate and precious metals, which make higher returns possible (with a greater shortfall probability). In all cases, diversifying the portfolio is key and significantly reduces the probability of not achieving the real return target.

What kind of macroeconomic regime can we expect in the future? Unfortunately, our research does not answer this difficult question. In the current environment marked by great economic uncertainty, preserving capital in real terms is far from easy. The Great Moderation is probably over. The exceptional performances of nominal bonds during the specific disinflationary period experienced in the 90s and the years since 2000 cannot be expected to last in the near future. The stable properties of T-bills as a good inflation hedge (central banks were regularly hiking rates to fight against inflation before the sub-prime crisis) will also be challenged in an environment of unconventional monetary policy and quantitative easing. But this does not necessarily mean that we have slipped back into a regime identical to the one of the 70s and 80s.

Two key messages should be retained. First, that the inflation-hedging properties of equities depend crucially on the nature of inflationary shocks in the economy. Second, that diversification is crucial: no individual asset classes can hedge inflation as efficiently as a diversified portfolio.

Viviana GISIMUNDO
Head of Quant Solutions

Going forward: a five-year outlook on the expected funded status

Funded statuses have improved over the last quarter, but is this change going to last? To answer this question, we used Amundi's expectations on yields and asset classes' returns typically relevant for pension funds in Eurozone (core), in the UK and in the US[16]. Those forecasts are based on the following macro and financial scenario:

MONETARY NARRATIVE CONTINUATION

- The continuation of the "monetary narrative" in the short- to medium-term should prevent the materialisation of high inflation levels over the long term, thanks to central banks' actions.
- Accommodative monetary policies should remain as long as required to support the huge fiscal needs, while also ensuring liquidity to the financial markets.
- The current policy mix timeline should go beyond pandemic contingency, until there is a full recovery of major economies.

LOWER MEDIUM-TERM RETURNS

- Over the medium term, we expect lower cross-asset returns, in particular when compared to past recoveries, due to the current extreme valuation levels.
- The disconnection between fundamentals and financial markets, grounded on the co-dependence with monetary policy, allowed risky asset returns to far exceed what we would have reasonably assumed for a recessionary environment like the last one we experienced.

