



Annual Edition 2021

Climbing the hill

Asset classes views:
Medium to long-term scenarios
and return forecasts

Confidence
must be earned

Amundi
ASSET MANAGEMENT

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This document embraces Amundi's view on asset returns used to build reference portfolios for our institutional clients. The edition published during first quarter of the year covers major macro and financial foundations, while on a quarterly basis will provide tables updates

Foreword



Pascal BLANQUÉ
Group Chief Investment
Officer

*There is no doubt
the climb out
ahead of us will
be more onerous
and atypical of
past recoveries*

As the new decade dawns upon us, we are beginning to see the light at the end of the tunnel. The unprecedented nature of the current crisis required correctives on multiple fronts on a global scale. With many of these measures in place or in the pipeline, the much-awaited recovery is within reach, but the path forward remains arduous, nonetheless. While we can afford to breathe a sigh of relief having avoided the cliff edge, we remain wary of the tasks that lie ahead in the spirit of the much-celebrated Amanda Gordon's "The Hill We Climb" to "have our eyes on the future".

In Amundi's 2021 Medium- and Long-Term Forecasts, we present a summary representation of possible evolutions of the macro-economic landscape and their impact on the multi-asset investment universe, complemented by the outlook for alternative assets. In line with previous editions, we continue to provide coverage for a multitude of narratives that are singularly relevant considering the current crisis and its ongoing aftershocks. Notably, our focus spectrum now includes ESG (Environmental, Social and Governance), a factor that we believe will play a significant role in moulding future investment opportunity sets.

There is no doubt the climb out ahead of us will be more onerous and atypical of past recoveries. Our central tenet is that policies worldwide will continue to be accommodative for as long as necessary but will be asynchronous because the Covid cycle is at different stages in different regions. The recovery ahead will undoubtedly be uneven, as economic, political, and vaccination setbacks could prove to be potential headwinds to the structural shifts to come. Global economic rehabilitation is bound to be slow yet steady, as authorities maintain a watchful eye on the unfolding events.

The downside scenario we articulated last year has been exacerbated by the Covid crisis from various sources that include inequality, climate change, and divergence of markets and the real economy. The various stimulus packages are only providing a short-term fix to the economy while the supply chain fail to rebuild and monetary authorities run out of manoeuvring room, resulting in inflationary pressures with lagging demand. While this may be a black swan event, experience has taught us the perils of ignoring the rare events.

Amid the gloom lies the distinct possibility that the multitude of ongoing vaccination programmes prove to be successful. In the spirit of Schumpeter's creative destruction, we have pondered the likelihood of a return to the "roaring 20s", where from the embers caused by the crisis arises a reengineered economy, with novel industries sprouting productivity gains paired with revamped demand allowing orderly deleveraging. However, we are keeping in mind that this broad range of narratives prepares us for any turning points in the paths ahead to come befitting our role as the architects of Fate.

Highlights and convictions

Monica DEFEND,
Global Head of Research

Vincent MORTIER,
Deputy Group Chief
Investment Officer

Policy
decisions in
the next two
to three years
will be pivotal

Macro factors
will continue
to influence
markets

Climbing the hill: medium- to long-term scenarios and return forecasts

2020 was the year when the unthinkable became possible: the global economies experienced a major shock due to the coronavirus pandemic that triggered a loss of productivity, lower capital investment and diminished labour force participation. In the end, policy responses have been powerful and coordinated. The challenge for policy makers now is to heal wounds, provide relief and boost fundamentals to reverse the trends in the major factors that determine growth.

What happened in 2020 anticipated and actually exacerbated, albeit not for the reason we expected, what we set out last year in our downside scenario: EPS (and GDP) recession, rates moving even lower, cemented partnership between monetary and fiscal policies driving the way, resulting in higher debt and inflation.

At first glance, in terms of the Medium- to Long-Term Scenario and Return Forecasts, it might seem out of scope, but we think that a focus on the trends for the next two to three years is relevant to outline what comes next.

We are convinced that later in 2021 we will likely get into a juncture for a regime shift: by that time, the pandemic should be under control and fiscal policies will move into the second phase of their impulse, from relief to boost. The economic policy orientation over the next two to three years will influence growth quality, composition and eventually strength, its sustainability and inclusivity and ultimately the inflationary regime.

Our medium- to long-term exercise is grounded in the following convictions:

- **Macro factors will continue to influence market trends in a more unusual and complex manner¹.** Therefore, our macro-founded approach where monetary and real factors are combined in a modular and time dependent framework remains not only robust and consistent, but it is appropriate to encapsulate (exogenous) regime shifts.
- As Pascal Blanqué mentioned in his recent publication²: “the traditional approach based on (real) fundamentals (inflation, growth, earnings), including monetary factors (as a dominant feature of the current transition phase) has to be enriched with “narratives” as a building pillar of long-term expectations. [...] Narratives are adding to (or subtracting from) a trend, re-enforcing it or pushing it into a different direction [...]”. In our model driven approach to medium- to long-term forecasts, **we stylise “narratives”** articulating central and alternative scenarios to eventually derive asset class returns.
- We acknowledge that **inflation has ceased to be negative:** a “bit more” inflation with no pre-emptive central banks is supportive to risky assets and will eventually allow debt to be more serviceable. In 2020, the Federal Reserve and the ECB (still in progress) reviewed their target frameworks as they are aware of the deep interconnection between monetary and fiscal policy.
- **Macro determinants and asset classes have much different starting points compared to last year.** Despite the faster than expected progress in the development and distribution of vaccines, some economies remain in the grip of the pandemic. Moreover, the structure of some economies (namely the US) has proved more resilient than others (i.e. Europe), while some regions have been more efficient in managing the pandemic (i.e. North Asia). This implies a **multispeed heterogeneous recovery featuring country dynamics in the up/downside scenarios** where, for example, we expect the Eurozone and Japan to experience smoother cycles.

¹ *Rethinking the macro and cross-asset research: what we have learned from the Covid-19 crisis, The Day after #10 series, M. Defend, July 2020.*

² *Do not give up on fundamental valuations, CIO Insights, P. Blanqué, March 2021*
<https://research-center.amundi.com/page/Article/Insights-Paper/2021/03/Do-not-give-up-on-fundamental-valuations>

Real and alternative assets will enhance risk-return profile of SAA

- **The pandemic made ESG investments more urgent.** Therefore, ESG will be a relevant component of asset class returns. Besides its clear economic, social and environmental relevance, we believe that ESG can add consistent value and estimate the **ESG Equity Risk Premium** at around 2% in the long term on top of traditional factors.
- **Our investment conclusions for the next three to five years see lower returns on both equity and bonds.** We expect equity to outperform bonds with governments yielding negative returns in most cases. Globally, inflation will move higher, within central banks' targets³. Therefore, it is suitable to **diversify into inflation resilient asset classes.** We believe that global equities will initially prove good hedges in case of an inflation regime shift triggered by improving economic growth and corporate fundamentals (revenues, earnings).
- To conclude, when compared to last year's investment strategies, **our initial allocation looks less defensive with a tilt to global equities.** Moving toward the long term, amid a scenario of returns converging to lower levels, investors should look at real and alternative asset classes. Looking at the strategic asset allocation, at the end of the document we propose two portfolios corresponding to moderate and high risk profiles, constrained to 25% maximum **exposure to real and alternative asset classes.** Their inclusion in the investment universe helps to enhance the risk adjusted return profile and diversify mainly with respect to fixed income assets.

The document is structured as follows:

1. The first section describes our main highlights and convictions, including a description of our central and alternative scenarios.
2. The second section reports our key asset class views over the medium- to long-term horizon, including some historical comparisons and our macro-economic assumptions for both developed and emerging economies.
3. The third section addresses expected returns by asset class. Shaded paragraphs specifically indicate long term analysis. The section on standard assets ends with the asset allocation implications from a euro investor perspective.

This section includes **two themes** on low rates and equity sectors:

- We investigate the unintended ultimate consequences of prolonged QE and ultra-low/negative interest rates on financial stability at a time that market structures are changing.
- The reaction to the pandemic differed from country to country: the recovery is uneven and heterogeneous, and dictated by on-off periods (outbreaks and targeted lockdowns). The market is highly fragmented and asset allocation opportunities are opening up at regional and sector levels. The residual scars will likely imply structural changes in the market composition with some sectors struggling to recover (if ever) and others being relaunched. We propose our medium term "winners & losers" list according to central and upside scenarios.

The section ends with the introduction of our strategic asset allocation framework and modelling on real and alternative assets, as well as a presentation of moderate and high risk allocations defined on a global cross asset universe including real and alternative assets.

4. To conclude this year's edition, **we focus on the long-term value of ESG.** More specifically we estimate an "ESG risk premium" for equity returns. In addition, we show that firms with the best environmental ratings tend to outperform others. The changes in investors' preferences for green assets amplify price movements while neither an equilibrium nor a tipping point is visible yet.

³ Only select EMs might experience high inflation, meaning persistently above the targets.

Acknowledgement

The authors would like to express their gratitude to Raffaele Della Ventura for his valuable contribution.

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\ Highlights and convictions

Highlights and convictions

Monica DEFEND,
Global Head of Research

Risk activities
remain the
medium term
favourite

Macro and financial landscape: Central Scenario

In the central scenario we espouse the spirit that **“tomorrow largely echoes the past”**.

We therefore expect low returns on the cross asset spectrum with equity outperforming bonds and recommend including in the strategic asset allocation real and alternative asset classes to enhance the risk/return profile on the investment strategy.

On the macro front, **we predict a continuation of the “monetary narrative”¹ in the short- to medium-term that eventually, in the long term, does not deviate into “the road back to 70s”² as central banks prove well equipped to manage inflation.**

The recovery path progresses along a gradual, upward sloping catch up process. Relapses in the real economy occur in the short term on Covid-19 strains until broad and effective vaccination is rolled out and populations achieve herd immunity.

Policy interventions will take place at any juncture to allow progress to continue. We envisage different recovery speeds depending on the resilience of domestic economic models, size and quality of the fiscal impulse. These considerations in the developed economies favour the US leading the cycle ahead of Japan and the Eurozone.

We expect monetary policy to remain accommodative as long as required to support the huge fiscal needs while ensuring liquidity to the financial markets. We expect the current policy mix timeline to go beyond the pandemic contingency, until major economies’ economic weaknesses are almost fully recovered (i.e. once market and social inequalities have been addressed).

In the medium term, we expect lower cross asset returns, in particular when compared to past recoveries due to current extreme valuations and market levels. The disconnect 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. Therefore, the historical undervaluation that has usually propelled returns soon after recessions in the past did not materialise and expected returns should be more in line with expected growth and less based on their valuation component.

In 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.** This will imply some downside adjustments to equilibrium yields and the earnings growth trend.

This *“It does not matter how slowly you go as long as you do not stop”* environment is favourable to risky activities in the medium term. Equity returns, while lower compared to the past, provide better performance than bonds, lifting to higher equilibria.

¹ Do not give up on fundamental valuations, CIO Insights, P. Blanqué, March 2021
<https://research-center.amundi.com/page/Article/Insights-Paper/2021/03/Do-not-give-up-on-fundamental-valuations>

² As we will see, the “road back to 70s” will enter the downside risk scenario.

Advanced Investment Phazer

Our constructive medium-term view with a continuation and maturing of the financial recovery regime.

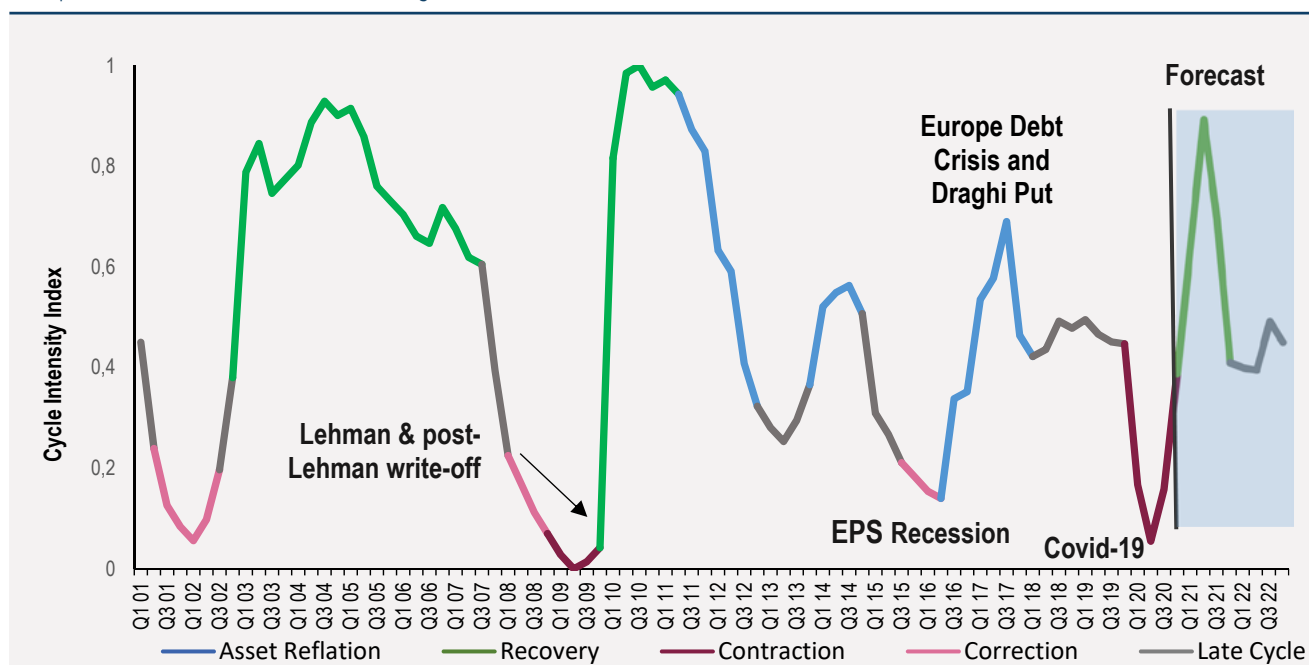
Lorenzo PORTELLI,
Head of Cross Asset Research

We have described all the ingredients of our cycle indicator, the **Advanced Investment Phazer**, which underpins our medium-term investment views. Within this framework, we bridge our views and expectations on the macro-outlook to our convictions and investment strategy.

We confirm the financial “recovery regime” as a central scenario (with 75% prob.), with growth and macro determinants remaining paramount and drawing the line between central and alternative scenarios. On our economic radar, the softening seen in Q4 2020 should not derail the 2021 rebound. Nevertheless, the convergence of economic growth to pre-crisis levels will be a slow and bumpy path due to the serious structural damage caused by the pandemic to labour intensive sectors.

Our analysis based on long-term growth determinants shows that **potential growth has been severely hit by the pandemic** via all three growth channels (**loss of productivity, lower capital investment and diminished labour force participation**), effects that will be reversed only gradually over the medium term.

Graph 1: **Investment Phazer Dynamic - Smoothed**



Source: Amundi Research 7th January 2021.

The Advanced Investment Phazer (AIP) is our analytical tool that deploys cluster-based algorithms to provide probability-backed assessments of short and medium-term global economic trends and eventually derive investment recommendations. The AIP wraps macroeconomic and financial regimes by partitioning the dataset using global factors and local determinants (DM and EM data are considered). Therefore, monetary policy – both conventional and unconventional – and private leverage are considered together with economic activity indicators. The model allows regimes’ “likelihood” calculation conditioned and defined by internal macroeconomic forecasts. We therefore assign the expected probability for each of the regimes (we identified five regimes: contraction, slowdown, recovery, late cycle and asset reflation). Probabilities are inversely proportional to the Euclidean distance between macroeconomic forecasts and the reference values for each regime: the smaller the distance, the more likely the regime.

Highlights and convictions

However, corporate earnings should be more resilient and faster in recovering to pre-crisis levels (in the US, we expect 2021 EPS to drift even higher than December 2019 levels). More importantly, asset price trends are not expected to be a game changer for CBs' monetary policies, and liquidity injections should remain solid, underpinning asset reflation and preserving positive financing and financial conditions. While we expect inflation to smoothly move higher, the labour market slack will persist for longer, lightening the pressure on central banks to ease off the pedal to the metal.

Policy accelerators support risky assets, but the decoupling from their fundamentals increases downside risks. This is reflected in the probability we assign to the downside scenario (15%), which includes a potential market correction above 10% i.e. in line with historical average.

Expect low equity and bond returns

From a medium-term perspective, it is important to notice returns are expected to be lower than past recoveries due to current valuations and market levels. Central banks have been successful in preventing a market crash in 2020. If anything, several risky asset returns have been far above what we reasonably assume for the recessionary environment we experienced. As a consequence **the historical undervaluation that propelled returns soon after past recessions is not present this time.** For this reason, we should expect returns in line with expected growth and limited support from the valuation pillar.

Central scenario: investment consequences

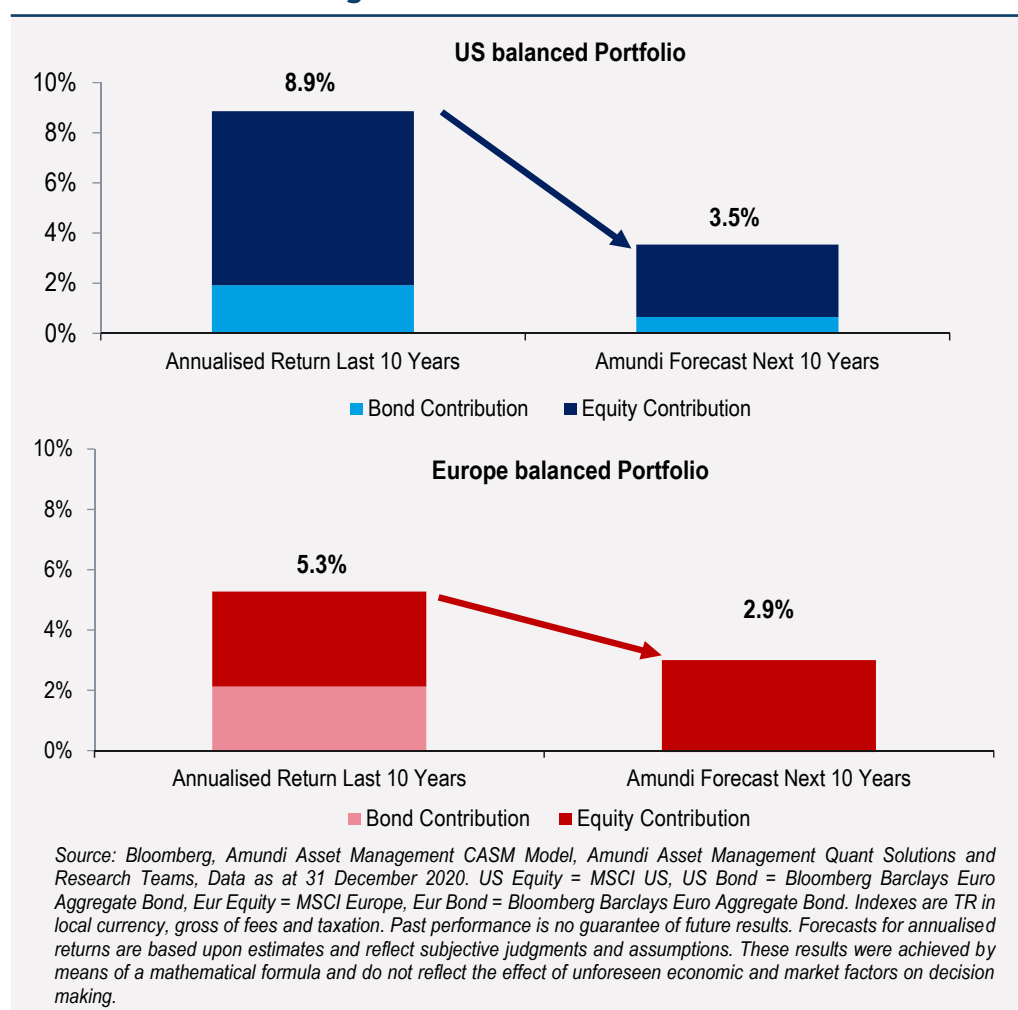
When compared to last year investment strategies, our initial allocation looks less defensive with a tilt to global equities, while yields, although remaining low on a historical perspective, have surpassed their bottom. Moving toward the long term, amid a scenario of returns converging to lower levels, investors should look at alternative asset classes. In fact, we see **an inevitable steepening of the efficient frontier based on traditional asset classes**. Expected returns remain almost in line with what we presented last year, but they contract further on the fixed income/lower risk components.

For this reason, looking at the strategic asset allocation we propose a portfolio including real and alternative asset classes. On the frontier (that sees an upward shift vis-a-vis the traditional asset class-based one) we select two portfolios corresponding to moderate and high risk profiles, constrained to 25% maximum exposure to alternative asset classes. Those portfolios have better risk/return profiles than portfolios with the same expected return but invested in traditional asset classes. For the moderate risk profile, **the allocation including the real and alternative assets** (real estate, private debt and infrastructure) **replaces part of the high-risk fixed income and equity allocation with real estate, private debt and infrastructure**. Study of the high-risk profile confirms some preference for private debt and infrastructure with a private equity allocation. The pickup of the latter, that is suitable for higher risk tolerance profile, is supported by our outlook of higher return (and risk) within our universe.

Including real and alternatives activities implies a tangible benefit

SAA confined to developed markets assets will likely see lower returns

Graph 2: **US and Europe balanced portfolios: 10-yr historical and forward looking returns**



Highlights and convictions

According to our calculation (see illustration above), the traditional global balanced portfolio will struggle to reach the nominal targets they had been achieving over the last 10 years. We suggest global investors increase the risk budget, but only in a limited way to be able to absorb a potential spike in volatility or changes in volatility regimes. In addition, the investment universe must be broadened to include real and alternative assets, keeping in mind the illiquidity premium and risk /cost.

Tab 1: Allocation on Global Universe including Real and Alternative Assets

		Expected Return	Volatility	CVaR 95%	Global Aggregate	EMBI + HY	Global Equity (DM+EM)	Global RE	Global PD	Global INFRA	Global PE
MODERATE RISK	Traditional Assets Only	3.0%	6.4%	14.9%	52%	30%	18%	0%	0%	0%	0%
	Including Real and Alternative	3.0%	5.3%	12.6%	49%	30%	0%	6%	9%	5%	0%
HIGH RISK	Traditional Assets Only	5.0%	11.8%	28.8%	10%	28%	62%	0%	0%	0%	0%
	Including Real and Alternative	5.0%	10.1%	25.5%	10%	30%	35%	0%	9%	8%	8%

Source: Amundi Asset management, CASM model, February 2021. Local Currency. Optimisation based on CVaR 95% minimisation, 10-year horizon. Constraints included: min 10% Global Aggregate, max 25% Real and alternative assets. Diversification constraints on high-risk fixed income and EM assets.