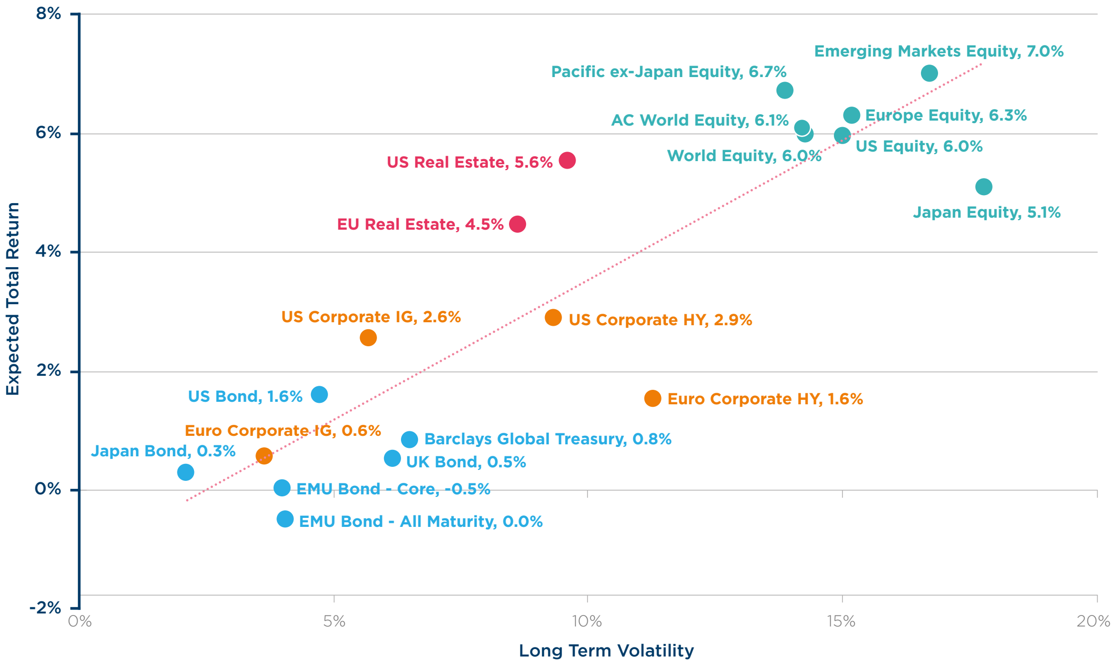
LOW TREND OVER THE LONG-TERM

- Over the long-term, we confirm the **low trend** observed for all macro and financial variables.
- Despite some temporary pick-up, we are outlining **a convergence to a weak growth** potential, slightly lower when compared to the past, while **inflation remains under control** around central bank targets (even if showing some more dynamism in the short to medium term).
- This will imply some **downside adjustments** to equilibrium yields and the earnings growth trend.

In chart 6, we represent the risk return trade-off for the main asset classes, considering medium term (five years) expected returns and long-term volatility. The expected returns are in local currency and correspond to the average annualised returns for the asset classes' scenarios simulated using our model (CASM, Cascade Asset Simulation Model):

16. Source: Central scenario described in Amundi, Climbing the Hill - Asset Classes views: Medium to Long Term scenarios and return forecasts, Annual Edition 2021. Expected returns and yields forecasts updated with data as of 31 of March 2021.

Chart 6: risk return trade-off for the main asset classes, considering medium term (five years) expected returns and long-term volatility



Source: Amundi Asset Management CASM Model, Amundi Asset Management Quant Solutions and Research Teams, Bloomberg. Data as of 20 April 2021. Macro figures as of last release. Data updated as of 31 March 2021. Equity returns based on MSCI indices. Reference duration are average figures. Hedged returns. Returns on credit asset are comprehensive of default losses. .Regarding real assets, the chart represents the modelling of core (moderate risk) real estate. Those expected returns do not consider the potential alpha, generated by portfolio management that can be significant above all for real and alternative assets.

Forecasts for annualised returns are based upon estimates and reflect subjective judgments and assumptions. These results were achieved by means of a mathematical formula and do not reflect the effect of unforeseen economic and market factors on decision making.

The forecast returns are not necessarily indicative of future performance, which could differ substantially.

With our assumptions and a similar allocation as of today, the funded status of the average pension fund will remain stable over the next five years in Europe and in the US, while it will continue to improve in the UK (to above 120%). The returns expectations and their impact on funded status are as follows:

Table 3: Five-year funding outlook for a typical pension fund in select currencies

Assumptions	UK	EUR	USD
Growth Asset Allocation	50%	55%	46%
- Equities	30%	35%	36%
- Alternatives	20%	20%	10%
Hedging Asset Allocation	50%	45%	54%
- Credit	20%	19%	25%
- Govies	30%	21%	29%
- Derivatives duration contribution[5]	+11 yrs	+5 yrs	+3 yrs
Growth Asset 5yr Return (in respective currency)	+5.3%	5.0%	+5.6%
Hedging Asset 5yr Return (in respective currency)	+0.5%	-0.4%	+1.2%
Liability discount rate 31/03/21	2.0%[1]	0.7%[2]	2.6%[3]
Liability discount rate in 5yrs	2.8%[1]	1.5%[2]	3.4%[3]
Funded Status 31/03/21	102%	74%	92%
Funded Status[4] 31/12/25	123%	74%	91%

1. UK s179 equivalent discount rate calculated as gilt + 75bp
2. IFRS equivalent discount rate
3. USGAAP equivalent discount rate
4. UK service cost of 0%, EU and US service cost estimated as 2% of liabilities, benefit payments aligned with historical data
5. hedge ratio assumptions of 75% in the UK, 35% in Europe (Germany) and 50% in the US.

These results were achieved via a mathematical formula and do not reflect the effect of unforeseen economic and market factors on decision-making. The forecast returns are not necessarily indicative of future performance, which could differ substantially.

Source: Amundi Asset Management CASM Model, Expected returns and yield forecast as of 20 April 2021. Amundi OCIO Advisory calculations. Calculations are based on central scenario for yearly yields levels and average annualised expected returns on asset classes.