Before concluding, let us briefly introduce the description to the alternative scenarios, developed in the following sections.

Upside scenario: high growth, contained inflation

In the upside scenario, we outline a **virtuous regime shift**. The mass distribution of vaccines allows a fast return to pre-Covid levels amplified by a prompt recovery of business and consumer confidence. Consumers unlock their saving glut into consumption expenditure. The monetary and fiscal policy mix overcomes the relief phase, boosting cyclical acceleration onto a sustainable and inclusive growth path. When compared to 2008, today’s policies are more inflationary in nature. **A virtuous growth/ inflation cycle nests on renewed labour market strength allowing progressive monetary policy and rates to normalise.** Structural reforms are implemented to target productivity growth and unlock labour potential, thus not only offsetting the Covid-19 scarring but being able to raise potential growth. Inclusive growth extends welfare benefits, tempering the demographic drag. More importantly, higher levels of potential output (than in the central scenario) will generate more room for debt sustainability, amplifying inclusion and wealth redistribution opportunities.

Downside scenario: low growth, high inflation

On the downside scenario, we moved to the tail of extreme negative events spotting **two potential game changers to the current investing environment: de-anchoring inflation expectations, rising rates and sluggish growth because of major supply disruption** as Covid-19 continues to afflict economies amid rising nationalism. Massive supply disruptions reduce input while increasing prices. The Fed loses the flexibility of negative real rates and is forced to pause on its balance sheet expansion and purchase programme. Bond and equity markets sell off and the Fed loses its back-up function. Similar behaviour is expected in the most dynamic countries and regions (in particular EM), while looking at stagnation in the Eurozone and Japan, and the downward pressure on yields to remain low are prevailing.

Didier BOROWSKI,
Head of Global Views

The questions raised go far beyond the economic order alone. The new social and political issues are also challenges that need to be addressed

Alternative scenarios: navigating between “low growth/high inflation” and “high growth/low inflation” regimes

The Covid-19 crisis is exceptional in more ways than one (most serious health crisis since the Spanish flu, the deepest economic crisis of the post-war period). Fiscal and monetary policy responses have cushioned the economic shock and prevented a financial crisis. The exceptional measures put in place aim to buy the time needed to emerge from the health crisis. At the beginning of 2021, the pandemic is still not under control. Interest rates are being kept artificially low to protect the productive system and employment. Central banks' policies will be decisive in anchoring inflation expectations. The ongoing vaccination campaigns are paving the way for an eventual recovery. But what will that recovery look like? History has taught us that major pandemics leave very deep scars on the economy.

There are many difficulties in drawing medium-term scenarios: **beyond the impact on the productive system, economic policies (fiscal and especially monetary) are also in question.**

The private and public debt-to-GDP ratios have reached new records worldwide. De facto, these debts have been partly monetised in the major advanced economies. The absence of inflation allowed CBs to pursue the same objective of economic stabilisation “hand in hand” with governments. Looking ahead, conflicts between objectives may arise.

Indeed, when should governments stop supporting their economies? When should central banks abandon their zero or negative interest rate policies and/or their QEs? How should the authorities “accompany” the changes brought about by the crisis? How high can public and private debt levels rise? Will inflation come out of the crisis? And if so, how will central banks react? How can governments correct the inequalities that have increased with this crisis and, finally, how can they make growth more inclusive? There are no simple answers. **This is an environment that can lead to economic policy mistakes. The questions raised go far beyond the economic order alone. The new social and political issues are also challenges that need to be addressed.**

While the duration and severity of the pandemic (and therefore the short-term economic trend) are exogenous, the medium-term scenarios are to some extent endogenous, as they will depend on the behaviour of private (corporates and households) and public (governments and CBs) players following this crisis.

Our central scenario assumes a very uneven recovery in different areas (see Climbing the Hill from pag 4), with CBs and governments maintaining pro-growth policies. Moreover, the central scenario assumes that there is no conflict between the objectives of governments and CBs.

Faced with this central scenario, we could technically envisage four configurations for the growth/inflation regime (see Table 2). The two alternative scenarios that seem most likely to us are: the downside scenario of weakened potential growth, with persistent inflationary pressure (B/C in the table below), and the upside scenario of higher growth / lower inflation (A/D).

Highlights and convictions

Whatever the scenario envisaged, an episode of upward pressure on prices is inevitable in the recovery and catch-up phase

Tab 2: Four configurations for the growth/inflation regime

	A. HIGHER GROWTH	B. LOWER GROWTH
C. HIGHER INFLATION	<ul style="list-style-type: none"> > Sustained fiscal/monetary stimulus, well targeted to facilitate reforms and technological gains. > Sustainable increase in supply as well as demand. > The change in central banks' attitude (looser policies, fiscal dependence) feeds into long-term inflation expectations. 	<ul style="list-style-type: none"> > Continuous fiscal/monetary stimulus, yet ill-targeted (due to political inertia, demagogical policies to fend-off populism, or outright populist policies). > Structural rigidities are not reduced (if not reinforced). No improvement in supply. > Excessive shift of value-added in favour of workers. > Erosion in CB credibility
D. LOWER INFLATION	<ul style="list-style-type: none"> > Disruptive technologies reorganise markets and supply and bring long-lasting productivity trends. > Political equilibria allow for serious reforms and remedying of major supply-side bottlenecks. > Fiscal/monetary policy interaction remains limited and well-targeted. > Moderate and sustainable shift of value added in favour of workers. 	<ul style="list-style-type: none"> > Continuation (and worsening) of secular stagnation. > Policy stimulus (in part due to political reluctance to do more) remains underwhelming relative to the demand problem: low confidence, ageing, deleveraging. > Absent reforms, technology is not enough to bring major productivity gains.

Downside scenario (B/C), with weakened potential growth and persistent inflationary pressures

As the crisis ends, price pressures are likely to emerge (impact of stimulus programmes, pent-up demand, accommodative financial conditions), especially as supply constraints are likely to materialise at the same time (defaults/bankruptcies, disruptions in value chains). In addition to these cyclical pressures, more structural pressure may arise. The absence of structural reforms, rising inequality, and climate change are generating political and social tensions, which lead to **medium-term rebalancing in favour of labour and a rise in input prices linked to the relocation of value chains.**

In this scenario, the **additional growth would be short-lived:** once the catch-up is over, GDP growth would return to its pre-crisis trend (or even lower in the event of capital destruction). With **unchanged productivity, inflationary pressures** could

A “stagflationary episode” could lead to a deflationary deleveraging crisis

take root with rising inequality (social demands/increases in social minima). In such an environment, **central banks would have to raise rates to anchor inflation expectations.** The subsequent **rise in long-term interest rates, to a level above nominal GDP growth, would weigh heavily on indebted agents** (governments and corporates in particular) and therefore on aggregate demand. This would result in **financial turbulence**, all the more so as risky assets are expensive by historical standards and have priced in a gradual and orderly recovery.

In the worst-case scenario, this “stagflationary episode” would lead to a deflationary deleveraging crisis (debt deflation). A few explanations are needed on the **sequence that could lead to a long-lasting stagflationary episode.** There is no real historical precedent for the scenario envisaged here. The 1970s were certainly marked by stagflation (recession/inflation), but in an environment that was very different from that of today. In particular, the world economy was largely dominated by the advanced economies, the industrial base was more than twice as large as it is today and the degree of globalisation was less advanced. Moreover, the nature of the supply shock (oil price shocks) was very different. A re-onshoring of global value chains can lead to upward pressure on goods prices. However, it is **unlikely that wages will soar as in the 70s** (more flexible labour markets, higher level of globalisation, lower rate of unionisation) and that disinflationary pressures in services will disappear. **Under these conditions, inflation could settle above the CB targets (say between 2% and 5%) but not much higher.**

In addition, private and public debt levels have reached new all-time highs with the Covid-19 crisis, surpassing previous peaks reached at the end of World War II. Rising indebtedness can drag down global demand. While inflation is welcome to facilitate deleveraging, it can also put CBs in difficulty, especially if inflation expectations are not well anchored. Accumulated debts completely change the picture from a macro-financial standpoint. Too sharp a tightening of monetary conditions (increase in short- and long-term interest rates) would inevitably lead to a marked correction on risky assets, which appear quite expensive by usual metrics. Rising credit spreads and falling equity markets would then trigger a “balance-sheet recession”, a very different sequence than in the 1970s. **Through the financial accelerator, a real or financial shock is propagated and amplified across the real economy as it leads to changes in access to finance.**

The origin of Japanese deflation in a nutshell

In Japan, deflation was the result of a shock to asset prices (stock market and real estate). It is worth remembering the events that led to deflation. With the financial liberalisation and particularly accommodative financial conditions, bank lending soared in the 1980s. The stock index (Nikkei 225) rose from 10,000 at the end of 1983 to nearly 40,000 at the end of 1989. Real GDP growth was close to 5% (vs. 4% from 1975 to 1989). Subsequently, at the end of the 1980s, the Japanese economy was even held up as an example for its exceptional performance.

Ultimately, it was inflationary pressures and rising interest rates in the late 1980s that caused the turnaround in asset prices. The stock market declined (losing more than 60% in two and a half years, with market capitalisation falling from around 140% of GDP at its peak to 60% of GDP in 1992) and bank lending began a long period of slowdown (first half of the 1990s), followed by a quasi-continuous contraction between 1997 and 2012. **The bursting of the real estate bubble and the credit bubble in the early 1990s was the vector of deflation/stagnation** (what is now called Japanisation). These trends were further reinforced a few years later by the Asian crisis, followed by the great financial crisis in 2008. In hindsight, the Japanese authorities reacted far too late, allowing deflation to take root.

Highlights and convictions

A new cycle driven by structural changes could emerge

Cycles in various financial market segments (equity, housing and credit) appear to play an important role in shaping recessions and recoveries. Recessions associated with financial disruptions are often longer and deeper than other recessions. Thus, policymakers would likely be proactive. In the end, advanced economies would likely experience a long episode of slow growth (with weakened growth potential) and inflationary pressures.

Let us recall that deflation in Japan is precisely the result of a violent shock on asset prices (see box below). Should CBs' interventions be insufficient to restore confidence, this scenario would pave the way for secular stagnation in the advanced economies (theme of Japanisation in Europe). In **other words, the B/C scenario could lead in a second stage to a B/D scenario.**

Upside scenario (A/D): a “virtuous” scenario in which inflationary pressures to emerge from the crisis are contained by new sources of productivity gains

This is the most favourable scenario. The pandemic is gradually being eradicated thanks to vaccination campaigns. Digitalisation and research efforts following the crisis are giving rise to innovations. **The crisis generates a process of destruction/creation: the disappearance of corporations in the hardest-hit sectors favours the emergence of new economic activities that are more in line with new needs.**

The promotion of R&D, new investments and capital deepening, with the introduction of new technologies and infrastructure may promote local/regional production chains, revamping regional growth and competitiveness with a network of new production chains.

A new cycle driven by structural changes would emerge. Productivity gains would contain inflationary pressures. The increase in nominal potential growth would then allow businesses, households and governments to deleverage in an orderly manner. Nominal interest rates would rise but remain below nominal GDP growth.

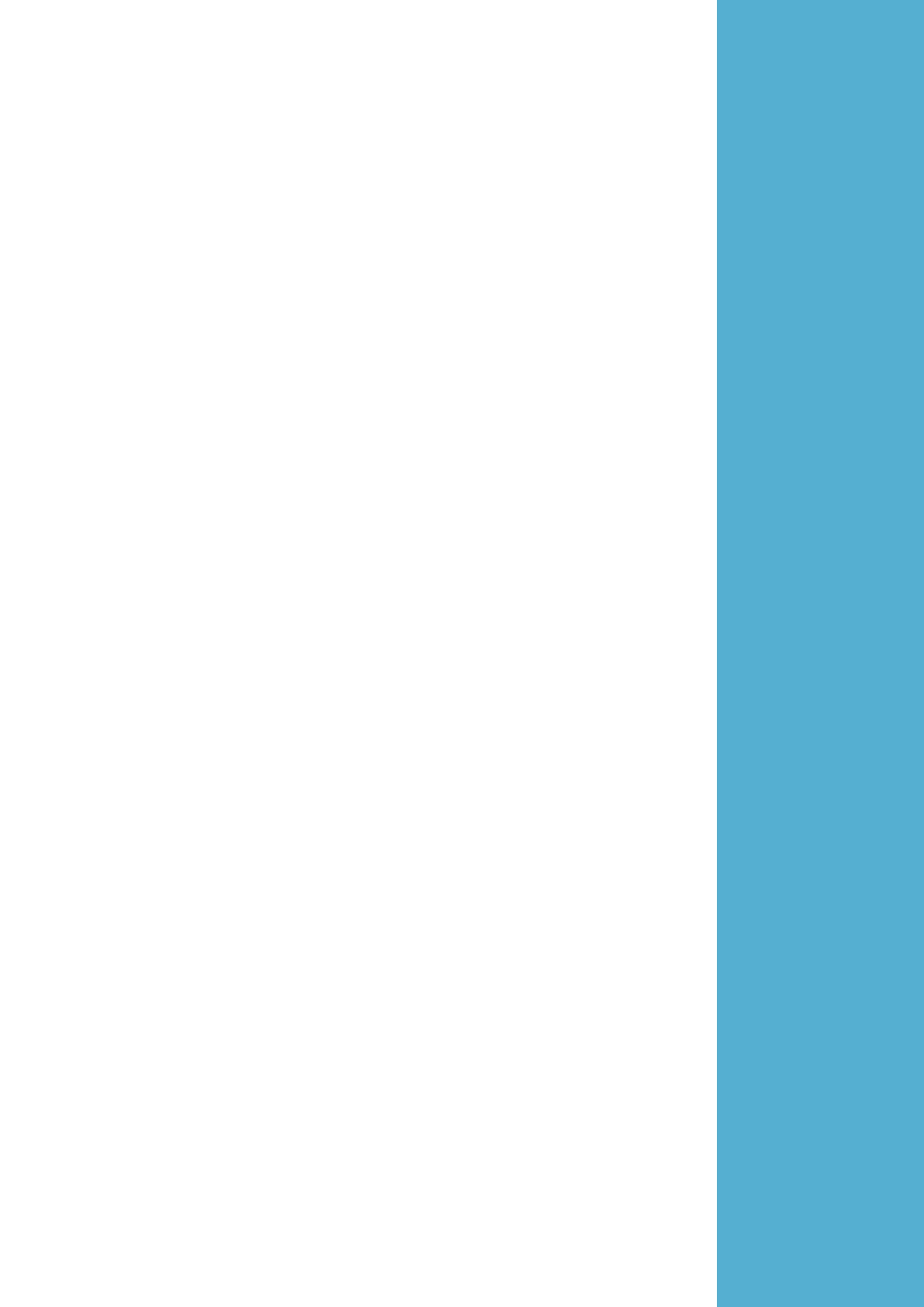
Note: the A/C (high growth/high inflation) scenario seems the least likely: the conditions for a sustainable inflationary boom are far from being met (already very high debts, low demographics etc.).

To feed this upside scenario, policymakers must implement a combination of structural reforms aimed at **increasing productivity and competitiveness:** by improving human capital, social conditions, income distribution (human development); by developing better governance and easing conditions for doing business (governance indicators); by creating incentives to foster research and development investment.

In addition, policies aimed at **mitigating the effects of adverse demographics** may succeed in increasing the labour force participation rate, supporting labour force growth and thus potential growth.

These factors that could limit the effect of adverse demographics and also improve income distribution and human capital. They also represent a key factor in determining the real upside potential of emerging countries: the presence of a demographic dividend does not always automatically translate into higher potential growth in a low literacy environment, and training and the attraction and retention of human capital become a key factor in growth. This will be particularly true over the coming decades when new technologies will require IT skills in order to exploit the maximum productivity potential.

Whatever the scenario envisaged, an episode of upward pressure on prices is inevitable in the recovery and catch-up phase. Whether these inflationary pressures will take root remains to be seen. It is up to governments to implement measures that will make growth more inclusive, investment-rich and reform-oriented, that would allow to remove structural rigidities that are weighing on productivity.



2

\ Return Forecasts & Macroeconomic assumptions

Return forecasts

Central Scenario Asset Class Highlights

DEVELOPED
MARKETS
SOVEREIGN
BONDS

- We have entered an environment where rates are lower for longer and tolerance for inflation is higher. This is the only way to engineer an orderly deleveraging looking ahead. It is not just government solvency that is affected – many corporates would come under pressure if interest rates were to rise too rapidly.
- In advanced markets, **central banks will continue to support the economies** by using conventional and unconventional monetary policies. Moving to the medium term (5-year horizon), central banks in developed markets may have moved out of the ZIRP and NIRP, with the US and UK CBs positioned in an advanced stage of the monetary policy cycle.
- The assumptions on low policy rates confirm the **decline of equilibrium interest rates** observed over the last 30 years.
- We confirm our long-term assumptions for the **yield curve to be flatter** than historical averages in all the developed countries. For the Eurozone and Japan, we foresee a prolonged period of low yields anchored by structural factors and central banks.
- **Expected returns on a 10-year horizon are depressed** by yields' starting level (low carry on average) and the expectation for yields to rise. The US could have the highest expected return thanks to a relatively higher carry that is expected to only be partially offset by capital losses due to yield normalisation.

EMERGING
BONDS

- In the long term, we confirm the marginal downside adjustment of EM sovereign spreads and yields vs. history, barring any inflationary shock.
- Looking at the medium-term horizon, **we expect EM assets to be resilient**, outweighing potential risks linked to unstable growth and trade dynamics.
- As demonstrated by recent history, the downside risk can be country-specific, more idiosyncratic than systemic, affecting the country's macro environment and risk premium.
- On a medium to long-term horizon, we estimate a default loss around 0.5%, considering the EMBI GD country composition and the default probability distribution at rating level.
- **The outlook on EM debt is fairly positive in the medium to long term**, because of high carry and a moderately positive scenario reflecting our outlook on the EM/DM economies.

CREDIT

- Following short-lived peaks triggered by the Covid-19 crisis, **spreads tightened back** close to pre-pandemic levels by the end of 2020, mainly thanks to unprecedented monetary stimulus, which is likely to persist and also keep them compressed in the short to medium term.
- **Default rates are likely to peak in Q1 2021**, before falling to close to long-term averages in the following quarters: the unprecedented fiscal and monetary stimulus at work made the current default cycle unusually short-lived, limited by macro standards and concentrated in lower-rated issuers.
- The recovery phase may see a more uneven and less linear fall in default rates towards low historical levels, especially in the US.
- **In the next few years, a more carry-like return and lower absolute yields** offered are likely to lead to lower performances.
- Higher duration and lower quality in the US results in higher equilibrium spreads versus the EU.

EQUITIES

- Looking at our estimates for earnings growth trend, we can highlight some decreases mainly due to the lower economic growth potential. From a cyclical perspective, we are forecasting an **earnings recovery and catch-up** as a consequence of the Covid-19 crisis, which will support earnings growth figures **in the short to medium term**.
- PE multiples are high across regions and the valuation adjustments will drag down the expected returns in the medium to long term. Final expectations over a 10-year horizon are for equity returns below the long-term projections, with risks skewed to the downside.
- **Compared to one year ago, expected equity returns over a 10-year horizon are lower** as they incorporate higher initial valuations across the regions. The lower EPS growth, as previously highlighted, represents another driver for lower returns, but given the size this is less relevant in explaining the difference.
- In the long-run, we estimate that the US market should appreciate at a trend rate of 7.5% p.a. in nominal terms. **EM equity return is estimated at 8.5%**, which is lower than previous years but confirms **a higher potential than developed markets**.

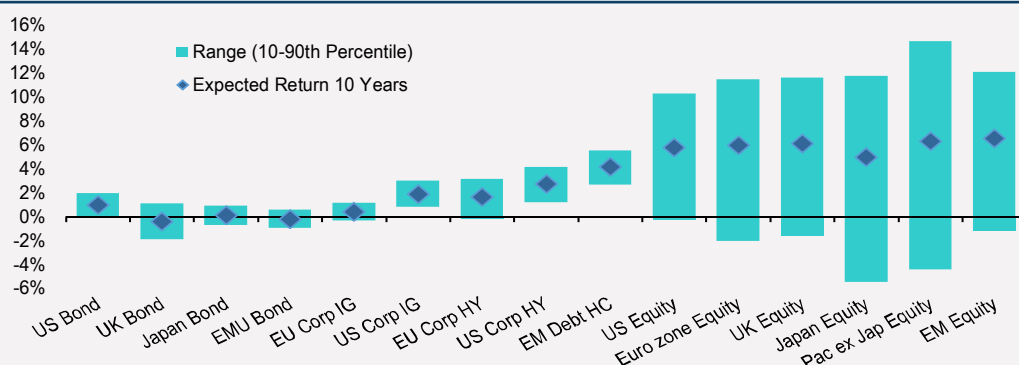
CURRENCY

- We acknowledge that the continued deterioration in the U.S. fiscal and current-account deficits are significant headwinds for the dollar, yet our long-term equilibrium level has not changed much from what we had before the pandemic.
- We confirm the EUR trading around \$1.25 in the long-run – unchanged from last year’s projections, while our **long-term fair GBP valuation has moved substantially lower** compared to its pre-pandemic level at \$1.45.
- **JPY, Nordics and GBP are the G10 currencies with the highest upside**, whilst CHF and NZD seem to have already overshot their long-run equilibrium levels.

EXPECTED RETURNS

- Given the greater uncertainty prevailing in the current macro and financial environment, we will be presenting the ranges for the **simulated expected returns at 10 yr horizon where we excluded the tail scenarios**.

10 Year Expected Returns Ranges



Source: Amundi Asset Management CASM Model, January 2021

ASSET ALLOCATION IMPLICATIONS

- Risk-adjusted expected returns for bonds have shifted downwards compared to their pre-Covid levels, while for equity the difference is less pronounced:
 - As a result of the unfavourable valuations across all assets, our expected returns are lower across the horizon, with fixed-income assets more depressed than risky assets.
 - The estimated risk is very similar, as defined on a long horizon sample.
 - The currency contribution for foreign exposure (on the negative side) is less pronounced as EUR is close to its long-term fair value with respect to the main FX pair.
- The optimal “theoretical” allocation **increases allocations to US bonds and EU IG due to the higher carry and lower default rates, respectively**. Supportive expectations, based on the development of the current crisis, translate into a **higher allocation to Asian equity**.