In all jurisdictions, our scenario of rising yields is expected to impact the market-to-market of liabilities. This would be offset on the asset side by 1) low carry on hedging assets, 2) the duration hedging strategy that would have negative MtM in rising yield environment and 3) low expected returns on growth assets. In addition to that, in the UK the funded ratio improvement is due, on the one side, to our assumption of no service cost (compared to 2% in the US and Europe), and, on the other side, to the longer duration of liabilities that will benefit from our rising yields scenario.

This improvement, however, is based on a central scenario. As our readers used to the Asset Liability Management (ALM) exercise know, a better way to get a full picture of the return potential of a pension fund is to undertake a full stochastic simulation, which is beyond the scope of this paper. Such simulations take into account deviations around the mean that are statistically realistic given previous history.

That being said, there is another risk on which Amundi has worked recently: the risk of getting the central scenario wrong due to an unexpected regime shift[17]. For this, we introduce the concept of market narratives that constitute a key driver of long term expectations as they bring memories of past history and perceptions of current facts. Looking at the past decade, the narrative of low growth, low inflation has dominated, making the monetary factor the key driver in this regime.

Looking forward, Amundi recommends investors also consider the following alternative narrative: the growth/inflation trade-off, from secular stagnation to the road back to the 70s. In this case, the regime could shift towards higher growth/higher inflation. Such a scenario would push yields higher and would penalise equity returns.

This narrative will have an impact on long-term return expectations. Therefore, investors need to monitor carefully the indicators of potential long-term regime shifts such as changes in inflation, inflation expectations, GDP and earnings growth dynamics, as well as productivity growth. They should keep in mind the asset classes offering protection in such a scenario, as outlined in "Inflation hedging strategies: watch out for a return to the 70s".

17. See Amundi, Do not give up on fundamental valuations. Something has to give in a regime shift. Be prepared, there will be opportunities for value investors, CIO Insights, March 2021

CROSS ASSET Investment Strategy

CENTRAL & ALTERNATIVE SCENARIOS (12 TO 18 MONTHS HORIZON)

Monthly update

We note progress on the vaccine front despite logistics and side effects issues. In our central scenario, equities outperform on the back of abundant liquidity, improving fundamentals and accommodative monetary policy. Vaccine resistant virus variants, hawkish policy surprises and geopolitical tensions are the main sources of risks. Beyond 18 months, we expect (US) growth to revert to potential amid an higher inflation regime while stagflationary pressures will rise across Europe.

The balance of risks evolves over time. While it is premature to significantly de-risk portfolios while macro and micro fundamentals are still improving and accelerating, we believe there are narrower margins for a policy mistake or adverse events.

DOWNSIDE SCENARIO 10%

Multifaceted pressures*

Analysis

- Genetic evolution of the virus leads to cases spikes leading to growth relapses and lockdown measures until 4Q21, prolonging the crisis
- Vaccine side-effects and/or lasting shortages undermine confidence and diminish global prospects
- The highly pro-cyclical US policy ends up destabilising inflation expectations and causes a rise in interest rates, the USD and/or commodities, hurts risky assets (volatility shock) and impairs financial stability. Tighter financial conditions exacerbate economic and financial fragilities
- Euro-area fails to engineer the relaunch of the recovery with some countries falling into stagflationary spirals
- Lack of growth hurdles debt sustainability
- Chinese growth slowdown spills over to DM economies
- The rebalancing of geopolitical equilibria leads to protectionism and de-globalisation, negatively affecting trade and global value chains

Market implications

- Favour cash, USD and US Treasuries
- Play minimum volatility strategies

CENTRAL SCENARIO 70%

Multi-speed recovery

Analysis

- Vaccine rollouts surging in 1H21, though uneven across regions. Weakening in EM growth and likely in Europe, due to delays in vaccination and/or new lockdowns
- Policy boosters allow a multi-speed recovery narrowing the growth premium gap between EMs and AEs (US driven)
- Despite political commitment to mobilise fiscal policies in AEs, execution in the EU likely to be diluted
- Accommodative monetary and fiscal policies continue to support the recovery, keeping deflationary risks at bay and allowing debt/GDP ratios to stabilise for the time being
- Positive momentum, albeit at different speeds, in corporate earnings, reducing solvency risks
- The Covid crisis exacerbates income and wealth inequalities, thus increasing social and political tensions
- Macro and micro fundamentals positive momentum to pause. Stretched risk asset valuations and technical narrow the room for manoeuvre if something goes wrong