Return forecasts

Annualised Return Forecasts

In the following table, we present our return forecasts across different asset classes, calculated as the average of simulated annualized returns, on different forward looking horizons (from 3 Years to 10 Years). We included as reference also the historical annualized returns and volatility calculated on 20 years horizon, this long term sample is comprehensive of 3 main macro and financial crisis (Dot com, Great Financial and Covid-19 crisis).

Assets in local currency	Reference Index	Duration	Average Annualised Expected Returns			2000-2020 Historical Returns (annualised)	2000-2020 Historical Volatility (annualised)
			3 year	5 year	10 year		
Cash							
Euro Cash	JPCAUEU3M Index	0.3	-0.7%	-0.7%	-0.1%	1.7%	0.5%
US Cash	JPCAUS3M Index	0.2	0.1%	0.2%	1.2%	2.1%	0.5%
Government Bonds							
US Bond	JPMTUS Index	6.5	-0.2%	-0.1%	1.0%	4.5%	4.7%
UK Bond	JPMTUK Index	11.6	-1.2%	-1.3%	-0.4%	5.6%	6.0%
Japan Bond	JPMTJPN Index	9.9	0.0%	0.0%	0.1%	1.8%	2.1%
Emu Bond - Core	JPMTWG index	7.6	-1.7%	-1.4%	-0.7%	4.3%	4.0%
Emu Bond - Semi Core (France)	JPMTFR Index	8.1	-1.7%	-1.4%	-0.5%	4.7%	4.3%
Italy Bond	JPMTIT index	6.9	-0.9%	-0.4%	0.4%	5.4%	5.8%
Spain Bond	JPMTSP Index	7.2	-1.4%	-0.9%	0.2%	5.3%	5.2%
EMU Bond All Maturity	JPMGEMUI Index	7.5	-1.4%	-1.1%	-0.2%	4.8%	4.0%
Barclays Global Treasury	BTSYTRUU Index	7.9	-0.4%	-0.2%	0.4%	4.6%	6.5%
Credit Investment Grade							
Euro Corporate IG	ER00 index	5.2	-0.3%	-0.2%	0.4%	4.4%	3.6%
US Corporate IG	COA0 index	7.2	0.4%	0.6%	1.9%	6.1%	5.6%
Barclays Euro Aggregate	LBEATREU Index	6.7	-1.2%	-0.9%	-0.1%	4.6%	3.4%
Barclays US Aggregate	LBUSTRUU Index	5.8	0.1%	0.2%	1.3%	4.8%	3.4%
Barclays Global Aggregate	LEGATRUU Index	6.9	-0.2%	0.0%	0.8%	4.8%	5.5%
Credit High Yield							
Euro Corporate HY	HE00 index	3.6	0.2%	0.5%	1.6%	6.3%	11.6%
US Corporate HY	HOA0 index	4.1	0.3%	0.9%	2.7%	7.6%	9.4%
Emerging Market Debt							
EM Hard Currency Debt*	JPGCCOMP Index	7.0	1.9%	2.5%	4.1%	8.5%	8.6%
EM-Global Diversified**	JGENVUUG Index	5.4	3.4%	3.5%	4.7%	6.7%	11.9%
Convertible Bond							
Europe Index (Eur Hedged)	UCBIFX20 Index		2.1%	2.0%	2.7%	4.5%	8.9%
Equities							
US Equity	NDDLUS Index		6.1%	5.5%	5.8%	7.0%	15.2%
Europe Equity	NDDLE15 index		6.0%	5.5%	6.0%	3.3%	15.3%
Euro zone Equity	NDDLEMU Index		6.0%	5.4%	5.9%	2.3%	18.0%
UK Equity	NDDLUK Index		6.0%	5.7%	6.1%	3.7%	13.9%
Japan Equity	NDDLJN Index		5.1%	4.4%	5.0%	3.2%	17.8%
Pacific ex-Japan Equity	NDDLXJ Index		6.5%	5.7%	6.3%	6.8%	14.0%
Emerging Markets Equity	NDLEEGF index		6.4%	6.0%	6.5%	10.6%	17.1%
China Equity	NDELCHF Index		6.7%	6.4%	7.0%	10.8%	25.3%
World Equity	NDDLWI index		6.0%	5.4%	5.8%	5.5%	14.4%
AC World Equity	NDLEACWF Index		6.0%	5.5%	5.9%	5.8%	14.4%

EM sovereign index are EMBI Global Diversified and EM-GBI Global diversified; * Hard Currency USD, ** USD Unhedged, including the USD currency expectation towards EM currencies. EM Local starting date is 31/12/2003.

Source: Bloomberg, Amundi Asset Management CASM Model, Amundi Asset Management Quant Solutions and Research Teams. Data as of 15 January 2021. Macro figures as of last release. Data updated as of 31 December 2020. Equity returns based on MSCI indices. Reference duration are average figures. Local Currency. Returns on credit asset are comprehensive of default losses.

Forecast and fair values up to 3 years horizon provided by Research team (macro, yields, spread and equity). 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.

Expected Returns under the Central Scenario

3- and 10-year Expected Returns

Monetary policy authorities have reinforced the task of maintaining ultra-low rates in the near future. This has had an impact of postponing the normalisation path for government yields. When interest rates start increasing, they will generate negative capital gains that will partially offset the increase in yields. The normalisation is more dynamic in the US and UK than the EMU and Japan.

Starting prices incorporate progress in credit tightening. The picture on credit is less benign than recent quarters from a valuation standpoint and default probabilities continue to weigh on the negative side, especially for the HY sector. **We confirm the medium- to long-term stabilisation path on spreads that will result in higher carry due to the government rate increase.**

Equity return expectations highlight higher figures on a short- to medium-term horizon considering the sequence of recovery and late cycle phases. The medium- to long-term returns evolution is governed by the convergence towards a more neutral stance and some remaining valuation adjustments.

10-year expected returns: comparison between this year and last year's update (2021 vs. 2020)

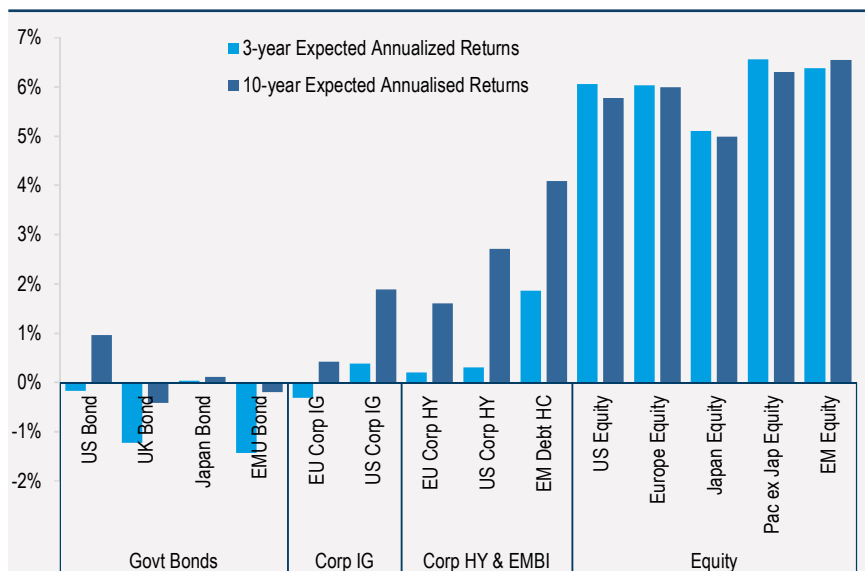
Our 10-year forecasts are lower than those we published last year for all asset classes. The 2020 chronology has been so extraordinary that it is difficult to summarise all the factors that have changed and the determinants of the new evolutions we can foresee in our expected returns.

From a structural point of view, we confirm the low trend observed for all macro and financial variables, with a specific downside risk in the next decade.

From a cyclical point of view, the starting point is different. Our current medium-term scenario is for a recovery evolving in a late cycle, while last year we were expecting a slowdown scenario. The starting levels for interest rates and spreads are lower than last year, while equity prices are up.

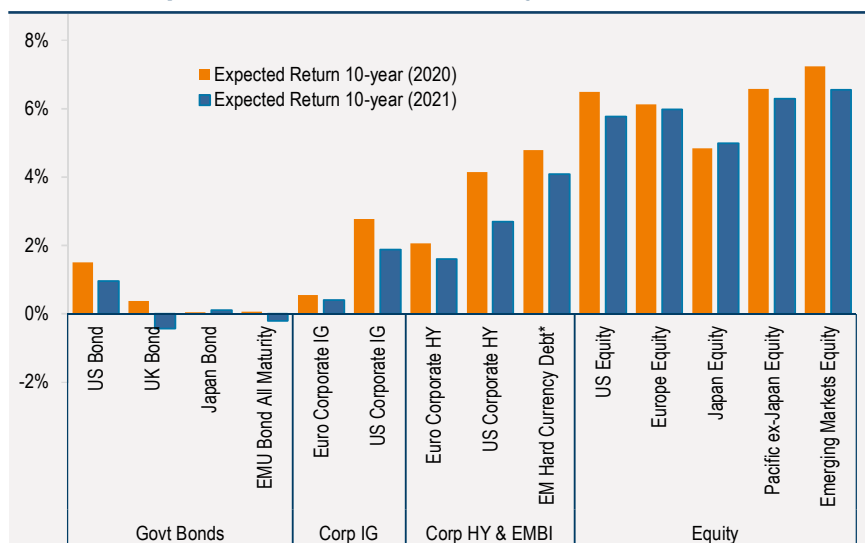
Notwithstanding the extreme valuations across all assets, the change in our expected returns (and the difference compared to last year) highlight the different impact of the cyclical shift on interest rates and equity assets. Furthermore, **fixed income assets are more depressed than risky assets.**

Graph 3: Standard asset class expected returns update over a 3- and 10-year horizon



Source: Bloomberg, Amundi Asset Management CASM Model, Amundi Asset Management Quant Solutions and Research Teams, Data as of 15 January 2021. Local currency.

Graph 4: Last year (2020) vs. current year (2021) asset class expected returns over a 10-year horizon



Source: Bloomberg, Amundi Asset Management CASM Model, Amundi Asset Management Quant Solutions and Research Teams, Data as of 15 January 2021. Local currency.

Return forecasts

Expected Returns under Central vs. Alternative scenarios

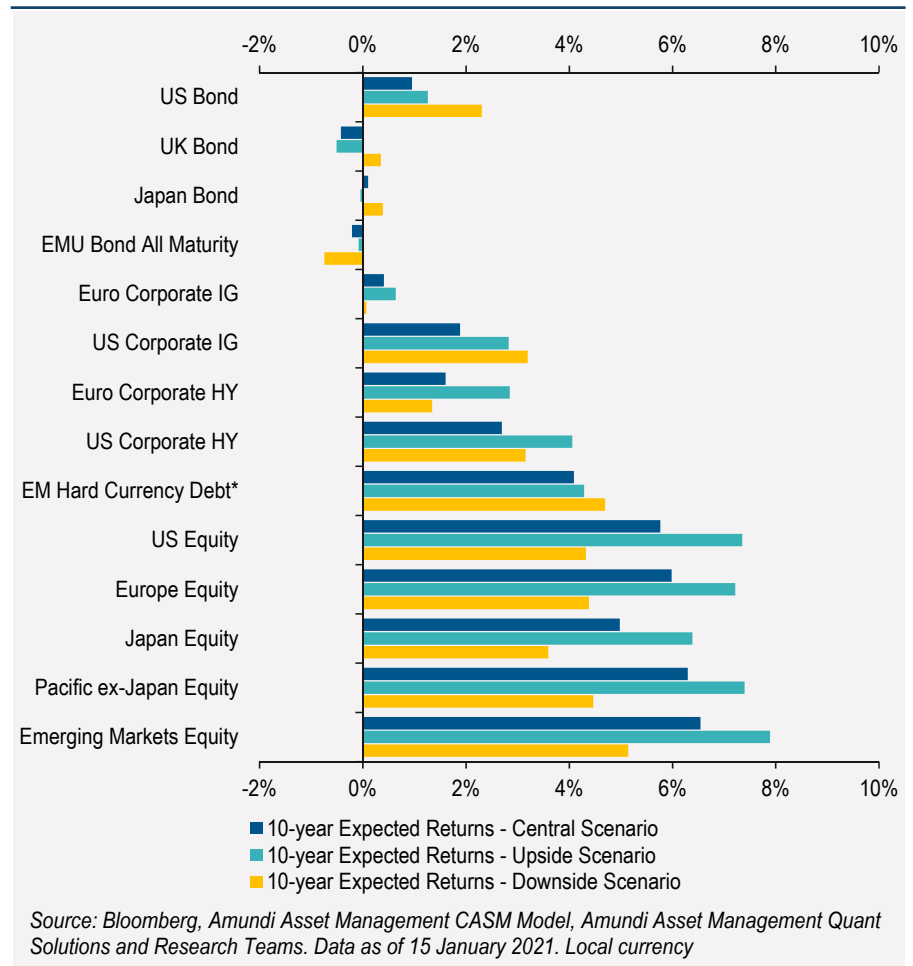
The **downside scenario** assumes even **lower growth potential (and interest rates) in the long term**, above all for the regions that could have more difficulties in rebuilding their economic power (Eurozone, UK, Japan), albeit for different reasons. The **inflationary pressures** we expect in the medium term result in **a bust on inflation and interest rates in US and EM economies**; while for the **other developed countries the stagnation and the downward pressure on yields to remain low are prevailing** (i.e. Japanisation albeit at a higher inflation rate). The most relevant implications on expected returns deriving from the downside scenario are **lower returns on risky assets as expected, while on fixed income the outcome is multifaceted**. In this scenario, **the level of debt is a real issue** that can generate unwanted uncertainty, although **central banks can partially mitigate this**. In the **medium term**, inflation volatility coupled with poor macroeconomic readings are linked to a **potential correction on the risky assets side** (higher than the one implied by valuations).

This will lower the equity return in the medium term but also over the 10-year horizon. **The stagflation is painful for bonds, while moving to the long term the stabilisation on lower but positive yields is beneficial** (also for long dated bonds). For **Eurozone government bonds, yields remain so low (or negative)** that the returns cannot pick up. Besides we are also considering the potential **negative contributions from the periphery**. Looking at **spread related assets, the results are mixed**. In fact, while on HY the higher carry is only partially offset by the increase in default losses, for **IG we are assuming there will be some support from central banks**, even if it does not work perfectly.

The materialisation of the **upside scenario** incorporates a more generous medium-term outlook for the macro and financial environment under the assumptions of **more effective policy actions and some improvements in productivity and competitiveness over a longer timeframe**. Moving to our forward-looking asset return framework, **this scenario is beneficial for risky assets on the 10-year horizon**. Looking at **the fixed income space, the impact depends on the duration exposure**. In fact, the fast increase in yields, even if it is supported by stronger growth and inflation that is under control, is overall positive on low to medium duration exposure, while it tilts to the negative side for long duration bonds and markets. **Credit related assets can benefit from the reduction in default and in general from the pro-risk environment**.

Looking at the **long-term (20-year) expected returns**, we can evaluate the **different impacts of the two scenarios considering the stabilisation of the macro and financial variables** on the levels we identify as the corresponding reference long run. We assume **potential growth higher than current estimates and inflation in line with CB targets for an upside scenario** and **stagnation on lower growth rates and modest inflation in the downside scenario**.

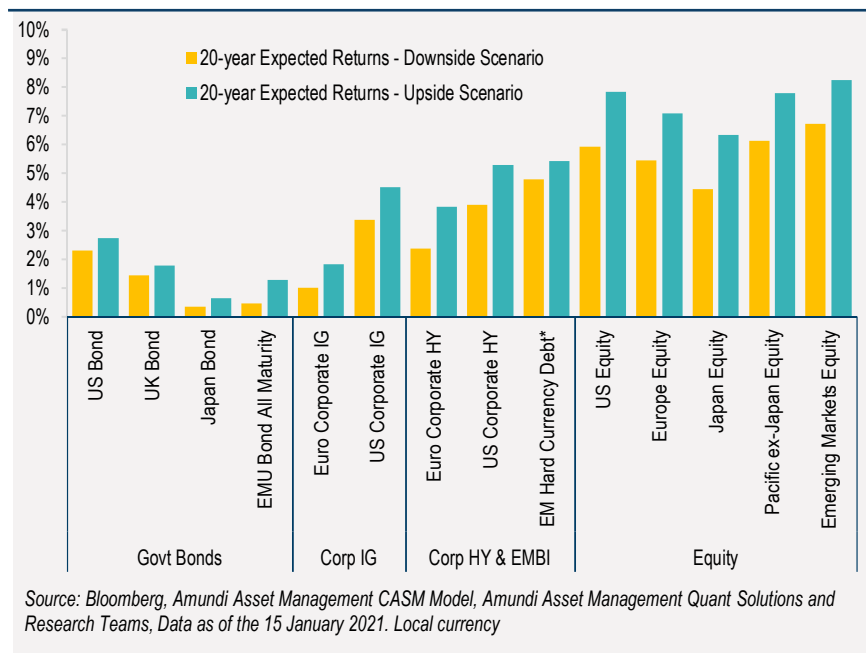
Graph 5: Standard asset class 10 year expected returns under the central and alternative scenarios



Standard asset class long-term (20-year) expected returns under the two alternative scenarios. Upside Scenario = high growth/low inflation with Downside Scenario = low growth/high inflation

Looking at the long-term (20-year) expected returns, we can evaluate the different impacts of the two scenarios considering the stabilisation of the macro and financial variables on the levels we identify as the corresponding reference long run. We assume potential growth higher than current estimates and inflation in line with CB targets for an upside scenario and stagnation on lower growth rates and modest inflation in the downside scenario

Graph 6: **Downside and upside in the long term**



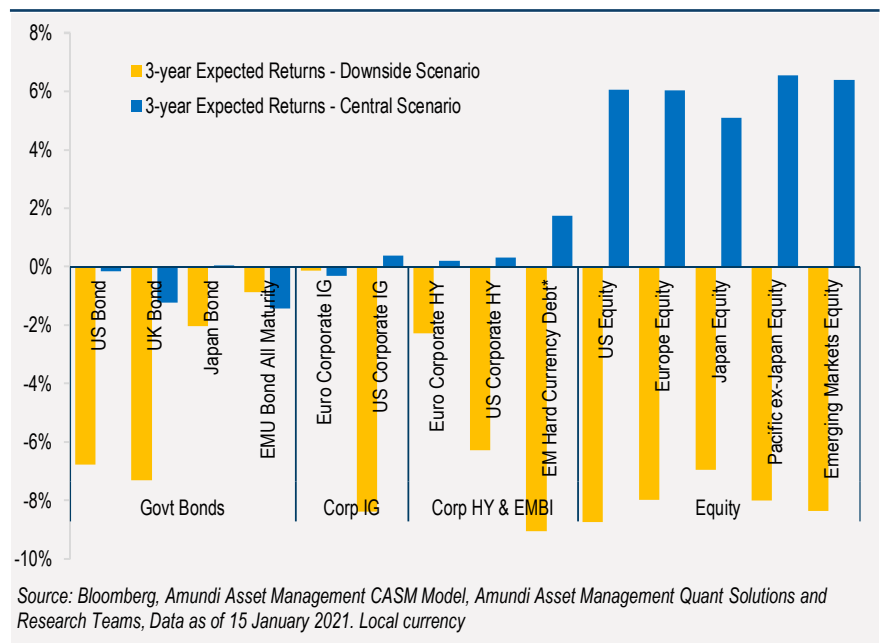
Return forecasts

Focus on Medium-term Expected Returns

Standard asset class medium-term (3-year) expected returns under the downside and central scenarios
Downside Scenario = low growth/high inflation

Looking at the medium-term horizon (3 years), the consequences of the downside scenario are more evident. In fact, the inflationary pressures coupled with disappointing readings on growth depress both fixed income and equity returns. Expected returns are negative, equity can underperform bonds for a shorter period. It is necessary to look for cash and real assets to reduce the shortfall.

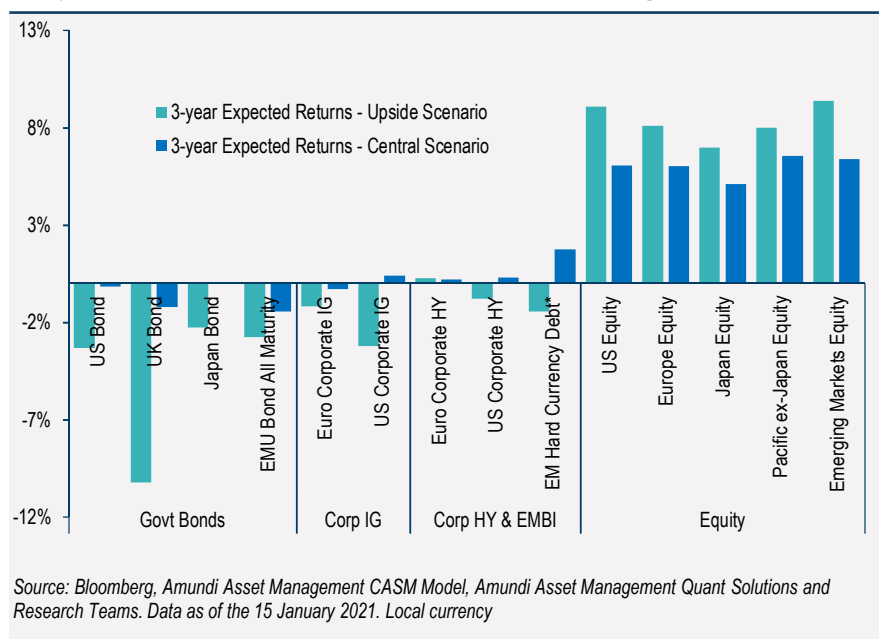
Graph 7: Medium term Returns - Central vs Downside



Standard asset class medium-term (3-year) expected returns under the upside and central scenarios
Upside Scenario= high growth/low inflation

Focusing on the medium-term implication of the upside scenario, the dichotomy in the evolution of equity and fixed income assets is more pronounced. In fact, while equity prices factor in the more positive macro and financial environment, fixed income is penalised by the yield increase. As we move toward a longer-term horizon, this is offset by the higher and persistent carry.