Market implications

- In a cross asset perspective, progressive rotation from Credit HY into equities. Value and cyclicals outperformance to continue. Favour barbell positioning in the equity and currencies space
- Contained steepening of US Treasuries yield curve spills over into EZ and EM
- Maintain growth and income pockets with EM Equity and credit on rising earnings. Selective on EM HC
- Favour linkers as an inflation hedge

UPSIDE SCENARIO 20%

Sustainable & inclusive recovery

Analysis

- Mass vaccinations resolve the public health crisis by the end of 1H21, eventually enabling a full global recovery in 2H21
- With less uncertainty, policy boosters feed through to the real economy and financial markets, closing the gap between manufacturing and service sectors
- Savings turn into consumption on increased disposable income, which allows a virtuous circle of growth/inflation (no global overheating)
- Inclusive and sustainable growth diminishes the need for further policy support to reduce inequality gaps
- The US job market is recovering faster than expected and wage pressure arise
- Medium-term productivity gains from new digital and green developments

Market implications

- US Treasuries curves bear steepen on fast rising growth and inflation expectations
- Favour risky assets with cyclical and value exposure
- Favour linkers as an inflation hedge

There is no single downside scenario. Here, we take into account the many downside risk factors we have identified. These risk factors may or may not combine to give rise to a relapse in growth and/or higher inflationary pressures, and thus generate renewed volatility in the markets. Some risks are "exogenous" (pandemic dynamics, availability of vaccines), others are directly related to the crisis and/or economic policies. While the virus related risks should decrease over time thanks to the vaccination campaigns, the other risks mentioned in the Top Risks will have higher occurrence probabilities over the next 12 to 18 months.