Graph 8: Medium-term Returns - Central vs Upside



Macroeconomic assumptions: our central scenario

Alessia BERARDI, Head of Emerging Macro & Strategy Research

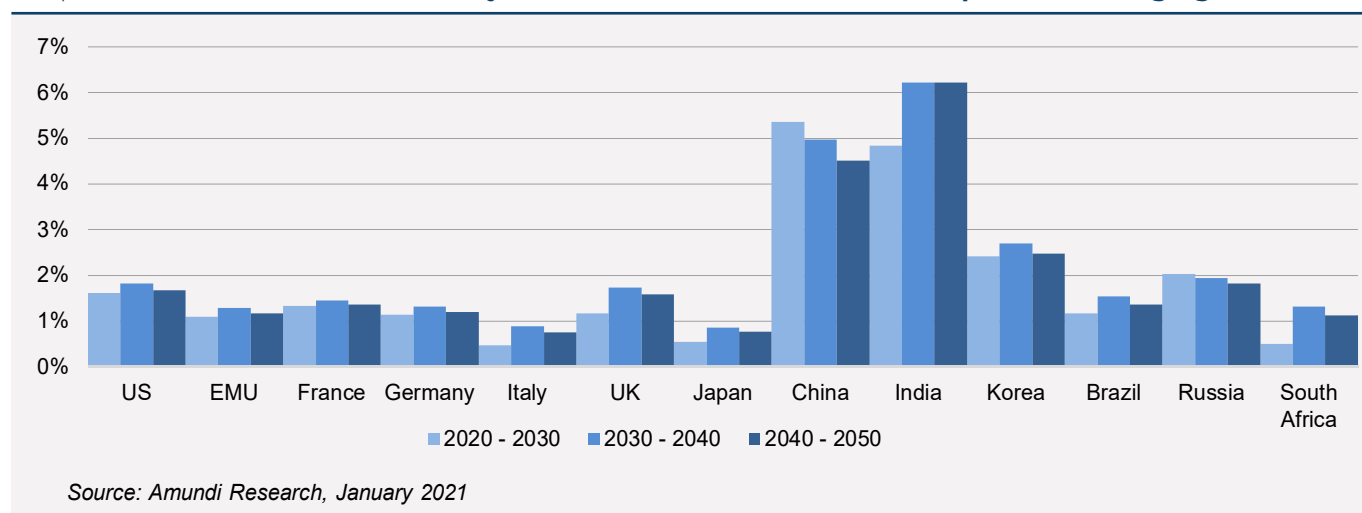
Annalisa USARDI, CFA, Senior Economist Cross Asset Research

Growth

Potential output is a key variable shaping the macro-financial framework and it helps in measuring inflationary pressures whenever the policy makers approach the policy making process. It defines an economy's capacity to generate income fostering savings, investments and finally the ability of an economy to pay down its debt. **In the medium-term (2020-2025), potential output growth is expected to be lower than previously estimated**, based on an internal analysis and in line with several studies from central banks and institutions. This is clearly the result of the **unprecedented contraction in 2020 and its impact on the three pillars: capital stock, labour force and productivity**. In particular, we identified a **great impact from the hit taken by investments and total factor productivity, which will take several years to recover, meaning slower growth in the overall capital stock**. In the short term, weaker aggregate demand and higher uncertainty have reduced many businesses' appetite to invest and will continue to do so, however, on a medium-term perspective the current crisis has been forcing others to shutter entirely. The labour force may likely experience what is called "scarring", with an increase in discouraged workers and persistent stress on sectors employing many young people, recent immigrants and women, groups that are at risk of being left on the side-lines for an extended period. While governments have made substantial efforts to preserve the attachments between employees and employers through several different schemes, these effects can't be offset completely. **Disruptions in labour markets and challenges posed by reallocating resources across firms and sectors will drag down productivity growth over the next few years.**

On a more long-term horizon, **productivity gains should come from the aforementioned reallocation of resources and the positive growth trend will resume**, even though potential output growth projections are on average somewhat weaker than previously expected. At this point, the risks to our growth projections are balanced amid lower labour input due to extra-demographic factors (discouraged workers, decreased labour force participation rate among women and the "retiring age" population, together with permanent loss of some types of jobs in sectors undergoing restructuring, slow re-training process) and a sort of productivity spree (digitalisation and IT related R&D). In terms of growth dynamics (looking at averages over decades) after a weaker decade in 2020-2030, **in several countries potential growth will strengthen in 2030-40 and then slightly decelerate in the following decade, mirroring either the dynamics of average productivity or capital growth in particular** (with the main drag on 2020-30 being the 2020-23 crisis and catch-up phase). The labour input trend in the projection is driven by the **demographic factor**, which tends to be decelerating and, in some countries, negatively contributing to potential growth, due to a projected negative demographic dividend. This is particularly true for developed markets, but many emerging economies are not exempt from this phenomenon either.

Graph 9: Potential GDP forecasts by decades 2020-2050 main developed and emerging countries



Macroeconomic assumptions

Inflation

Inflation trends tend to behave differently in emerging and advanced economies.

In advanced economies, average inflation remained subdued in 2020 and will recover gradually over the next few years as growth returns to potential, the output gap closes and slack is reduced as under-utilised resources are increasingly employed. Inflation trends to the target, but no persistent overshooting takes place. Dynamics remain stronger for the US, while for the Eurozone convergence to target is slower.

In the emerging economies, in the crisis year that was 2020, we saw inflation rates mostly fluctuating within the CBs' targets: the shock has been strong but temporary. Moving forward towards a medium-long-term horizon, with our base case scenario of growth recovering at more sustainable rates and the expected unwinding of the current extremely dovish monetary and fiscal policies, inflation is projected to remain anchored around the central banks' targets. The reversal of the explosive debt trajectories will take several years and will vary from country to country depending on the starting points and the ability of the EM to grow out of their debt: in the so-called high inflation countries, inflation levels are expected to stay closer to the upper band of the target. **Over and undershooting of inflation targets cannot be ruled out but they should prove temporary and dictated by specific food price cycles, tradable goods prices through currency pass-through and planned changes to administered/utilities prices.** If and when unwinding accommodative policy becomes less popular or proves less effective in driving the recovery, we will likely see a return to more protracted higher inflation levels.

Table 3: Inflation targets over 10 yr and long run for developed and emerging countries

Inflation	10 yr Horizon (2020)	Long Run
US	2.2% (Headline) -2% (Core)	2.2% (Headline) -2% (Core)
EMU	1.6%	1.8%
France	1.6%	1.8%
Germany	1.5%	1.7%
Italy	1.6%	1.8%
UK	2.5% (RPI) - 2% (Core)	2.5% (RPI) - 2% (Core)
Japan	0.5%	0.8%
China	3.0%	3.0%
India	4.0%	4.0%
South Korea	2.0%	2.0%
Brazil	4.0%	4.0%
Russia	4.0%	4.0%
South Africa	4.5%	4.5%

Source: Bloomberg, Amundi Research, January 2021

Monetary Policy

Advanced economies. With inflation trends remaining below or reasonably close to the central bank inflation target and the output gap closing over time in a double catch-up process (of actual and potential output) monetary policy will remain accommodative for a few years after 2020, with the Fed's first hike not taking place before the end of 2023. While remaining accommodative, the ECB may consider taking rates out of negative territory around 2025. **In the emerging economies**, the monetary policy "normalisation" phase will start earlier than in the advanced economies; very few economies will be ready to shift to a more hawkish monetary policy stance by 2021; however, starting in 2022, we do expect a more general shift with policy rates gradually increasing in an effort to keep inflation under control in a recovery environment. The faster the domestic gaps narrow, the stronger the tightening will be or the greater the risk will be of seeing inflation out of control. Because of the assumptions made on the kind of recovery we are going to see following the earlier rebound, the "normalisation" process is expected to remain gradual, especially in consideration of the global financial conditions that will remain accommodative (USD and Fed) for longer allowing the EM CBs more time to withdraw from their QE and hike their policy rates. Inflation spikes in the recovery phase and/or a sudden change in the global financial environment could trigger a faster adjustment.

Fiscal Policy

Extraordinary fiscal policies implemented during 2020 are expected to become less supportive as growth recovers in a stable manner, mainly on concerns related to the 2020 debt surge. **In the US**, after the fiscal support in H1 2021 to combat the new wave of infections and support households and sectors affected by the crisis, some fiscal discipline will be required to avoid debt-to-GDP ratios otherwise projected to increase steadily on an annual basis, reaching 195% of GDP by 2050 as estimated by the Congressional Budget Office under a no policy change scenario. **In the Eurozone**, after increasing to record high levels in 2020, debt-to-GDP ratios are expected to gradually start declining only from 2022 or 2023, with some variability among member States. The timing of stricter fiscal discipline will vary by country and depend on the degree of debt sustainability/vulnerability. In light of this, the funds made available by the Next Generation EU package represent a key fiscal support to implement structural investments/expansion in otherwise more fiscally neutral budgets. **In emerging economies**, the fiscal support put in place during the pandemic crisis has been generally more prudent than what has been done in the advanced economies. Ballooning debt concerns have been felt more acutely and the willingness to unwind the fiscal effort is already evident in the 2021 budget laws announced in different countries. While we do expect fiscal consolidation to be pursued, its pace remains the source of concern. We do believe that the official fiscal targets for 2021 are too ambitious in most cases. **The fragile economic conditions left by the current crisis will need the accommodative policy for longer; an abrupt interruption of fiscal support together with less effective austerity programmes will be detrimental for growth trajectories. Overall, debt trajectories are expected to stabilise around 2024-25 at higher levels than 2020 and start to decline later on.**

Macroeconomic assumptions: our central scenario

For many countries, the Covid-19 recession is a crisis with the potential to delay, or even reverse, several years of progress toward development goals for both advanced and emerging economies. In 2020, every region experienced substantial growth contraction, with per capita GDP declining severely, exacerbating income inequality and increasing the number of people living below the poverty line. Potentially this may lead to long-term damage to potential output, via lasting losses on productivity growth, capital and labour as this type of deep crisis not only plunges economies into recession in the short term, but has the ability to inflict lasting scars on their structure, lowering potential output for years. On the other hand, though, policy response could capitalise on the opportunity that this unprecedented crisis has provided, to address in a structural way the weak points and vulnerabilities that have been exposed or exacerbated, with the aim not only to restore growth potential in the longer term but also to reach a new paradigm of stronger and resilient growth, based on more responsible, inclusive, greener and fairer standards.

Although of different nature, we have empirical evidence of lasting effects of deep crises extending for years after. The oil shocks of the 1970s and 1980s and the 2008-09 Global Financial Crisis were followed by sluggish productivity growth for the following decade and weaker increases in the labour force and fixed investment.

Beyond the unprecedented collapse in 2020, the Covid-19 pandemic may have similar bearings on a longer-term horizon, on potential output and growth.

- Indeed, as the IMF highlights at this stage, **GDP levels that were projected to be reached in the medium term before the crisis, have now been pushed back several years under the current scenario, showing how fast the economies reversed a significant part of the progresses made and highlighting the near-term loss of potential output.**
- As an example of the short-term impact on potential growth, we could refer to the Eurozone and an ECB study¹. The ECB's pre-Covid analysis suggested potential growth of between 1% and 2% annually between 2020 and 2022. However, the Covid-19 crisis has changed the picture, with the September 2020 staff macroeconomic projections indicating potential growth in the -0.3% to 1.1% range between 2020 and 2022. According to this analysis the impact is much larger than with the great financial crisis or the average of previous crises, when the output gap on average fell between 0.0% and 0.7% per year. Yet, in 2020 potential output would still fall less than real GDP, resulting in an unprecedented drop in the output gap.

¹ <https://www.ecb.europa.eu/pub/pdf/ecbu/eb202007.en.pdf>

Macroeconomic assumptions

Analysis of several other institutions appear to point to a severe decline in potential output in the immediate aftermath of the crisis, covering 2020-2022 at least. Yet, assessing the impact of Covid on longer-term potential growth (i.e., looking into 2030 and beyond) is particularly difficult at this stage as we have little data to make assumptions on the persistence of the effects, as the crisis is not resolved. The total damage caused by the crisis has still to be evaluated amid the “whatever it takes” effort put in place by the policy makers and the uncertainty surrounding the path of the pandemic, which impairs any meaningful quantitative analysis on economic players’ behaviour in the long term .

Yet, the **“growth accounting” approach**, which we use in our long-term economic projections, could provide a useful starting point in assessing the risks, both on the upside and downside, of structural changes in key growth drivers:

- a) **labour input** (affected by labour force participation, employment growth, human capital development, demographics)
- b) **capital accumulation** (affected by past economic performance, capital depreciation, saving rate and dependency ratio)
- c) **total factor productivity** (affected by a mix of factors affecting efficiency that we summarise in a country’s economic development score)

Generally, such deep crises are followed by years of low productivity and investment, as our projections seem to confirm for the 2020-2030 decade. Yet, as mentioned, we currently have little evidence to embed in our models’ definitive assumptions of structural and long-lasting changes in economic agents’ behaviour, which may affect how projected economic drivers behave and evolve in the future.

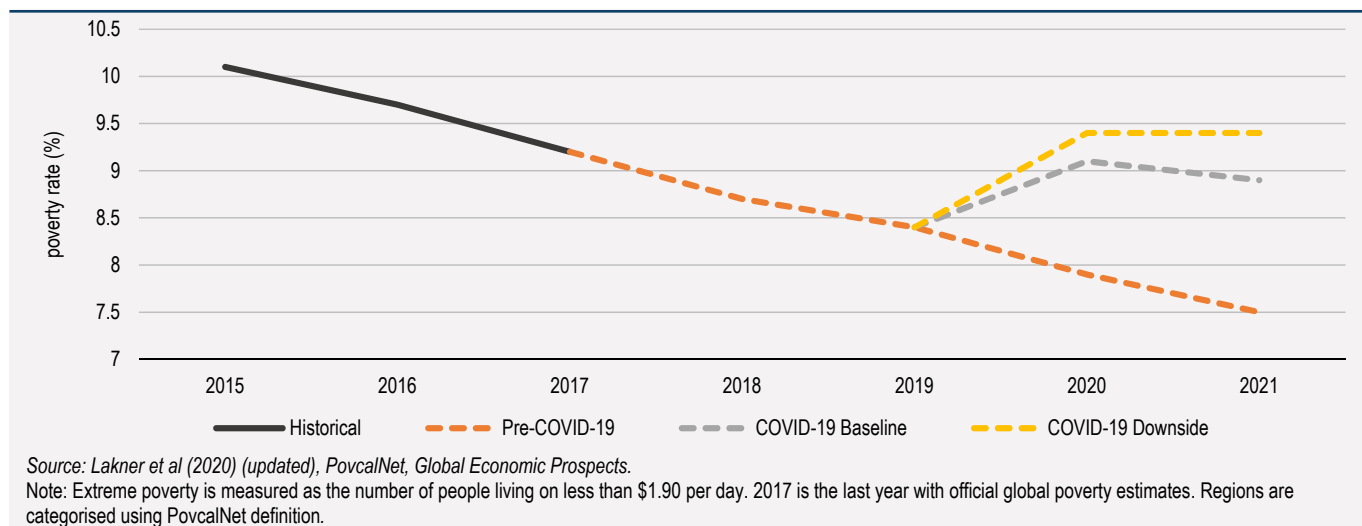
Below we detail several features stemming from the Covid-19 crisis that may generate deviation from current projections of the three key growth pillars, both on the upside and on the downside. We’ll elaborate on labour, capital and productivity.

Covid-19 crisis led to increase in poverty and income inequality

Eight out of 10 “new poor” will be in middle-income countries.

The Covid-19 pandemic is estimated to push an additional 88 million to 115 million people into extreme poverty this year, with the total rising to as many as 150 million by 2021, depending on the severity of the economic contraction. Extreme poverty, defined as living on less than \$1.90 a day, is likely to affect between 9.1% and 9.4% of the world’s population in 2020, according to the biennial Poverty and Shared Prosperity Report. This would represent a regression to the rate of 9.2% in 2017. Had the pandemic not convulsed the globe, the poverty rate was expected to drop to 7.9% in 2020.

Graph 10: **The impact of Covid-19 on extreme poverty, Global**



I/ Labour input

Labour force participation has been changing during the pandemic crisis. The temporary or more permanent nature of this change is going to impact the labour input. As the crisis is not yet resolved, we must observe the trend in labour input drivers. “Virtuous” trends that have been interrupted by the crisis (e.g. higher female participation rate, decline in unemployment among young workers) may resume, although with some lag, thus not compromising their positive contribution to growth. **Policy action could further accelerate this recovery.**

Context. The Covid-19 crisis was unusual as it affected specific segments of the economy, in particular within the service sector. Most of the job losses were concentrated among temporary, low-paid jobs, typically employing a significant portion of the young, female and less-qualified labour force. The pandemic has seen several phases of shutdowns and reopenings, and activities have partially reopened but employment, hours worked, and labour force participation have not returned to their pre-crisis norms, thus telling us that a **significant labour market slack is persisting at a global level** as we write. In several advanced economies, labour protection schemes have been implemented to limit the rise in unemployment and cushion the decline in labour income, thus blurring the picture of the true labour slack. Labour force under-utilisation has implications in defining near-term potential growth, but could also have long-term implications, the longer the return to pre-Covid levels takes.

So, what should we monitor to assess longer-term implications? In a typical growth accounting model, some factors are implicitly considered stable in the long-term, such as the labour force participation rate or income distribution to labour, while the demographic trends of the working age population shape the evolution of the labour force.

Thus, the following aspects that shape the size and the persistence of labour slack and participation rate represent what we believe it is worth monitoring to evaluate medium- and long-term implications of Covid-19 on potential output growth.

- **How fast the share of discouraged workers and labour force participation rate of women and of the “retiring age” population return to their pre-crisis trends.** In our previous long-term paper, we stressed how the increased participation of the female population in the labour force and how long older cohorts remain in the labour force could, for some economies (Spain, Italy, Japan), have been a potential upside risk to the labour contribution to growth, partially offsetting the negative demographic dividend.
- If the delayed entrance of youth into the labour market extends over time; if the permanent loss of types of jobs (with the need to re-train) in sectors under restructuring is not offset by the creation of new types of jobs. Post deep recessions, new entrants (youth) remain unemployed longer, tend to be paid less compared to previous patterns and this spills over into poorer on-the-job training and therefore lower labour productivity. Laid off workers, on the other end, post deep recessions tend to remain out of the labour force for longer, missing the opportunity to re-train to re-enter the labour market efficiently due to a mix of financial conditions and lower opportunities. The faster labour slack is reabsorbed, the less persistent the damage and scarring is.
- **How the duration of unemployment evolves:** difficult relocation/requalification of displaced workers, especially if the reallocation takes a long time and people stay out of work for an extended period, could lead to a persistent outflow from the labour force, with no re-entry, and to lower skills available overall in the economy. Indeed, higher unemployment for an extended period could affect potential growth through lower human capital formation and productivity. Another indirect impact is via the capital accumulation channel: longer lasting higher unemployment, or fear of it, could increase precautionary savings for longer than usual, in turn compress consumption and induce lower investment in the system. Economies that are effectively tackling the issue of retraining workers and human capital formation and attraction via appropriate policies may benefit from faster improvements in the near term and long-lasting benefits in the longer term, offsetting the negative impact of the pandemic in the short term.
- **How the percentage of young people not entering the labour force nor enrolling for higher education evolves** from 2019 into the next couple of years: financial reasons may have left families/youth unable to cope with education costs and unable to keep a standard learning level in home-schooling periods. As a result, higher education may not be accessible as before for some time (i.e. implying lower human capital formation, higher inequality of education, lower productivity). As we write, anecdotal evidence would point to **higher inequality in education** being the immediate by-product, although we must monitor the persistence of this trend.

Macro-economic assumptions

II/ Capital accumulation

The increase in uncertainty associated with this pandemic has reduced the risk appetite among the private businesses **limiting their willingness to make investments in equipment, structures, and intellectual capital at least in the short term**. As the crisis is not yet resolved, we must observe the evolution of investment drivers which could see a faster recovery to pre-crisis levels, should the right combination of incentives materialise; policy action could help foster a stronger recovery, creating the seeds of stronger economic performance in the longer term.

Context. Deep crisis may lead to reductions in corporate investment that will be difficult to reverse in the medium term: post GFC the investment ratio fell significantly in relation to GDP and took time to restore; some countries pursued targeted policies to promote capital innovation, especially in the suffering industrial/manufacturing sector. Indeed, today, the increase in uncertainty associated with this pandemic has reduced the risk appetite among the private businesses limiting their willingness to make investments in equipment, structures, and intellectual capital at least in the short-term. This in turn results in a **lower capital stock** than otherwise might have been in place, further exacerbated by increases in bankruptcies, current and forthcoming, notwithstanding the efforts put in place by governments in supporting the most affected sectors. **Debt accumulated by the public and private sectors is another source of slow investments in the near future.**

So, what should we monitor to assess longer-term implications on capital stock and formation? In our long-term growth model, the evolution of capital is a function of several variables: the stock of accumulated capital, the age and depreciation rate of capital and investment growth, linked to past economic performance and domestic savings patterns. Persistent changes in capital utilisation are not factored in as they are assumed to correct in the long term. We believe that the following aspects are worth monitoring in relation to capital evolution to evaluate the medium- and long-term implications of Covid-19 on potential growth.

- **Investment growth patterns:** the increase in uncertainty associated with this pandemic has reduced risk appetite among businesses and limited their willingness to invest in equipment, structures, and intellectual capital. In other cases, such as in the most affected sectors (transport, leisure, tourist and non-tourist hospitality) physical capital underutilisation will hurt the productivity of capital itself. This may negatively impact capital obsolescence and delay the adoption of more productive capital at aggregate level. While in the near term capex may slightly lag the recovery in consumption, as growth progressively recovers and uncertainty recedes, we expect a trend of general improvement in business confidence and investments. Governments may promote capex by introducing a system of incentives for the private sector, with particular emphasis on the most affected sectors, thus accelerating the recovery and promoting substitution into more efficient and productive capital.
- **Quality of investment/productivity spree:** learning the lessons from the pandemic, businesses may have been pushed to invest more in IT technology (e.g. shift to smart-working), robotics (e.g. need to rely less on an infection-prone work force) and logistics (e.g. shorter production chains). At country level, this may be taken as an opportunity to fund new policies aimed at implementing greener, more digital and efficient investment agendas that can reshape the structure and the growth prospects of economies previously limited by other growth factors (e.g. demographics). Timing, size and implementation of these policies may represent a key factor in identifying growth divergences between and among advanced and emerging economies.
- **Signs of extended deleveraging.** The surge in corporate debt levels is likely to discourage capital investment, as the corporate sector responds with deleveraging to mitigate the liquidity and solvency risk in the uncertain environment. This situation may be a risk to monitor, in particular in countries with the higher corporate sector leverage.
- **Signs of a persistent increase in precautionary savings:** higher precautionary savings translate into lower final demand and, thus, lower sales prospects. Should household savings remain higher for longer due to increased job uncertainty or expectations of higher taxes (as governments will have to ensure debt sustainability via fiscal austerity) may translate into less incentive to invest by companies and overall tighter conditions. While we expect savings to remain higher in the medium-term than in the recent past, due to a combination of forced savings due to mobility restrictions and some increase in the precautionary buffer too, we tend to expect a gradual return to more normal levels, as restrictions to mobility are removed and the economy recovers. This may take several quarters and be a gradual process but will likely go hand-in-hand with the improvement in the labour market which we expect to continually progress over the near term.

III/ Productivity

Efficient use of resources is the ingredient that makes the total greater than the sum of the parts. While difficult to pin down into one dimension and indeed challenging to measure, productivity is the key factor that explains the qualitative aspects not captured by quantitative capital and labour inputs and that can, in turn, offset or amplify their impact on growth trends. Here is where we find the biggest opportunity stemming from the crisis, where the destruction of old pre-crisis schemes can create new innovative ways of growth.

What we have learnt from previous occurrences is that economic consequences of shocks and crisis can take time to reverse and may have permanent effects on productivity: following the oil shocks of the mid-1970s and early 1980s, productivity growth remained sluggish for more than a decade. Total factor productivity remained subdued together with business fixed investments throughout the 2010s, following the 2008-2009 Global Financial Crisis. But this time may be different, as the Covid-19 crisis may have changed the way economic agents behave and think about risks previously considered very unlikely, bringing **structural changes to the way they organise their activity**.

On the one hand, for instance, it is likely that the pandemic will change the stance toward Global Value Chains as argued in our 2020 Outlook. The breakdown of GVCs, while revealing their limits, may cause **progressive relocation/onshoring** (due to a new risk assessment by companies) and as well as stricter regulations to contain the international fragmentation of production in key industries (from government), thus reinforcing a trend already visible in the aftermath of the global financial crisis. With an increase in protectionism, accelerating de-globalisation, sectors that have thus far benefited in terms of productivity growth from international exposure might experience a temporary decline in productivity.

Yet, on the other hand, the Covid-19 crisis may have accelerated the **process of digitalisation** and increased use of IT solutions in sectors previously slower to open up to new technologies (e.g. public administration in some countries).

Policy makers can take the challenge and the opportunity stemming from the crisis and develop policies to effectively steer economic agents' behaviour in favour of longer-lasting benefits. Productivity enhancement via innovative regulation and structural reform represent the strategic framework and the key tool for policy makers, able to even offset the limitations coming from typical exogenous factors (e.g. adverse demographics) with ad hoc designed policies (e.g. forward-looking immigration policies).

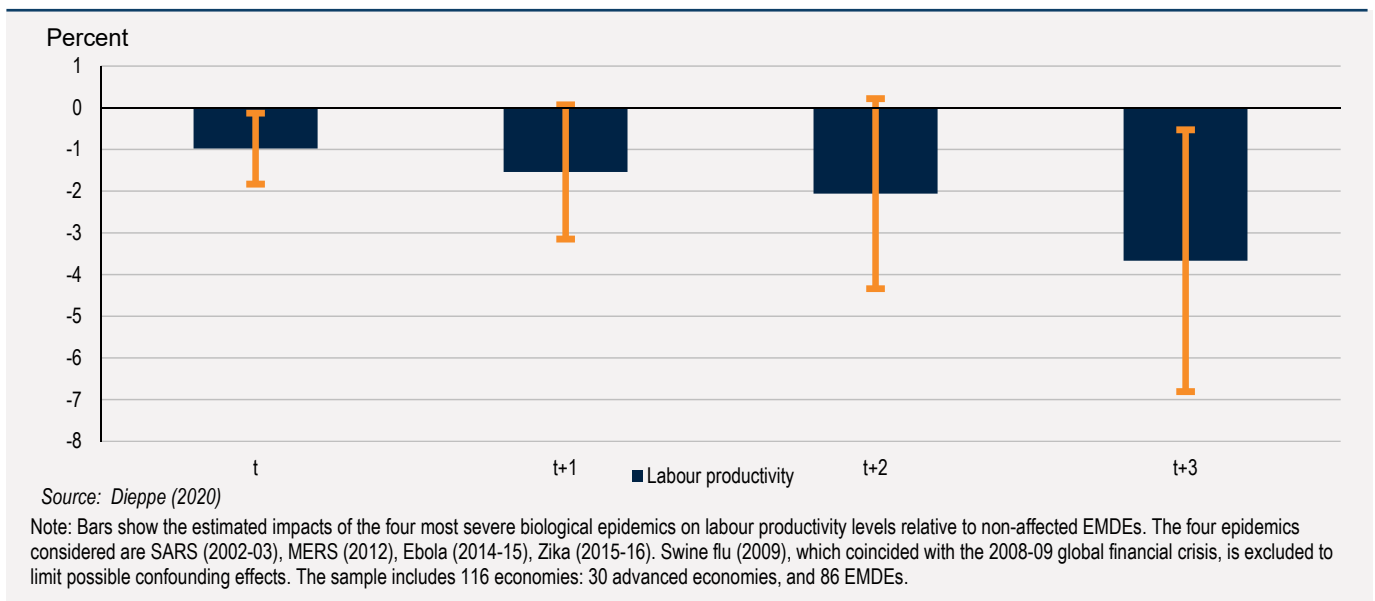
What should we monitor to assess longer-term implications on productivity? In a typical growth accounting model, total factor productivity measures the residual factors explaining the variations of output not captured by the fluctuations of capital and labour input. Many factors can help explain the increase in productivity and are of particular importance given the impact of the pandemic on inequality, poverty, digital divide etc.

- **Human capital:** human capital is a mix of factors encompassing education, training and on the job experience. High and protracted unemployment may lead to flight from schooling, lower education, and poorer training, thus increasing the social and country divide. Shattering the accessible educational system during the Covid-19 crisis has further hit the most vulnerable segments of the population, therefore increasing inequalities and setting back the progress made in human capital development, especially in emerging and low-income countries. This indeed creates risks of longer-lasting damage in human capital formation. On the other hand, the crisis has forced countries to introduce few ways of teaching, which could potentially offset geographical limits to mobility (e.g. higher levels of education such as Master's degree classes delivered online and available to wider audience, regardless of their geographical location).
- **Capital quality:** the failure of Global Value Chains (GVC) may prompt a different type of globalisation over the coming years. Turning the challenge into an opportunity, the relocation of production chains together with new policies for public investment can have the goal of not only supporting the recovery but also promoting green investment solutions and digitalisation, to boost jobs and growth and strengthen the resilience of societies and environment.
- **Change in economic structure to reduce vulnerability.** Covid-19 was an "asymmetric" shock, impacting some sectors more than others, and likely requiring "old" sectors to evolve or to expire and accelerating the progress of digital uptake in firms across all sectors. This in aggregate terms may trigger a faster transition to higher TFP, by increasing allocation efficiency. On the other hand, GVC relocation and increased protectionism may in the short-term generate less efficiency gains due to relocation.

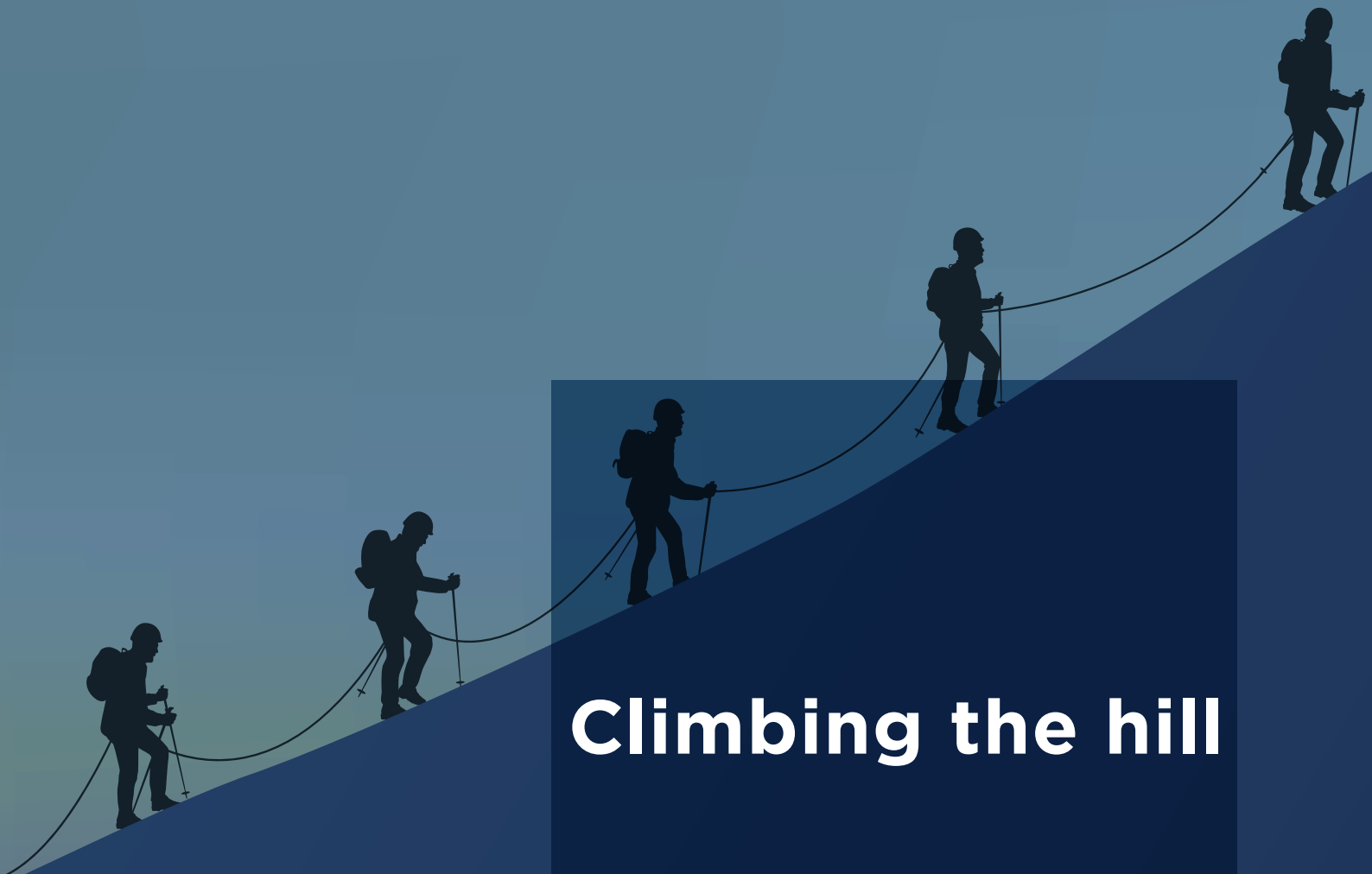
Macroeconomic assumptions

- **Change policies and regulations to propose a different economic model.** Governments reacted to the Covid-19 crisis by intervening with special policies and regulations to support companies and business, trying to limit the surge in bankruptcies and trying to limit the surge in the unemployment rate. In some cases, States intervened directly to protect strategic sectors or became a shareholder. While not necessarily always true, State-owned enterprises often tend to be prone to less efficiency and productivity. For instance, too long/prolonged state support in sectors with low efficiency could keep alive zombie/inefficient companies; risk of less market and more State presence in some sectors considered as key/strategic could reduce efficiency in resource allocation. While the support during the crisis has proved crucial, in the years to come governments will face the difficult task of withdrawing such extraordinary support, to make allocation of capital more efficient.

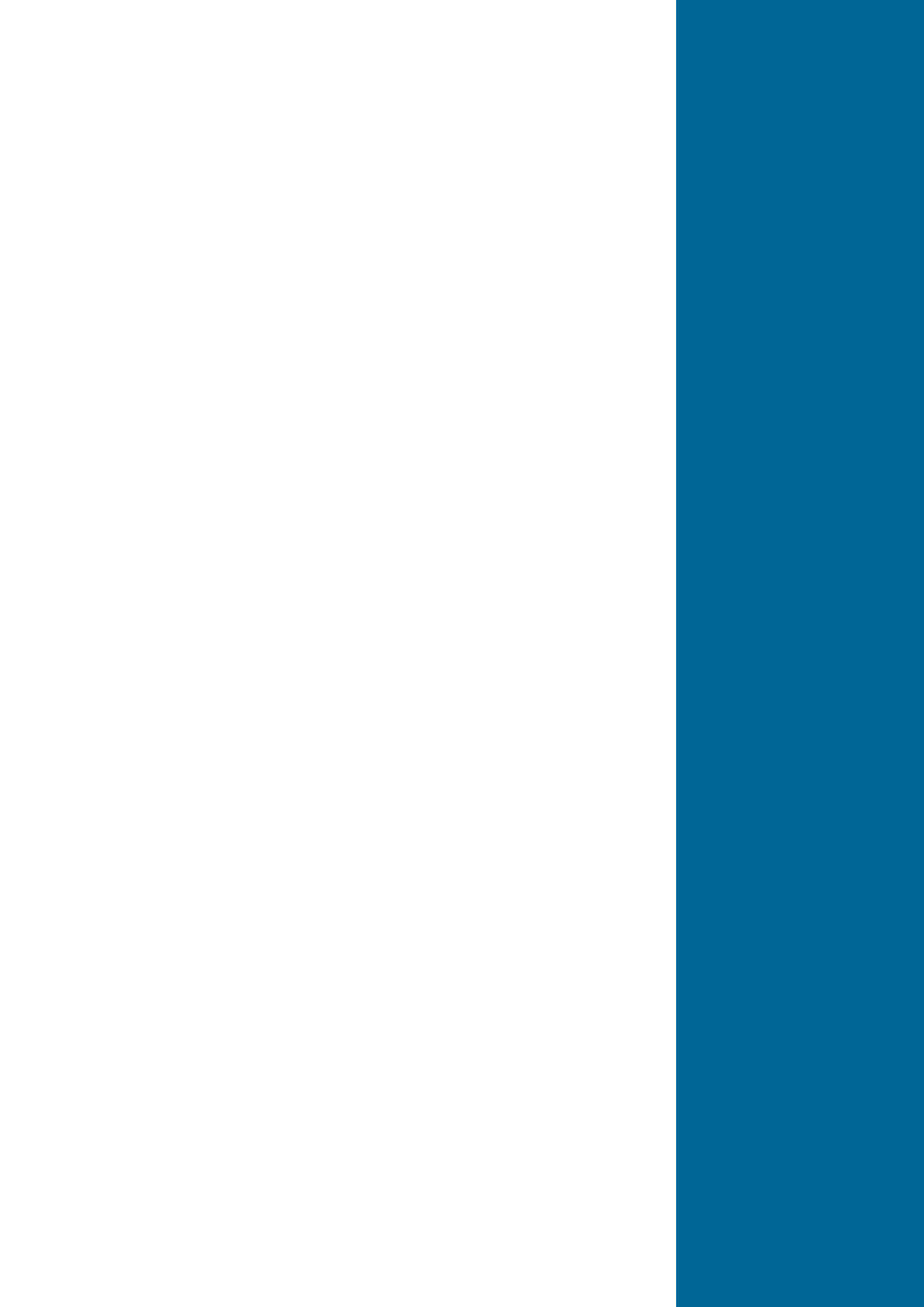
Graph 11: **Effects of epidemics on labour productivity**



Source of reference: <https://voxeu.org/article/slowdown-productivity-growth-compounded-covid-19>



Climbing the hill



3

\ Returns by asset class
and asset allocation implications:
drivers and assumptions

Returns by asset class and asset allocation implications

Developed Markets Sovereign

Delphine GEORGES, Senior Fixed Income Research Strategist, Viviana GISIMUNDO, Head of Quant Solutions

- ▶ We have entered an environment where rates are lower for longer and tolerance for inflation is higher. This is the only way to engineer an orderly deleveraging looking ahead. It is not just government solvency that is affected – many corporates would come under pressure if interest rates were to rise too rapidly.
- ▶ In advanced markets, central banks will continue to support the economies by using conventional and unconventional monetary policies. Moving to the medium term (5-year horizon), central banks in developed markets may have moved out of the ZIRP and NIRP, with the US and UK CBs positioned in an advanced stage of the monetary policy cycle.
- ▶ The assumptions on low policy rates confirm the decline of equilibrium interest rates observed over the last 30 years.
- ▶ We confirm our long-term assumptions for the **yield curve to be flatter than historical averages** in all the developed countries. For the Eurozone and Japan, we foresee a prolonged period of low yields anchored by structural factors and central banks.
- ▶ **Expected returns on a 10-year horizon are depressed by yields' starting level (low carry on average) and the expectation for yields to rise. The US could have the highest expected return thanks to a relatively higher carry that is expected to only be partially offset by capital losses due to yield normalisation.**

Assumptions on cash rates and nominal 10-year yields

For all the macroeconomic and financial variables, the focus is on the 10-year horizon and on the long term (which corresponds to the equilibrium level). Our assumptions are for cash rates below their long-term level in the next 10 years for all developed countries except the US and UK, where cash could reach the equilibrium level.

Table 4: Assumptions on cash rates: Current outlook vs historical average of the 10-year horizon and long-term (equilibrium) levels

3M yield	10 yr Horizon	Long Run	Historical 10 yr Average
US	2.5%	2.5%	0.6%
Euro Core	0.9%	1.7%	-0.3%
UK	2.1%	2.5%	0.4%
Japan	0.1%	0.8%	-0.1%

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

The downtrend in policy rates confirms the decline of equilibrium interest rates. There are structural factors lowering the long-term cash rate, such as lower economic growth because of slowing productivity and a declining labour force. The sluggish inflation trend with respect to central bank targets and monetary policy will substantially affect our 10-year targets.

Our assumptions are for 10-year yields to stay below their long-term level over the next 10 years for all developed countries, with the US and UK moving close to the long-term level.

Table 5: Assumptions on nominal 10-year yields: 10-year horizon and long-term (equilibrium) levels compared with the average over the last 10 years

10 yr Yield	Theoretical 10 yr	Long Run	Historical 10 yr Average
US	3.0%	3.2%	2.1%
Euro Core	1.4%	2.4%	0.7%
UK	2.6%	3.2%	1.6%
Japan	0.5%	1.2%	0.4%

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

Our estimates on 10-year nominal yields are broken down into two components: one part that reflects the expected path of short-term interest rates over the next 10 years (discussed in the previous section) and a second part that corresponds to the slope between 10-year and cash yields. We equate the term slope as the observed variable reflecting a combination of two underlying factors: expectations regarding future short-term interest rates (the difference between average expected short-term rates over the lives of the two bonds), compensation for risks associated with holding long-term bonds rather than short-term bonds (i.e. the term premium component).

We continue to anticipate a term premium lower than the historical average. In particular, we confirm our assumptions for the term slope in the long term, as structural factors will continue to anchor the term slope to lower levels in all developed countries, resulting in a flatter term structure over the 10-year horizon. Central banks will limit the rise in nominal yields. It is not just government solvency that is affected – many corporates would come under pressure if interest rates were to rise too rapidly.

Rates lower for longer and tolerance for inflation

The changes to the Fed's longer-run goals and strategy adopted in August 2020, with the switch to an **average inflation targeting framework** and the new definition of maximum employment as a broad based and inclusive goal, will have important implications for the US economy and monetary policy. It represents a **structural shift** towards a more dovish monetary policy and the Fed is more likely to achieve its inflation mandate under this new framework.

Globally, central banks are facing a challenging environment in the aftermath of the Covid crisis, with:

- i. Low potential growth/low inflation.** We expect economic activity to return to pre-crisis levels in 2022. However, global economic activity in 2019 was at its lowest level in a decade. Indeed, most developed economies were already facing a decline in potential growth and low levels of inflation before the coronavirus crisis.
- ii. High levels of public and private debt.** The rise in already high public debt has accelerated with the Covid-19 crisis as the pandemic has prompted an unprecedented fiscal response. Next year, governments should maintain expansionary fiscal policy to support the recovery.
- iii. High asset prices.** A decade of low interest rates failed to bring inflation back to the 2% target but caused asset prices to rise. In particular, house prices have reached new highs due to very strong demand, but low mortgage rates have also played a role in this price increase.
- iv. Financial repression.** We have entered an area of “financial repression” in advanced economies, including low rates for even longer, more tolerance for inflation. This is the only way to engineer an orderly deleveraging looking ahead. It is not just government solvency that is affected – many corporates would go bankrupt if interest rates were to rise too rapidly.

To keep growth on track and hope to bring inflation back to target, central banks have no other choice than to maintain accommodative financing conditions and ensuring government solvency. News about an upcoming vaccine pushed up rates, but we believe that the upside for core rates will be much smaller than in previous recoveries. The low level of potential growth and the high levels of public and private debt are a serious cap on rates.

Major central banks should continue to support economies via low rates and asset purchase programmes over the next few years. In our scenario, policy rates are expected to stay lower for longer compared to previous recoveries.

In the United-States, the unemployment and inflation conditions that need to be met for **the Fed to raise rates** are **not expected** to be met **before 2024**. One of the Fed's main priorities is the slack in the US labour market: the Covid-19 crisis primarily affected low-skilled and low-income households and accelerated the rise in inequalities. The Fed's new reaction function prioritises full employment: **the Fed will wait until a tight job market has begun pushing inflation higher before thinking about tightening policy**, rather than raising rates once as the unemployment rate nears the neutral rate as was the case in previous cycles. The statement on longer-run goals and monetary policy strategy emphasises that the maximum employment objective is

Returns by asset class and asset allocation implications

“a broad-based and inclusive goal”. The flatter Philips curve (i.e. the lower sensitivity of inflation to labour market tightness relative to earlier decades) has the important advantage of allowing employment to continue expanding for longer without generating inflationary pressures, thereby providing job opportunities to people that might not otherwise have them.

The new flexible average inflation targeting (FAIT) is major change with significant implications on the future path of policy rates and on the yield curve. The FAIT seeks to achieve inflation that averages 2% over time to ensure that long-term inflation expectations are well anchored at 2%. Following periods of inflation undershoot, the Fed will accommodate inflationary pressures moderately above 2%. The forward guidance on interest rates states that the Fed will start raising rates when inflation has risen to 2% and is on track to moderately exceed 2% for some time. Overall, the **new framework will keep short-end rates lower for longer compared to previous recoveries**. Chair Powell has warned that it will take time to get to an inflation overshoot given the strong disinflationary pressures in the global economy.

For the long end of the US curve, **the big question now is whether the prolonged period of combined fiscal and monetary stimulus will succeed in changing the inflation landscape**. Over the last decade, central banks have failed to bring inflation back to the 2% target. Falling interest rates and billions in asset purchases have not succeeded in boosting investment, productivity and wage growth.

The pandemic has mainly exacerbated already existing vulnerabilities. In the US, after fiscal support in H1 2021 to combat the new wave of infections and support households and sectors affected by the crisis, some fiscal discipline will be required, but we expect fiscal policy to continue supporting infrastructure, productivity and inequalities.