CROSS ASSET Investment Strategy

AMUNDI ASSET CLASS VIEWS

	Asset Class	View	1M change	Rationale
EQUITY PLATFORM	US	=		Massive fiscal support, easy financial conditions coupled with pent-up consumer demand and huge savings, provide a positive backdrop for US equities. However, investors should avoid over exuberant areas where valuations are not justified by fundamentals. Instead investors should focus on leadership rotation in favour of value, cyclical and quality stocks with a strong selection bias and on ESG themes. Corporate taxation is another area that deserves attention.
EQUITY PLATFORM	US value	+		Improving earnings prospects and a steepening yield curve should support cyclical value stocks (in sectors such as financials) that would benefit from normalisation of the economy. Over the long term, US value offers a combination of structural growth, quality, stability and ESG improvers.
EQUITY PLATFORM	US growth	-		Rising rates and an improving economy could negatively affect valuations of long duration growth stocks, some of which already look very expensive. A cautious approach is suggested in these areas.
EQUITY PLATFORM	Europe	=/+	▲	Reacceleration of the vaccine campaign in H2 and improving economy and EPS forecasts support a positive stance towards European equities, which appear attractively valued from a relative perspective. However, the region may witness some divergence across sectors as some areas benefit from reopening. Accordingly, investors should stay selective, focus on fundamentals, and play rotation opportunities in value and cyclical segments. Some opportunities are also opening up in defensive sectors, with extremely cheap valuations.
EQUITY PLATFORM	Japan	+		We maintain our constructive view on Japan in light of its cyclical and industrials tilt that should benefit from an improving global economy and a weakening yen, which makes exports competitive.
EQUITY PLATFORM	Emerging markets	+	▼	We stay positive on EM equities as the potential for growth, especially in EM Asia, is intact, but acknowledge the near-term headwinds in the form of a strengthening USD and the Covid situation. This necessitates a more selective approach in a heterogeneous EM world, where domestic consumption and value/cyclicality remain important themes. Finally, the rebalancing of China towards a more sustainable growth path should be positive for EM overall.
FIXED INCOME PLATFORM	US govies	-/=		We stay cautious on US duration amid higher inflation expectations, higher US debt and an improving economy. However, we believe yields have already risen sharply and therefore investors should stay flexible to add duration if market volatility increases. On the other hand, the case for US inflation and Treasury Inflation Protected Securities remains strong. In our US portfolios, we are cautious on USTs.
FIXED INCOME PLATFORM	US IG corporate	=		Investors should monitor interest rate risks in their portfolios and therefore limit long duration IG. While we remain overall positive, we are witnessing high valuations in some segments where risks may be reduced. Securitised credit is attractive in light of strong consumer earnings and savings, but selectivity is crucial.
FIXED INCOME PLATFORM	US HY corporate	=		Fundamentals in the HY market and the default rate situation appear to be improving as the economy recovers and as the cost of funding remains low. However, a strong focus on security selection is essential.
FIXED INCOME PLATFORM	European govies	-/=		We remain cautious on core Euro bonds, but realise that the ECB would not allow yields to rise too much in order to maintain accommodative financial conditions. However, we stay constructive on peripheral debt, especially Italy as the recent PEPP actions affirm ECB support to prevent any fragmentation in European markets.
FIXED INCOME PLATFORM	Euro IG corporate	=/+		We are positive on IG in light of improving fundamentals and the search for yield, with a focus on shorter dated debt and the BBB-rated segment. However, credit selection remains important as we believe divergences are likely to emerge between sectors most affected by the crisis and ones that have recovered. ECB support remains important for the market.
FIXED INCOME PLATFORM	Euro HY corporate	=/+	▲	We prefer to play spread compression opportunities in selective lower-rated names and explore relative value opportunities in the financial sector (positive on subordinated debt and cautious on senior financials). However, we believe it is important to strike a balance between quality and yield, and to distinguish high-quality credit from low quality.
FIXED INCOME PLATFORM	EM bonds HC	=/+		While in the long run HC debt supports investors' search for income, in the near term investors should watch out for rising US rates. Higher profit growth is supportive of corporate bonds, but room for further spread compression in HY remains limited outside of idiosyncratic stories. We look for selective opportunities in frontier markets.
FIXED INCOME PLATFORM	EM bonds LC	=		Given the risks associated with a strengthening USD, we believe LC debt is more vulnerable and expensive. Accordingly, selection remains crucial.
OTHER	Commodities			Commodities, including base metals, should benefit from strong economic recovery expectations for 2021 and from reflationary trades' investment implications. This would also be positive for oil prices, which should stay at current levels over the coming months. Among precious metals, gold found some support in the recent dovish statement from the Fed.
OTHER	Currencies			The recent USD appreciation did not affect financial conditions, but the dollar seems to have reached an alert threshold levels per our internal models. Despite that, we believe, some factors allowing a temporary USD bull run are re-aligning.

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Negative view | Neutral | Positive view

▼ Downgrade vs previous mont

▲ Upgraded vs previous month

Source: Amundi 22 March 2021, 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.

Shifts & Narratives

Research Papers

The Day After provided readers with some much-needed perspective following the Covid-19 shock.

One year later, this editorial line further explores the impact of the Covid-19 crisis on society, economy and financial markets, trying to detect signs of possible regime shifts and the narratives that can guide investors.

Read the paper online

#1

#2

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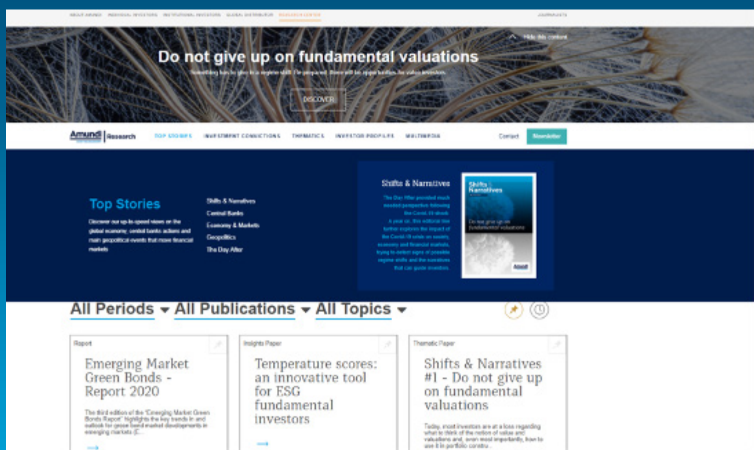

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Research Center

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