With the new **FAIT**, the **Fed will be more likely achieve its inflation target in the medium term**, which should lead to higher long-term rates thanks to higher inflation breakeven and the rebuilding of an inflation premium in the long end of the curve, leading to a steepening of the curve while short-term rates stay lower for longer.

However, the Fed has warned that if financial conditions deteriorate (through a rapid rise in long rates or a worsening of economic conditions), it will step up accommodation through **its asset purchase programme** by increasing the pace or the maturity of the treasuries purchased. This will effectively **cap the steepening of the curve**. In our scenario, the Fed will **start tapering its asset purchases in 2022** when significant progress will have been made towards the employment and inflation goals before ending the programme in 2023 and **likely raising interest rates in 2024**.

In its last meeting of 2020, the ECB clarified its strategy and preferred monetary policy tools in the recovery phase from this year's pandemic troughs. The strategy will aim to **provide and maintain favourable funding conditions to all economic sectors until such time as economic growth has fully recovered from the crisis caused by the pandemic**. The ECB extended and expanded its TLTROs at the same current favourable conditions primarily to support bank credit flowing to the economy. Additionally, by expanding and extending its QE, securing a “significant constant market presence”, the central bank will have the flexibility it needs to maintain favourable funding conditions in the financial markets until early 2022. The symmetry of any future expansion or reduction of the QE stimulus to be deployed will depend on the resources needed to reach the target. The ECB has also started to put more emphasis on the duration (together with the size) of the stimulus both on its net QE and on the subsequent reinvestment horizon.

Our assumption is that **the ECB is expected to keep its stimulus working for quite a long time even after Q1 2022 and will start to normalise rates only when the recovery has entered a more certain and stronger phase**. Furthermore, monetary policy stimulus is also likely to be prolonged by the need to indirectly support the effectiveness of the fiscal stimulus, ultimately helping to create the conditions for making the NGEU more effective in supporting economic growth and reducing economic fragmentation among EU countries. To help put the Eurozone on a sustainable growth track thanks to government spending and bring inflation back to target (which will take time), **the ECB will keep interest rates low for the foreseeable future**. Against this backdrop, we expect **the yield curve to steepen only modestly compared to previous recoveries**.

The role played by ECB monetary policy will remain crucial in keeping sovereign spreads compressed in 2021 and in mitigating financial fragmentation in subsequent years when the incoming role of the recovery fund will become stronger. Following December's extension and expansion of the PEPP, the ECB has more than enough firepower to cover the net funding needs of all European countries in 2021, and therefore maintain supportive funding conditions for peripheral countries, despite the remarkable rise in Debt-to-GDP ratios. In subsequent

Returns by asset class
and asset allocation implications

years, which should experience lower deficits, reinvestments are likely to play a greater role within QE in order to keep supporting fiscal policy efforts through easy financial conditions. **In the long term, we assume that EU sovereign spreads will settle at an intermediate level that prices in some country risk but will be mitigated by the central bank's active role.**

The BoE is expected to be the first central bank to raise rates in 2023. UK inflation is projected to rise quite sharply towards the target in the second half of 2021, as temporary effects fade and slack is eroded, and subsequently be close 2% in 2022 and 2023. The pound has weakened very significantly. Inflation expectations have been above the central bank target since Brexit. The BOE will therefore be in a position to raise rates when growth gathers momentum and is on a sustainable trend. **We expect the curve to steepen significantly from current levels but less than in previous recoveries.**

It has already been over seven years since the Bank of Japan introduced Qualitative and Quantitative Easing (QQE), but in our scenario, **the projected rate of increase in the core CPI for the medium term remains below 1%, far below the 2% target.** It is therefore certain that monetary easing will be extended further for a prolonged period. As a result, **Japan will continue to experience a flat yield curve and close to zero interest rates for the next few years.**

Our expected returns on Government Bonds

Tab 6: Expected cash returns for developed economies on a 5- and 10-year horizon

Cash Returns	US	Eurozone	UK	Japan
5 yr	0.2%	-0.7%	0.3%	-0.1%
10 yr	1.2%	-0.1%	1.1%	0.0%

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

Over the 10-year horizon, our assumptions on monetary policy result in returns slightly higher than 1% (well below the inflation targets) in the US and UK, and zero cash returns for the EU and Japan.

Looking at government bond indices, returns are dragged down by the term structure factor (effect of the change in yields) across all the countries and proportionally to the size of the adjustments. The effect of yield adjustment towards higher levels is more relevant in the medium term (5 years) – in fact, the capital losses attached are not compensated by the average carry. Moving to the 10-year horizon, the expected returns can be higher because of the higher carry component, but the contribution from the term structure remains negative and significant. In the US, the negative contribution from the term structure component is more significant in the first 5 years, caused by the steepening of the curve. Subsequently, the activation of monetary policy is expected to result in simultaneous flattening and a shift in interest rates. This will result in returns that can be marginally higher than last year on the 10-year horizon. For core Eurozone and Japan, the term structure adjustment is slow and continuous on the 10-year horizon. In the UK, the impact of the adjustment is quite severe, because the average duration of the index is high (i.e. around 12 years) and looks set to decrease after the medium term.

Table 7: Developed market government bonds: breakdown of expected returns by macro determinants

	Horizon	Return	Carry & Roll Down	Term Structure	Residual*
US GOVT Bond	5 yr	-0.1%	1.5%	-1.7%	0.2%
DUR = 6.5	10 yr	1.0%	2.1%	-1.3%	0.1%
EU GOVT Bond	5 yr	-1.5%	0.0%	-1.6%	0.1%
DUR = 7.6	10 yr	-0.8%	0.5%	-1.4%	0.1%
IT GOVT Bond	5 yr	-0.3%	1.3%	-1.6%	-0.1%
DUR = 6.9	10 yr	0.5%	1.8%	-1.2%	-0.1%
FR GOVT Bond	5 yr	-1.3%	0.4%	-1.8%	0.1%
DUR = 8.1	10 yr	-0.6%	0.9%	-1.5%	0.1%

Returns by asset class and asset allocation implications

	Horizon	Return	Carry & Roll Down	Term Structure	Residual*
UK GOVT Bond	5 yr	-1.1%	1.1%	-2.5%	0.3%
DUR = 11.6	10 yr	-0.3%	1.7%	-2.2%	0.2%
JAP GOVT Bond	5 yr	0.0%	0.5%	-0.5%	0.1%
DUR = 9.9	10 yr	0.1%	0.6%	-0.5%	0.0%

* Residual groups the attribution residual and simulation and compound effects
 Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

The annualised expected return is the average compound return of each scenario in our simulation. Annualised expected returns are calculated for several investment horizons. The returns are broken down into risk factors, i.e. carry (includes coupon, roll down and pull-to-par effect), nominal term structure and a residual return. The return breakdown is calculated using the first and second order sensitivities of the price with respect to the risk factor. The residual return contains the higher order components. The remainder of the residual return is linked to the asymmetry of the asset class return distribution. We calculate the return breakdown of the central scenario whereas the expected return is the average simulated return. Bond index instruments are at constant maturity, i.e. rebalanced on a quarterly basis.

The impact of an ultra-low/negative interest rate environment and QE on asset prices, currencies and inflation, particularly in the US, Europe and Japan

Valentine AINOUIZ, Deputy Head of Developed Markets Strategy Research

Average interest rates in developed markets have been in steady decline over the past decade.

Central banks played a key role in slashing rates to their lowest levels and implementing asset purchase programmes. In essence, monetary stimulus is aimed first at stimulating credit to the real economy with the aim of facilitating investment, higher productivity and wages and, ultimately, growth in economic activity and inflation. However, a decade of ultra-accommodative monetary policy failed to stimulate investments and bring inflation back to the 2% target. Moreover, in recent years potential growth declined in the advanced economies, primarily due to lower growth in the labour force, capital stock and productivity.

Ultra-low/negative rates now apply to a considerable part of the global fixed-income market:

the amount of global debt yielding below zero percent has surpassed US\$ 18 trillion. Europe's pile of negative-yielding government bonds is at its highest ever. What was seen in 2014 as a temporary side effect of unorthodox monetary policy now seems firmly entrenched. The prospect of normalisation seems remote in most of advanced economies. Indeed, major central banks have moved towards a much more extreme form of ultra-accommodative monetary policy for the coming years:

- ▶ **ECB economists foresee core inflation in 2022 at only 1.1%.** At its latest meeting, in October, Christine Lagarde signalled more easing to come, as it would “ensure that financing conditions remain favourable to support the economic recovery and counteract the negative impact of the pandemic on the projected inflation path”.
- ▶ **The Fed is also paving the way for the low-rate era with inflation able to run higher.** Chairman Jerome Powell announced a major policy shift to “average inflation targeting”: the central bank will be more inclined to allow inflation to run higher than the standard 2% target before hiking interest rates. In addition to the inflation change, the Fed shifted its approach to maximum employment.

However, central banks' ultra-loose monetary policy will not, in itself, tackle the lack of private demand and, against this backdrop, their actions to boost inflation are relatively limited. More than ever, one must be very careful about the impact of these measures:

- ▶ **Increase in asset prices.** By design, low interest rate policies boost asset prices: they reduce the discount rates on cash flows from assets such as dividends. In addition, these policies encourage investors to shift out of government bonds and into riskier assets. The search for yield has fuelled more risk taking leading to a tightening in spreads.
- ▶ **Rise in indebtedness.** Low interest rates and strong investor appetite have encouraged growth in global government and corporate debt. Ultra-accommodating monetary policies allowed companies to stretch out their debt maturities and to lower their average borrowing costs. However, companies took also advantage of low rates to increase their indebtedness. This trend emerged in the United States but remained moderate in Europe. Companies mainly funded mergers & acquisitions and share buyback operations.
- ▶ **A risk for the stability of banks.** The sustained low-rate strategy was ineffective in boosting lending to the real economy. In fact, the injection of central bank liquidity resulted in an increase in excess reserve liquidity, which was costly for banks. We expect banks to further tighten lending conditions in the first quarter of 2021 following a continued increase in loan defaults.

▮ Returns by asset class and asset allocation implications

- ▶ **A challenge for insurance companies.** At some point, however, negative rates and declining risk spreads will mean that even returns on risky portfolios will be insufficient to meet pension funds' liabilities, which are simultaneously under pressure from lower discount rates.
- ▶ **A rise in economic inequalities.** Lastly, these ultra-accommodative monetary policies can also be held responsible for exacerbating economic inequalities, with an increase in the price of assets held by only a minority of the population.

The main challenges in the future will be to avoid disrupting financial stability. To keep growth on track and hope to bring inflation back to target, central banks have no other choice than to maintain accommodative financing conditions as developed economies will be characterised in a post Covid environment by high asset prices, high leverage and a weak economic growth environment.

Emerging markets Sovereign

Alessia BERARDI, Head of Emerging Macro & Strategy Research, Debora DELBÒ, EM Macro Strategist,
Jung Hun KIM MOON, CFA, Senior Quantitative Analyst

- ▶ In the long term, we confirm the marginal downside adjustment of EM sovereign spreads and yields vs. history, barring any inflationary shock.
- ▶ Looking at the medium-term horizon, we expect EM assets to be resilient, outweighing potential risks linked to unstable growth and trade dynamics.
- ▶ As demonstrated by recent history, the downside risk can be country-specific, more idiosyncratic than systemic, affecting the country's macro environment and risk premium.
- ▶ On a medium to long-term horizon, we estimate a default loss around 0.5%, considering the EMBI GD country composition and the default probability distribution at rating level.
- ▶ **The outlook on EM debt is fairly positive in the medium to long term, because of high carry and a moderately positive scenario reflecting our outlook on the EM/DM economies.**

EM Sovereign assumption

Long-term equilibrium levels for EM bond yields and spreads

Tab 8: Long-term spread levels and yields for EM governments

	Long Run Level	Historical Average (break analysis)
EMBI Global Diversified Spread	3.0%	3.4%
GBI-EM Global Diversified Yield	6.0%	6.6%
EMBI Global Diversified Spread IG	1.8%	2.0%
EMBI Global Diversified Spread HY	5.0%	5.1%

Default loss	Default Short Term	Default Long Term
EMBI Global (hard currency)	3.6%	1.0%

Source: Bloomberg, Moody's, Amundi Asset Management CASM Model, January 2021

We confirm the long-term level for the EMBI Global Diversified spread at 3%. This level incorporates the effect of a recent diversification within the index (the inclusion of countries with lower yields such as GCC) with decreasing yields in comparison to its historical trend and minor adjustments towards lower spread levels. Looking at sovereign sectors, we estimate a long-term spread equal to 1.8% for IG, under the assumption that the IG sector could factor in most of the spread reduction moving forward as it is more affected by the downward trend in yields and spreads, while the HY spread is fixed to 5% in the long run. The long-term yield for the local currency EM index (GBI EM Global Diversified) is at 6%, consistent with our assumptions of lower term premium and the modest trend in inflation in EM countries on one side and the inclusion of China in the GBI basket.

Historically, sovereign default rates have generally been lower than corporate default rates. On a medium-long term horizon, we do estimate a default rate at 1% with a recovery rate at around 50% for external debt (hard currency), considering the EMBI Global Diversified country composition and the default probability distribution at rating level. In the short term, we assume a higher default rate to incorporate the negative environment coming from the current crisis. As far as the local currency debt is considered, we explicitly considered a downside currency risk related to the sovereign risk implications.

EM Sovereign: outlook and risks

The outlook on EM debt is moderately positive in the medium to long term, as a result of the enduring higher carry in a world of low yields and a moderately positive scenario reflecting our outlook on the EM/DM economies. **We are still likely to enjoy years of positive growth differential in both real and nominal terms despite seeing EM potential growth declining moderately going forward**, facing headwinds due to factors such as the demographics and labour component within most EM losing steam in the near future.

Returns by asset class and asset allocation implications

Over the medium-term horizon, we expect EM assets to be resilient, outweighing potential risks linked to unstable growth and trade dynamics. In the long term, we expect a marginal downside adjustment of EM sovereign spreads and yields in line with lower nominal growth barring any inflationary shock. As increasingly demonstrated by recent history, the downside risk can be country-specific, more idiosyncratic than systemic, affecting the country's macro environment and risk premium. In open and vulnerable economies, the currency trends (impacting inflation through high cross currency pass-through) will hit local currency exposure, while default and credit risk will hit hard currency exposure.

Our expected returns on EM Bonds

The outlook for EM bonds is buoyed by the **higher carry component** particularly in relation to other fixed income assets. While the macro and financial picture remains diverse, the overall picture relative to DM favours EM.

Focusing on the medium term, **the anticipated increase in US treasury yields coupled with spread tightening should mitigate the expected total returns.** The expectation on local currency bonds will be higher, as the yield increase is less pronounced, and it is also reinforced by positive support from EM currencies.

According to our analysis, on a 10-years horizon, the expected return on both hard and local currency can be higher than in the medium term thanks to the higher carry. EM GBI Global Diversified returns on a 10-years horizon maintain a positive gap towards hard currency, offsetting the higher risk profile. We presume EM currencies to be undervalued versus USD, having a positive contribution to returns on a 10-year horizon as EM currencies reach fair value over the forecasting horizon (10 years).

Tab 9: Emerging market government bonds: breakdown of expected returns by macro determinants

	Horizon	Return	Carry	Term Structure	Sov. Spread	Residual*	Default
EMI Global Diversified	5 yr	2.7%	5.6%	-1.8%	-0.3%	0.1%	-0.8%
DUR = 6.7	10 yr	4.1%	5.8%	-1.4%	0.3%	0.0%	-0.6%
	Horizon	Return	Carry	Term Structure	Currency & Risk	Residual*	
EM-GBI Global Diversified	5 yr	3.5%	4.7%	-1.3%	0.1%	0.2%	
DUR = 5.4	10 yr	4.7%	5.2%	-1.0%	0.4%	0.2%	

* Residual groups the attribution residual and simulation and compound effects.

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021. EM-GBI is not part of the CASM simulation engine at this stage

The annualised expected return is the average compound return of each scenario in our simulation. Annualised expected returns are calculated for several investment horizons. The returns are broken down into risk factors i.e. carry (includes coupon, roll down and pull-to-par effect), nominal term structure, spread, default and residual return. The return breakdown is calculated using the first and second order sensitivities of the price with respect to the risk factor. The residual return contains the higher order moments. The remainder of the residual return is linked to the asymmetry of the asset class return distribution. We calculate the return breakdown of the central scenario whereas the expected return is the average simulated return. Bond index instruments are at constant maturity i.e. rebalanced on a quarterly basis

Credit

Sergio BERTONCINI, Senior Fixed Income Research Strategist, Jung Hun KIM MOON, CFA, Senior Quantitative Analyst

- ▶ Following short-lived peaks triggered by the Covid-19 crisis, spreads tightened back close to pre-pandemic levels by the end of 2020, mainly thanks to unprecedented monetary stimulus, which is likely to persist and also keep them compressed in the short to medium term.
- ▶ Default rates are likely to peak in Q1 2021, before falling to close to long-term averages in the following quarters: the unprecedented fiscal and monetary stimulus at work made the current default cycle unusually short-lived, limited by macro standards and concentrated in lower-rated issuers.
- ▶ The recovery phase may see a more uneven and less linear fall in default rates towards low historical levels, especially in the US.
- ▶ In the next few years, a more carry-like return and lower absolute yields offered are likely to lead to lower performances.
- ▶ **Higher duration and lower quality in the US results in higher equilibrium spreads versus the EU.**

Long-term assumption on credit

In our assessment for analysing the equilibrium corporate spread levels, we consider quantitative and qualitative indicators driving the long-term embedded risk of holding a corporate bond. Initial statistical analyses are performed on different macroeconomic and financial indicators: correlation with business cycle outlook, structural break and statistical analysis of the spread time series. We pay particular attention to the relationship between the credit spread and the corresponding term structure of government interest rates (EU and US), confirming the conventional wisdom of a negative correlation between the spread and government yields.

Long-term spread levels are ultimately determined with a qualitative view on the possible long-term trend in monetary policy and inflation conditions as well as geopolitical risks (e.g. trade wars) known to have a causal relationship with the spread level. Continuous monitoring of the qualitative conditions is required as this shift in non-predictable patterns can have a structural impact on both tactical and strategic horizons. **While confirming a higher equilibrium spread for the US than the EU, we have increased the long run level for EU HY to 4%.**

Long-term assumptions on credit spreads (option adjusted spreads)

Tab 10: Long-term spread level

OAS Spread	Long Run Level	Historical Average (break analysis)
US IG	1.3%	1.6%
US HY	4.5%	5.1%
Euro IG	1.1%	1.2%
Euro HY	4.0%	4.9%

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

Default loss estimates

In the high yield sector, we analysed the default rate by rating and sector composition. The difference in these within the US and European universes explains the difference in the respective long-term default rates, which are estimated to be lower in Europe due to the consistently higher quality. The analysis of the empirical default distribution has been used to give a quantitative background to the default rate trend assumptions.

In the short to medium term, our assumptions for loss-given-default are higher with respect to previous years, primarily due to increasing default rates in the near future. In the long term, the losses in the EU and US corporate universes are likely to decrease in line with falling defaults, confirming last year's estimates.

Our default assumptions reflect the effect of accommodative monetary policy facilitating easier debt market access in the short term and continuing in the medium-term.

Returns by asset class and asset allocation implications

Tab 11: Default rate assumptions by quality and region

		HY Composition			Average Default Probability
		US Corporate HY H0AO	Euro Corporate HY HE00	Global HY HWO0	
Weights	Ba	55%	72%	58%	1%
	B	33%	21%	30%	4%
	Caa_C	12%	7%	11%	14%
HY Default Probability					
DP-Average		3.5%	2.5%	3.3%	
DP 50° Percentile		2.7%	1.9%	2.6%	
DP 60° Percentile		3.3%	2.3%	3.2%	
DP 75° Percentile		4.7%	3.3%	4.4%	
DP 95° Percentile		9.2%	6.8%	8.8%	

Source: Bloomberg, Moody's, Amundi Asset Management, January 2021. DP is default probability.

Our expected returns on corporate bonds

Expected returns across all ratings and horizons are lower in relation to previous forecasts. Credit spreads across the spectrum for both the EU and US have tightened significantly since the Covid-19 crisis, to the point where current spreads are close to or below the respective equilibrium levels, which in conjunction with the current low rates, results in lower carry and returns in relation to the previous year. **The carry component has decreased significantly while at the same time amplifying the prospect of negative contributions from government yields and spread movements.**

Medium-term returns (5 years) are lower than 10-year returns, due to higher default losses and prospects of spread widening making a negative contribution. Looking at the final total expected returns, the difference between the US and the EU is pronounced, with the higher US carry component only partially reduced by the spread and term structure components and higher default profile. Likewise, US credit prices in a higher default risk and less favourable valuation than EU credit, further reducing the differences of the risk-adjusted returns.

Tab 12: Credit bond: breakdown of expected returns by macro determinants

	Horizon	Return	Carry & Roll Down	Nominal Term Structure	Credit Spread	Default	Residual*
US Corporate IG	5 yr	0.6%	2.7%	-1.9%	-0.3%	0.0%	0.1%
DUR = 7	10 yr	1.9%	3.4%	-1.4%	-0.2%	0.0%	0.1%
EU Corporate IG	5 yr	-0.3%	0.7%	-1.0%	-0.1%	0.0%	0.1%
DUR = 5.2	10 yr	0.4%	1.4%	-0.9%	0.0%	0.0%	0.0%
US Corporate HY	5 yr	0.9%	5.6%	-0.8%	-1.2%	-2.7%	-0.1%
DUR = 4.1	10 yr	2.7%	6.4%	-0.3%	-0.9%	-2.4%	-0.2%
EU Corporate HY	5 yr	0.5%	3.5%	-0.6%	-0.5%	-1.7%	-0.2%
DUR = 3.6	10 yr	1.6%	4.2%	-0.6%	-0.1%	-1.6%	-0.2%

* Residual groups the attribution residual and simulation and compound effects

Source: Amundi Asset Management CASM, January 2021

The annualised expected return is the average compound return of each scenario in our simulation. Annualised expected returns are calculated for several investment horizons. The returns are broken down into risk factors, i.e. carry (includes coupon, roll down and pull-to-par effect), nominal term structure, credit spread, default and a residual return. The return breakdown is calculated using the first and second order sensitivities of the price with respect to the risk factor. The residual return contains the higher order components. The remainder of the residual return is linked to the asymmetry of the asset class return distribution. We calculate the return breakdown of the central scenario whereas the expected return is the average simulated return. Bond index instruments are at constant maturity, i.e. rebalanced on a quarterly basis.

Global Equity

Debora DELBÒ, EM Macro Strategist, Viviana GISIMUNDO, Head of Quant Solutions

Éric MIJOT, Head of Developed Markets Strategy Research, Lorenzo PORTELLI, Head of Cross Asset Research

- ▶ Looking at our estimates for earnings growth trend, we can highlight some decreases mainly due to the lower economic growth potential. From a cyclical perspective, we are forecasting an earnings recovery and catch-up as a consequence of the Covid-19 crisis, which will support earnings growth figures in the short to medium term.
- ▶ PE multiples are high across regions and the valuation adjustments will drag down the expected returns in the medium to long term. Final expectations over a 10-year horizon are for equity returns below the long-term projections, with risks skewed to the downside.
- ▶ Compared to one year ago, expected equity returns over a 10-year horizon are lower as they incorporate higher initial valuations across the regions. The lower EPS growth, as previously highlighted, represents another driver for lower returns, but given the size this is less relevant in explaining the difference.
- ▶ **In the long-run, we estimate that the US market should appreciate at a trend rate of 7.5% p.a. in nominal terms. EM equity return is estimated at 8.5%, which is lower than previous years but confirms a higher potential than developed markets.**

Long-term assumption on Equity

The expected return on equities can be broken down into three components: **(1) the income return, (2) the expected trend growth in real earnings per share plus inflation, and (3) the expected change in valuation** or repricing. Over the medium-term horizon, the repricing component, i.e. the change in the P/E valuation multiple, can have a meaningful impact. Over a longer horizon, however, we consider no contribution from this component and the steady state expected return on equities is equal to the income return plus the expected trend growth in nominal earnings.

i. The income component

The income return is the percentage of market value that is distributed to shareholders as cash. If dividends are the only source of income, then the income return is equal to the dividend yield. Today, buyback programmes are another common method of distributing cash to shareholders. We therefore include the net buyback yield, which is the buyback yield net of the dilution effect of the issuance of new shares, in the income component. Our updated total income estimates are below:

Tab 13: Total income assumptions based on dividend yields and buybacks

LT DY	Dividend Yield Average	BBY*	Income Component
USA	1.9%	0.5%	2.4%
Eurozone	3.0%	-0.2%	2.8%
UK	3.5%	-0.3%	3.2%
Japan	2.1%	0.3%	2.5%
Pac ex Japan	4.0%	-1.0%	3.0%
EM	2.6%	-0.5%	2.1%
China	2.6%	-0.8%	1.8%

* Buyback & Issuance Adjustments

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

Returns by asset class and asset allocation implications

ii. Expected trend growth in earnings per share

The expected trend growth in nominal EPS is estimated on the basis of long-term nominal GDP growth adjusted for revenue exposure. In fact, as potential GDP growth does not incorporate the contribution to earnings growth coming from foreign exposure, we adjusted it by analysing the distribution of the earnings focusing on company revenues by region.

Long-term nominal GDP corrected to incorporate earnings growth coming from revenue exposure.

Tab 14: **Geographic distribution of revenues of various regional indices (%)**
in rows the global revenues for each area split by countries/regions in the columns

	United States	Canada	European Union	UK	Pacific	Japan	Eastern Europe	Africa and Middle East	Asia	Latam	Adjusted* Potential Growth
USA	70.4%	2.0%	6.7%	2.4%	1.5%	2.1%	1.8%	2.5%	7.5%	3.1%	4.1%
Eurozone	15.7%	1.8%	49.5%	4.8%	2.3%	2.1%	4.4%	4.2%	8.2%	6.9%	3.8%
UK	19.2%	1.7%	14.1%	30.1%	2.4%	2.6%	2.6%	3.5%	20.0%	3.7%	4.1%
Japan	12.4%	1.9%	4.9%	1.0%	2.0%	61.2%	1.2%	1.8%	11.7%	1.9%	2.8%
Pacific ex Japan	6.3%	0.7%	4.0%	1.6%	49.6%	2.2%	0.1%	0.9%	33.6%	0.9%	5.3%
Emerging	6.1%	0.6%	6.2%	0.9%	4.4%	1.4%	4.1%	6.6%	61.9%	7.8%	6.0%
EMEE	6.4%	0.5%	27.8%	2.7%	0.9%	1.6%	35.1%	16.0%	7.5%	1.5%	5.0%
EMLAT	9.2%	1.0%	3.3%	0.6%	0.6%	1.0%	0.6%	0.5%	5.3%	78.0%	5.1%
China	1.9%	0.2%	1.5%	0.4%	3.1%	0.7%	0.3%	1.1%	0.0%	0.8%	7.3%
Nominal Potential GDP Growth	3.9%	3.7%	2.8%	3.4%	4.8%	1.5%	6.6%	5.5%	6.9%	5.3%	

* Adjusted to include the geographical distribution of the revenues

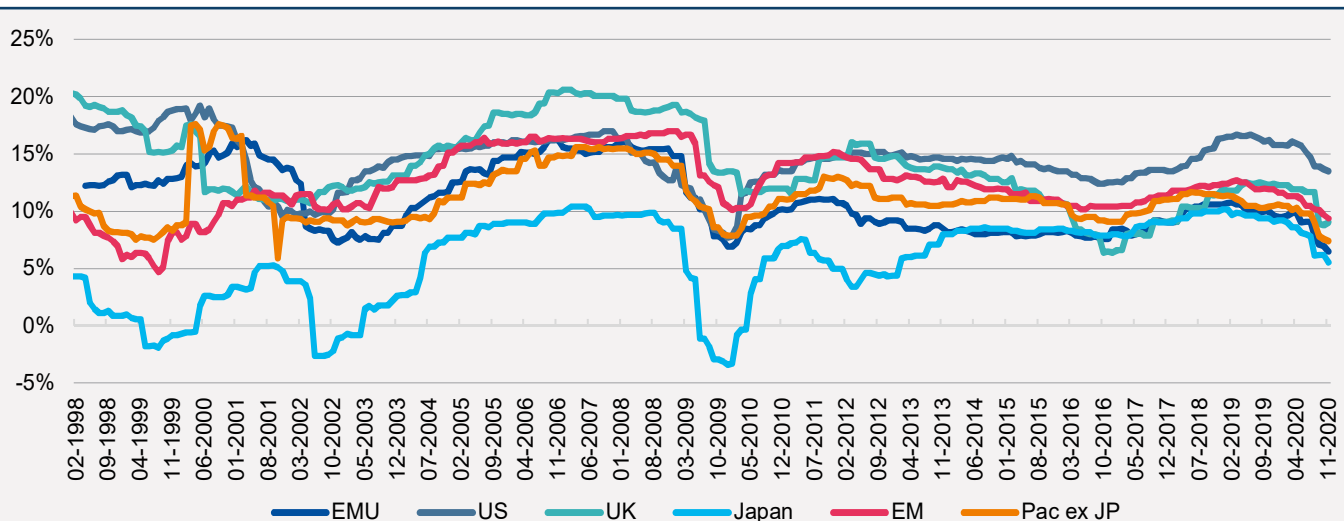
Source: Bloomberg, FactSet, Amundi Asset Management CASM Model, January 2021

The areas growing more slowly (Japan and Eurozone) are the ones that benefited more from this adjustment. In fact, the stocks quoted on the Eurozone equity markets generate around half of their revenues internationally (50%), including more than 20% in the Emerging markets. The potential growth increases from 2.8% to 3.8%. Also, Japanese stocks generate around 40% of revenues abroad (more than 15% in EM) and potential growth almost doubles to 2.8%. For the higher growth areas (EM and Pacific ex Japan) the adjustment has a negative impact.

In addition, we looked at the sustainable growth rate to estimate the expected trend growth in EPS. This is the product of the return on equity and the retention ratio (i.e. the portion of earnings remaining after dividends have been paid). It represents the growth rate that companies can reach using the revenues they generate. This measure of growth has the advantage of using the return on equity of the different equity markets and of taking directly into account the specific features of equity market structures in terms of sector composition. At the same time, these figures represent a potential and are significantly higher than the EPS growth historically delivered by the markets. For this reason, we used sustainable growth (calculated on the last 10-year history) to reinforce the ranking of our estimated EPS and to highlight the difference between areas.

The following graph shows the historical trend in the return on equity:

Graph 13: Return on equity trend for macro equity areas



Source: Thomson Reuters, Amundi Asset Management, December 2020

The US, which is rich in tech and disruptive companies, is flying above the others and should maintain an advantage. On the other side of the spectrum, Japanese RoE is gradually rising from a low base and can probably target higher levels than in 2019 once the pandemic is over given the structural progress of its corporates. We can also expect Emerging markets' RoE to eventually rise above its historical average as the share of technology is rapidly growing. In Europe, including the UK, the RoE has particularly suffered from the Great Financial Crisis followed by the European Sovereign crisis. Less represented in strong growth sectors, it remains to be demonstrated how far it could rise above a probable cyclical rebound.

Estimates of long-term nominal EPS growth

Tab 16: Long-term nominal EPS growth for main equity market areas, last year's assumptions in the last column

	Long Run Earnings Growth	Adjusted* Potential Growth	Sustainable Growth	Historical EPS Growth	Long Run Earnings Growth (last year)
USA	5.1%	4.1%	8.7%	4.8%	5.1%
Eurozone	3.8%	3.8%	3.9%	-3.1%	3.8%
UK	4.0%	4.1%	4.6%	na	4.5%
Japan	3.2%	2.8%	5.5%	na	3.3%
Pacific ex Japan	4.8%	5.3%	4.3%	3.2%	5.0%
Emerging	6.4%	6.0%	7.7%	6.7%	6.3%
China	7.0%	7.3%	8.1%-9.3%	3.5%	

* Adjusted to include the geographical distribution of the revenues

Source: Bloomberg, FactSet, Thomson Reuters, Amundi Asset Management CASM model, January 2021

When defining the UK's EPS growth trend, we have considered some adjustments on the downside to price in the uncertainty linked to Brexit that could have an impact mostly in the next decade and the specific sector structure of the UK equity market.

Our final estimates for long-term nominal EPS growth are in line with last year's. The ranking between equity areas is confirmed.

Returns by asset class and asset allocation implications

Long-term expected return estimates

Tab 17: Total equity return in equilibrium is the sum of long-term earnings growth (trend) and the income component

	Long Run Earnings Growth	Income Component	Total Return
USA	5.1%	2.4%	7.5%
Eurozone	3.8%	2.8%	6.6%
UK	4.0%	3.2%	7.2%
Japan	3.2%	2.5%	5.7%
Pacific ex Japan	4.8%	3.0%	7.8%
Emerging	6.4%	2.1%	8.5%
China	7.0%	1.8%	8.8%

Source: Amundi Asset Management CASM model, January 2021

In the long-run, we estimate that the US market should appreciate at a trend rate of 7.5% p.a. in nominal terms. EM equity return is estimated at 8.5%, which is lower than previous years but confirms a higher potential than developed markets. In the long run we expect China to reduce the positive advantage towards the EM economies, which will correspond to a moderately higher equity return (offshore market) than the EM aggregate.

Medium-term dynamic and repricing component

In the short term, earnings will rebound from 2020 lows as activity resumes. The resilience of earnings amid managed yield levels should help equities to hit new highs in 2021-22 without assuming skyrocketing multiple levels. We expect price to earnings to only gradually revert to the historical median.

The 2020 recession forced central banks to act, further exacerbating market control by central banks and adding distortions to all risky asset markets. The market behaviour can be understood by referring to a new paradigm which implies lower interest rates (by 150-200 bps on average), more attractive equity valuations (+40% on PE standard valuation ratios), a higher fair value price for gold (+60%) with respect to the classic historical paradigm. The central banks' intervention will affect the risky asset dynamics and the evolution of multiples. More importantly, asset price evolutions are not likely to be a game changer for CBs' monetary policies, and liquidity injections should remain solid, underpinning asset reflation and preserving positive financing and financial conditions.

In the medium term, we expect a gradual migration to the historical paradigm, coupled with less relevant support from central banks and fundamental valuations that are more compelling when it comes to understanding equity market evolution. PE multiples are high across regions and particularly in the United States, but the Eurozone and EM are also stretched, while overvaluation of UK and Japanese equity is limited. These high valuations across equities will limit the return potential in the medium term.

Our expected returns on equity

Compared to one year ago, expected equity returns over a 10-year horizon are lower as they price in higher initial valuations across the regions. We confirm the lower trend in EPS growth, even if the trend over the coming years will be mostly affected by the EPS recovery after the contraction registered in recent quarters

Our 5-year and 10-year expected returns on equity

Tab 18: Breakdown of total expected equity returns by macro determinants

	Horizon	Return	EPS Growth	DELTA PE	Income
US Equity	5 yr	5.5%	8.7%	-5.4%	2.3%
	10 yr	5.8%	6.6%	-3.1%	2.3%
EMU Equity	5 yr	5.4%	8.2%	-5.6%	2.8%
	10 yr	5.9%	5.9%	-2.8%	2.8%
UK Equity	5 yr	5.7%	7.1%	-4.4%	3.0%
	10 yr	6.1%	5.2%	-2.3%	3.2%
Japan Equity	5 yr	4.7%	6.0%	-3.7%	2.4%
	10 yr	5.2%	4.5%	-1.8%	2.4%
Pacific ex Japan Equity	5 yr	5.7%	7.2%	-4.8%	3.3%
	10 yr	6.3%	5.7%	-2.5%	3.1%
EM Equity	5 yr	6.0%	7.5%	-3.6%	2.2%
	10 yr	6.5%	6.7%	-2.3%	2.1%

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

Because of valuation ratios, expected equity returns over the next 5 and 10 years will be lower than respective long-term returns (theoretical long-run returns trend). Over a 10-year horizon, we expect EM to slightly outperform developed markets, supported by higher EPS growth. Among developed markets, the expected returns are quite evenly distributed around 6%, except for a return on Japanese equity of close to 5%.

Returns by asset class and asset allocation implications

Long Term Identities: a sanity check over decades

Viviana GISIMUNDO, Head of Quant Solutions

The aim of this analysis is to verify, based on historical long-term data, the identity we use for calculating equity return trends. This is complementary to our equity expected returns section.

Over the long-term, equity return can be broken down into (1) the income return, (2) the expected trend growth in real earnings per share plus inflation. As a first level of approximation, real economic growth and dividend yield can replace real earnings growth and the income component, respectively.

Tab 15: Annualized growth rates calculated on 10-yr horizon: average and main percentiles

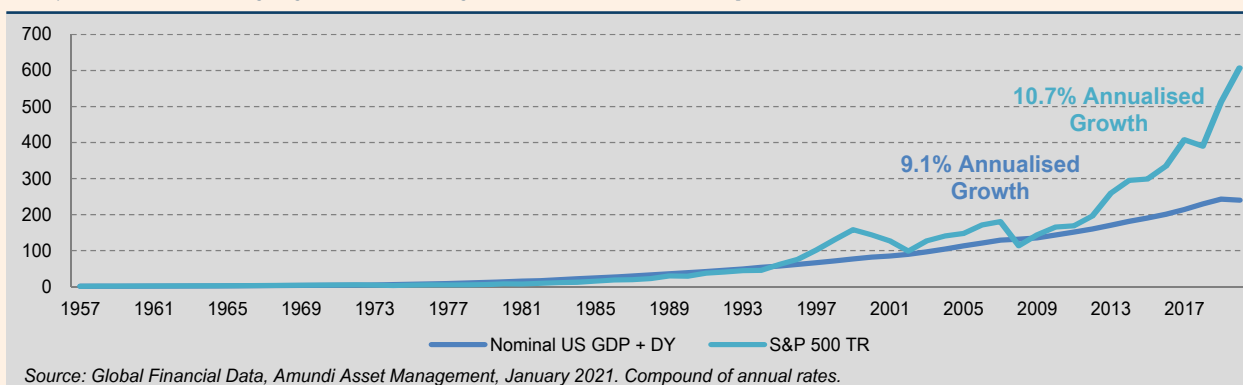
		Nominal US GDP + DY	S&P 500 TR
	Average	10.1%	10.7%
1 st	percentile	3.3%	1.4%
5 th	percentile	5.2%	3.6%
10 th	percentile	5.8%	4.9%
20 th	percentile	6.6%	6.4%
40 th	percentile	8.9%	8.9%
50 th	percentile	9.9%	10.2%
60 th	percentile	10.6%	11.3%
70 th	percentile	11.7%	13.6%
90 th	percentile	15.2%	17.7%
95 th	percentile	16.7%	18.4%
99 th	percentile	18.6%	20.5%

This well-known approximation can be verified ex-post using a sample starting at the end of 19th century for US macro and equity variables where less recent data has been rebuilt besides the SPX index was probably much less representative of the economy than more recently.

Looking at average annual growth rates by decade, we can observe that **the average total return performance for the S&P 500 (10.7%) has been slightly higher** than the figure obtained using the long-term approximation described above (10.1%), and the distribution is **more disperse**.

Source: Amundi Asset Management, Global Financial Data, January 2021. Statistics based on average growth rates, 10-year rolling window, yearly data.

Graph 12: Last 60 ys years history: Nominal US GDP plus DY vs SP500



Focusing on the cumulative growth from 1880, the average annualised total equity return is 9% vs. 9.6% for nominal economic growth plus dividend yield.

In our long-term analysis, we usually refer to a sample **starting after the Second World War** that we deem to be more homogeneous. In particular, in the graph above we represented the cumulative growth rate for the proxy and the SPX from 1957, the inception date of the S&P index.¹

¹ On 4 March 1957, the S&P index was expanded to its current 500 companies and was renamed the S&P 500 Stock Composite Index

As empirical evidence shows, **the advantage of the S&P 500 total return performance has increased during the last decade.** It is reasonable to question if there are **structural factors**, which explain the difference or outperformance. We can assume it is partially explained by **revenues from foreign exposure** (a relevant effect of globalisation) and **buybacks**. Our long-term modelling methodology implements a correction with respect to the original identity (LT equity return = LT EPS Growth + DY) by including the revenues foreign exposure adjustment and the net buybacks. Another structural factor that has probably been more dynamic recently is **the structure of the market** in terms of sectors that we try to address by looking at **ROE and sustainable growth** in the trend earnings growth estimation (a subject we expanded on in the specific section on the sector outlook for expected returns). **The rest is about repricing and valuations that are more short- and medium-term components.**

The **divergence** of the lines since the 1990's shows well the dotcom bubble, the subprime bubble and since 2009 the **quantitative easing expansion** which pushed PE on levels never touched. This **should potentially normalize on the long run**, but we can also argue if the quantitative easing is not here to stay as a structural factor to explain equity returns.

Maybe the truth is in-between...

Returns by asset class and asset allocation implications

Equity market expected returns: forthcoming trends and changes from a sectoral perspective

Ibra WANE, Senior Equity Research Strategist

Expected return and sector breakdown

When elaborating on expected equity market returns, one must take a geographical approach. However, it is also crucial to consider the sectoral aspects as these can vary a lot depending on the region and over time.

Globally, out of the 11 Level 1 sectors, **the MSCI World AC (ACWI) is dominated by IT**, which in isolation accounts for **22%** of the index. Conversely, the Bottom 5 – Real Estate, Utilities, Energy, Materials and Consumer Staples – represent only 21%.

However, this **breakdown can vary greatly from one region to another** (see Table 19). For example, **the structure of the MSCI US**, where IT is the bigger player (29%) **is at odds with the UK** where IT accounts for only 1%. Meanwhile, Energy, Materials, Consumer Staples and Financials represent 61% in the UK vs. 21% in the US. Similarly, compared to ACWI, **Japan and the Eurozone** are biased towards Industrials and Consumer Discretionary. **Emerging markets**, which are only second to the US in term of IT exposure, have a relatively small exposure to Industrials and Healthcare.

Lastly, the structure of **a geographical index can vary a lot over time**. As we can see in graph 14 over the last twenty years, three sectors made marked gains (IT, Materials and Communication Services) but Utilities, Financials and Energy lost between -25 to -50% of their relative weight. Furthermore, these trends are not necessarily linear. Since the late nineties, we have seen for example the boom and burst of IT and then its revival during the last decade and particularly since 2018.

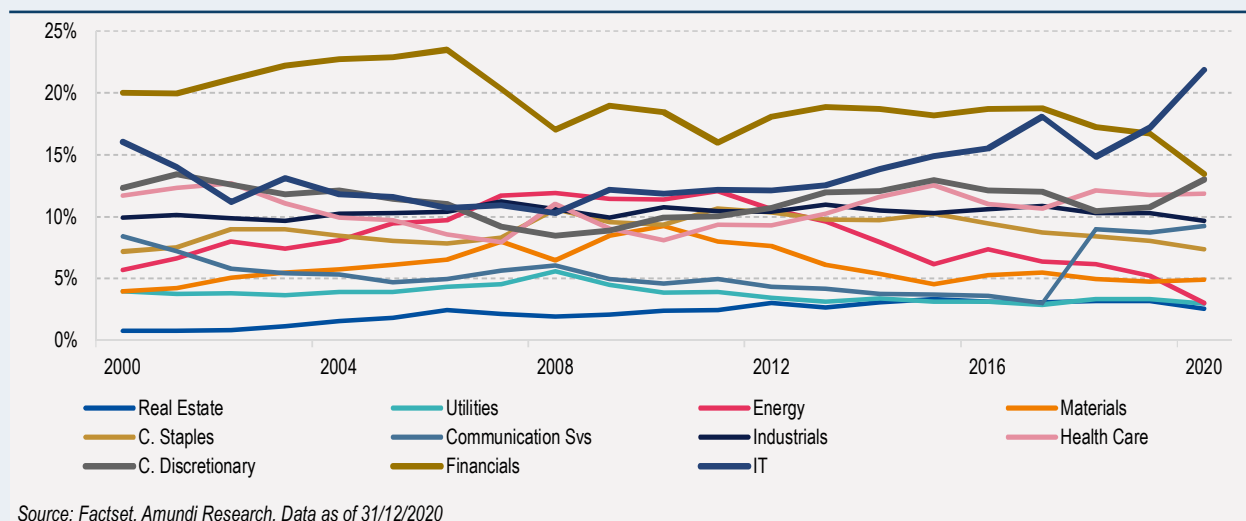
Tab 19: Market Cap weights of sectors in various MSCI regional indices (31/12/2020)

Sectors	USA	EMU	UK	Japan	Emerging	Pacific ex Japan	ACWI*
Energy	2.1%	3.9%	9.3%	0.5%	5.0%	2.5%	3.0%
Materials	2.6%	7.4%	11.5%	5.2%	7.6%	12.1%	4.9%
Industrials	8.3%	14.7%	10.8%	20.6%	4.3%	8.1%	9.7%
Cons. Discr.	12.4%	17.2%	6.8%	18.4%	18.3%	5.8%	13.0%
Consumer Staples	6.2%	8.1%	21.5%	7.6%	5.9%	5.1%	7.4%
Health Care	13.6%	8.2%	11.1%	11.3%	4.7%	8.0%	11.9%
Financials	10.1%	14.0%	18.5%	8.3%	18.0%	37.5%	13.5%
IT	28.7%	12.5%	1.2%	14.0%	20.5%	2.7%	21.9%
Communication Svs	10.9%	4.6%	4.5%	9.6%	11.6%	2.9%	9.3%
Utilities	2.7%	7.4%	3.5%	1.2%	2.0%	3.9%	3.0%
Real Estate	2.5%	2.0%	1.3%	3.4%	2.1%	11.5%	2.6%
Total	100%	100%	100%	100%	100%	100%	100%
in % of World AC	57.3%	8.6%	3.8%	6.8%	13.3%	3.1%	100%

*ACWI = All Country World Index

Source: MSCI, Factset, Amundi Research, green cells for the Top 3 heavy-weights, in bold for N°1

Graph 14: MSCI World AC sector weight over time (% of total)



Source: Factset, Amundi Research. Data as of 31/12/2020

Expected return of sectoral indices: a three-step process

As discussed in the global equity section, **the expected return of sectoral indices can also be broken down into three components: 1.** the long-run earnings growth, **2.** the expected change in valuation and **3.** the income component.

Long run earnings growth: for sectoral indices we consider two distinct periods. The first one (2020-2022) is based on the IBES consensus estimates. The second one (2023-2029) is derived from the long term earnings growth of a given region (i.e. +3.2% for Japan, +3.8% for the EMU, +5.1% for the US, +6.4% for the Emerging markets) tilted by a coefficient ranging from 0.8x to 1.2x depending the sector; i.e. 0.8x for a slow growing sector like Energy or Financials to 1.2x for fast growing ones like IT, Industrials or Consumer Discretionary.

Expected change in valuation: to assess this repricing component, we look first at the PE ex growth of a given region and adjust it from the repricing of the region (see *supra* in the Global Equity section). Then from this adjusted regional Target PE, we derive a Target PE for each sector, depending on its long run earnings growth (as defined previously). To finish, we compare this sectoral Target PE with its average historical PE to get the sector valuation change.

Income component: finally, for the third step, we use the 2021 consensus **dividend yield** of each sector.

Focus on the MSCI US expected return by sector

The US Top 3 in term of expected returns (Health Care +8.7%, Communication Services +8.2% and Consumer Discretionary +7.3%) is **characterised by superior earnings growth** combined with a limited derating and an average dividend yield at best (see Table 20). On the other hand, **the Flop 3** (Energy +3.2%, Real Estate 4.3% and Financials +4.5%) **presents a superior dividend yield** but is hammered by depleted earnings growth, which in turn weighs on the valuation.

The IT sector, which was the champion of the last decade, should continue to provide an above average return but **fails to make the Top 3**; the reason being that despite solid earnings growth, its valuation is already high and its dividend yield quite small.

It is also instructive to compare the expected returns with the actual returns of the past. For example, the MSCI US provided an average return of +10.1% over the last 15 years and the **former Top 3** was made up of disruptive sectors like IT (+15.4%) and Consumer Discretionary (+13.9%) but also Health Care (+11.2%). On the other hand, the **Flop 3** was already made up of Energy (+0.6%), Financials (+3.4% and Real Estate (+6.6%). In between, stable earners like Consumer Staples followed the trend.

Returns by asset class and asset allocation implications

Tab 20: MSCI US long term expected returns by sector

USA	Yearly EPS growth 2020-2022	Yearly EPS growth 2023-2029	Average earnings growth (#1)	Valuation change (#2)	Dividend Yield (#3)	Long run total return (#4) = 1+2+3
Energy	-4.0%	4.1%	1.6%	-4.1%	5.7%	3.2%
Materials	8.9%	4.6%	5.9%	-0.9%	1.9%	6.9%
Industrials	5.1%	5.6%	5.5%	-1.6%	1.6%	5.4%
Consumer Discretionary	10.4%	6.1%	7.4%	-0.7%	0.6%	7.3%
Consumer Staples	5.9%	5.1%	5.3%	-2.2%	2.7%	5.8%
Health Care	8.7%	5.9%	6.7%	0.3%	1.6%	8.7%
Financials	2.6%	4.1%	3.6%	-1.4%	2.2%	4.5%
IT	9.6%	5.5%	6.7%	-0.7%	0.9%	6.9%
Communication Svs	9.2%	5.6%	6.7%	0.6%	1.0%	8.2%
Utilities	4.2%	5.1%	4.8%	-1.4%	3.3%	6.7%
Real Estate	1.4%	5.1%	4.0%	-2.8%	3.2%	4.3%
MSCI USA	6.6%	5.1%	5.5%	-1.3%	1.5%	5.8%

Source : MSCI, Factset, Amundi Research, green cells: Top 3 expected returns, brown cells Bottom 3

Tab 21: Long term expected returns for equity markets by sector

Sectors	USA	EMU	UK	Japan	EM	Pac ex JP	ACWI*
Energy	3.2%	4.1%	5.5%	8.0%	2.7%	1.3%	3.6%
Materials	6.9%	7.1%	11.3%	9.5%	7.4%	10.0%	7.5%
Industrials	5.4%	5.2%	5.1%	3.0%	5.9%	4.2%	5.2%
Cons. Discr.	7.3%	8.9%	0.7%	5.1%	9.3%	2.9%	7.2%
Consumer Staples	5.8%	4.0%	6.4%	4.1%	5.6%	8.0%	5.6%
Health Care	8.7%	7.8%	12.2%	7.5%	8.3%	9.0%	8.6%
Financials	4.5%	3.9%	3.4%	7.7%	3.9%	6.1%	4.6%
IT	6.9%	4.3%	0.6%	6.9%	11.7%	1.3%	6.9%
Communication Svs	8.2%	5.1%	10.3%	8.7%	6.5%	5.6%	7.7%
Utilities	6.7%	9.7%	7.5%	1.4%	6.7%	6.4%	6.6%
Real Estate	4.3%	4.0%	3.3%	3.2%	5.3%	7.8%	4.4%
Total	5.8%	5.9%	6.1%	5.2%	6.5%	6.3%	5.9%

*ACWI = All Country World Index

Source: MSCI, Factset, Amundi Research, green cells: above its regional average, in bold local N°1

Some sectors are promising globally, others locally

Beyond the US, **the same methodology can be applied to other regions**, considering their respective characteristics in terms of the earnings growth, repricing and income components. The **key lessons to draw from this multi-regional approach** (see table 21) **are threefold**:

- ▶ From one region to another, the leading sectors in term of expected return can vary: Utilities in the EMU, Health Care in the US or the UK, Communication Services in Japan, IT in Emerging markets.
- ▶ Still, globally, some sectors look better positioned than others. This is the case for Health Care and Materials, which present an above average expected return in each of the six regions. Communication Services and Utilities closely follow, as they are well positioned in at least four regions out of six. Conversely, Energy, Industrials and Real Estate are lagging in most regions.
- ▶ There are also some sectors that are brilliant in some regions but mediocre in others. In turn, this category can be divided into two segments – the local sectors in essence and others.
 - * **Real Estate**, which is typically a local sector, presents superior returns in Pacific ex Japan but less so elsewhere.
 - * The **IT** case is different. The fact that its expected returns are elevated in the US, EM or Japan but poor elsewhere does not mean it is a local sector. Quite the opposite – it is a global sector where “the winner takes all”. Therefore, as the US and EM (Japan to a lesser extent) are head and shoulders above the rest in this sector, the rest of the world has limited exposure to IT and relatively poor prospects in this field.

Conclusion

According to our findings, tomorrow’s Top 3 and Flop 3 are expected to be rather similar to yesterday’s. **Should we conclude that the future would be a mere repetition of the past? In the short term, probably not**, as the cyclical recovery that will follow the pandemic-induced recession should give a boost to value vs. growth sectors. **In the longer term, the jury is still out.** If the macro-environment remains similar to the past decade, i.e. limited GDP growth and low inflation, the winners and losers of tomorrow should largely echo those of the past. However, if a new growth cycle was to emerge in the next decade, with sustained productivity gains,

Returns by asset class and asset allocation implications

Currencies

Federico CESARINI, *Cross Asset Research Strategist*

- ▶ We acknowledge that the continued deterioration in the U.S. fiscal and current-account deficits are significant headwinds for the dollar, yet our long-term equilibrium level has not changed much from what we had before the pandemic.
- ▶ We confirm the **EUR trading around \$1.25 in the long-run** – unchanged from last year's projections, while our long-term fair GBP valuation has moved substantially lower compared to its pre-pandemic level at \$1.45.
- ▶ **JPY, Nordics and GBP are the G10 currencies with the highest upside, whilst CHF and NZD seem to have already overshot their long-run equilibrium levels.**

Long-term assumption on currencies

In Brief

If we had asked ourselves what would have happened if the Covid-19 economic shock had not occurred, we would have probably argued that DM currencies would have not moved much. However, 2020 shook the financial markets and currencies were no exception. **The USD acted as safe haven first, climbing on the back of Covid-19 outbreak, but also sold-off as the “risk-on” and reflation narrative prevailed in the second half of 2020.** The response from central banks and governments, in fact, has been quicker and stronger than in the past and proved enough to restore confidence in financial markets and absorb major refinancing risks. Several months after the intervention, the strategy started to pay off as financial markets are functioning again and global growth is set to rebound globally. Confidence and growth are coming at the expense of a deterioration in public finances and record levels of debt. Whilst **higher debt and policy rates** close to the effective lower bound are **negative long-term factors** per se, their **connection with potential growth is key on a relative basis.** We acknowledge that **the continued deterioration in the U.S. fiscal and current-account deficits are significant headwinds for the dollar,** yet our long-term equilibrium level has not changed much from what we had before the pandemic.

Our long-held view that the **USD is on a structural downward trend** has simply found cyclical catalysts in 2020, but average fair valuation has stabilised with respect to last year. Whilst the Fed's “average inflation targeting regime” suggests inflation would rise faster in the US relative to some G10 countries – thus pointing to higher USD depreciation in the long run according to the PPP framework – fiscal and productivity shocks balance the overall effect and result in stable long-term FX valuation. We still see **the USD on a downward trend in the medium to long run, although the speed of adjustment to fundamentals may have peaked in 2020,** in our view. **JPY, Nordics and GBP are the G10 currencies with the highest upside, whilst CHF and NZD seem to have already overshot their long-run equilibrium levels.**

Methodology

We believe that correctly understanding equilibrium levels in FX is crucial as, contrary to other asset classes, mean reversion tends to work well in the medium to long run. As confirmed by ample literature, Purchasing Power Parity (PPP) is among the most commonly adopted frameworks, yet the sensitivity of exchange rates to relative price dynamics has more than halved since the GFC. Therefore, as in previous years, our fair valuation framework attempts to identify additional factors which we believe add value to relative price dynamics in the medium to long run. Following Clark and MacDonald (1999), we constructed three Behavioural Exchange rate models (BEER) to leverage on i) interest rates, ii) terms of trade, iii) productivity, iv) fiscal spending and v) trade openness in addition to price dynamics. PPP remains the most powerful driver, but the contribution of BEER models accounts for almost half of the final weighted estimates.

Tab 22: Long-term FX fair values

Nominal	31/12/2020	Over/under valuation vs spot					WAVG	Long term fair value
		50%	10%	25%	15%			
	Spot	PPP	BEER I	BEER II	BEER III			
AUD/USD	0.769	-2.5%	4.0%	-4.1%	-0.2%	-1.9%	0.78	
CAD/USD	0.785	-8.1%	-8.7%	5.8%	-6.9%	-4.5%	0.82	
CHF/USD	1.130	6.1%	9.0%	13.6%	10.8%	9.0%	1.03	
EUR/USD	1.223	-5.5%	-1.9%	4.3%	-0.2%	-1.9%	1.25	
GBP/USD	1.367	-12.3%	-10.3%	14.6%	-9.7%	-5.0%	1.43	
JPY/USD	0.0097	-8.7%	-18.2%	-1.8%	-6.7%	-7.6%	0.0104	
NOK/USD	0.117	-18.9%	-12.2%	9.6%	-16.3%	-10.7%	0.13	
NZD/USD	0.719	2.5%	9.3%	5.0%	6.4%	4.4%	0.69	
SEK/USD	0.122	-11.5%	-9.7%	-3.6%	-15.1%	-9.9%	0.13	

Source: Bloomberg, Amundi Research, January 2021

USD

Based on the framework above, we maintain the view we had in 2020 that the USD is trading above its long-term valuation. **Purchasing Power Parity remains the framework pointing to the highest correction**, whilst the deterioration in US public finances as well as the drop in its interest rate differential seem to be already priced in after what 2020 has delivered. Covid-19 has been a game changer, as **the USD has lost two of its main cyclical drivers that featured in the recent past**. Its growth premium vs. the rest of the G10 countries collapsed in 2020 and the Fed has almost entirely removed the USD rates advantage which made the greenback a profitable investment opportunity on top of a defensive play. Against such a backdrop, one may argue the USD downward trend has just started. However, we believe that our long-term USD view has simply found cyclical catalysts in 2020, **but average fair valuation has not worsened much compared to last year**. The USD remains rich with respect to fundamentals, although the speed of adjustment may have peaked in 2020. In fact, despite the poor management of the pandemic, the second half of 2020 has already shown how the US economy quickly recovered the losses experienced during the first half of the year. Moreover, a **new fiscal package** seems likely with the new US administration. This subsequent **additional boost to US growth would be relevant** and could lead to **renewed cyclicity in support of the greenback, which we expect will put a floor on the USD correction**. Growth is expected to reach pre-pandemic levels as early as 2021 and the Fed, although far from tapering in the short-term, would be in a better position to normalise, in our view.

EUR

The agreement on the EU Recovery Fund has been a game changer. It boosted growth in European countries and created a valid alternative to US treasuries for fixed income investors. Implementation risks remain high and confirmation that the economic recovery is proceeding at the right pace is crucial, yet it underscores the Eurozone's new economic solidarity and substantially lowers fragmentation risks going forward. **Our long-term valuation suggests the EUR is currently trading at a 4% to 5% discount vs. the USD, with the inflation differential the most supportive variable of EUR appreciation, balanced by our prospects for the interest rate differential**. As for the broader USD view, we believe the **EUR remains on a structural upward path**, but most of the adjustment has likely already happened in 2020. We see the currency trading around \$1.25 in the long-run - unchanged from last year's projections.

GBP

After four and a half years, the deadline is real: 2020 finally brought the Brexit saga to a close. GBP rallied on the back of the headlines (and benefited from broad-based U.S. dollar weakness), thus suggesting most of the positive news already seems to have been priced in. **The currency remains cheap vs. our valuation framework, with the price and interest rate differential suggesting a higher potential upside from current**

Returns by asset class and asset allocation implications

levels. Although lower political risk and a faster vaccination campaign may boost sentiment on the pound in the short term, the UK has been the hardest-hit economy in the G10 and we will have to wait until 2022 to recover the entire loss experienced in 2020, according to our economists. **This trend was exacerbated by the deterioration in the UK's fiscal position and may put pressure on the BoE to maintain easy financial conditions** (thus lowering the bar for negative rates going forward). These factors are weighing on **our long-term fair GBP valuation, which has moved substantially** lower compared to pre-pandemic levels. We see GBP around **\$1.45 in the long run, down from \$1.53 in last year's forecast.**

Safe Havens (JPY, CHF) and the rest of G10 FX (commodity currencies)

The usual safe haven currencies in the G10, the JPY and CHF, have benefitted from the broader USD sell-off in the second half of 2020. The inverse correlation with risk has temporarily broken, with the **USD being the real ultimate safe haven.** The two currencies have common characteristics – yields close to the effective lower bound, correlation with risky assets and poor growth profiles compared to the rest of the G10 – but exhibit very different valuation profiles. **CHF has overshot fundamentals according to our framework, whilst JPY is one of the G10 currencies with the highest upside.** Within the commodity-related universe, we foresee a strong upside in Nordics (both NOK and SEK remain at around a 10-12% discount vs. our long-term fair valuation), while AUD and CAD have already discounted most of the good news in H2 2020, and NZD is already 4% to 5% above our long-term equilibrium.

Convergence path towards equilibrium

The medium-term trend in long-term fair value is derived based on the interest rate differential simulated using our simulation engine (CASM).

EUR is close to its fair value and we expect the currency to appreciate slightly on a 10-year horizon, with some weakness in the medium term linked to the rerating of US Treasuries. JPY is expected to gradually appreciate against USD on a medium and long-term horizon. GBP will strengthen over a 10-year horizon to its long-term level. Its path is almost linear given the similarities in the forward-looking path for US and UK rates, assuming that any issues arising in the post-Brexit period would be managed in an orderly fashion.

Tab 23: **Expected medium-to-long-term returns for the main currencies. Returns are based only on the change in the FX rate (the carry is not included)**

FX	3 yr	5 yr	10 yr
EUR/USD	-0.3%	0.1%	0.2%
USD/JPY	-0.4%	-0.7%	-0.7%
GBP/USD	1.1%	0.9%	0.7%

Source: Bloomberg, Amundi Asset Management CASM Model, January 2021

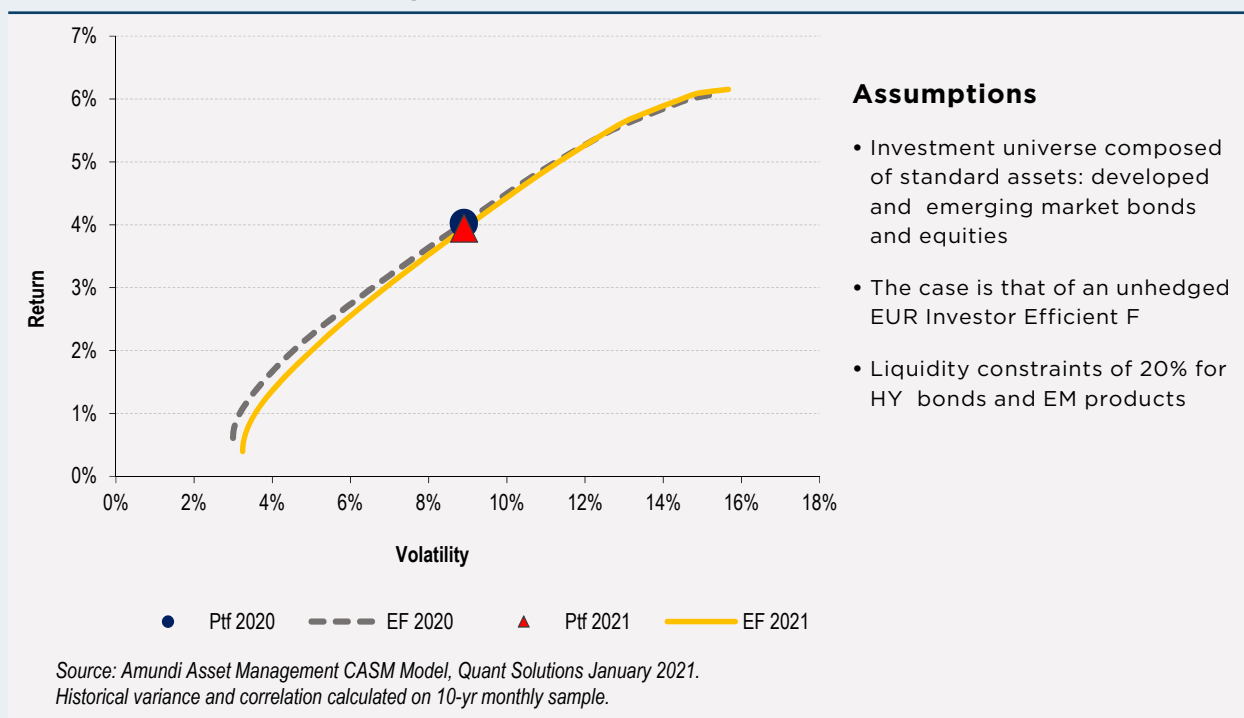
Asset allocation implications including traditional asset classes: looking for risk/return dislocation on strategic horizon

Viviana GISIMUNDO, *Head of Quant Solutions*, Jung Hun KIM MOON, *CFA, Senior Quantitative Analyst*

We outline the details of the asset allocation analysis comprising the investment universe of developed and emerging market bonds and equities, reflecting our 10-year outlook for the assets considered:

- ▶ This year’s allocation exercise focus is on the dispersion and dislocation of the asset class risk profile, implying expected returns, estimated risk and currency contribution (EUR unhedged perspective).
- ▶ **Risk-adjusted expected returns for bonds have shifted downwards compared to their pre-Covid levels, while for equity the difference is less pronounced:**
 - * As a result of the unfavourable valuations across all assets, our expected returns are lower across the horizon, with fixed-income assets more depressed than risky assets.
 - * The estimated risk is very similar, as defined on a long horizon sample.
 - * The currency contribution for foreign exposure (on the negative side) is less pronounced as EUR is close to its long-term fair value with respect to the main FX pair.
- ▶ **The optimal “theoretical” allocation increases allocations to US bonds and EU IG due to the higher carry and lower default rates, respectively.**
- ▶ Supportive expectations, based on the development of the current crisis, translate into a **higher allocation to Asian equity.**

Graph 15: **Efficient frontier for an unhedged Euro investor: current (2021) vs. previous (2020)**



Returns by asset class and asset allocation implications

The onset of the Covid-19 crisis and the subsequent recovery mark the path forward, where the interaction between fiscal and monetary policy will take centre stage for the near future. As lower rates continue to dominate the market, our preference for instruments with a higher carry component allow us to maintain a similar risk return profile to Q1 2020.

Overall, while we expect policies to remain accommodative at least over the medium term, we anticipate that the Fed will stay the course allowing US bonds to benefit from the higher carry. On the corporate side, we are increasing slightly our allocation to the EU investment grade sector owing to the lower default rates over the investment horizon. In the ongoing quest for higher yields, we are maintaining maximum exposure to EM hard currency as it continues to have a favourable return/risk profile, to the detriment of exposure to EM equity.

Looking at the equity-bond allocation, we see a slight shift towards equity resulting from the inevitable rate normalisation over the medium-to-long-term horizon. Within equity, we see Asian equities benefiting from the faster recovery from the crisis compared to their US and EU counterparts.

Asset allocation modelling including real and alternative assets

Viviana GISIMUNDO, *Head of Quant Solutions,*

Jung Hun KIM MOON, *CFA, Senior Quantitative Analyst,*

Tom WALSH, *Senior Quantitative Analyst*

Despite alternative assets being more heterogenous than mainstream assets, we decided to apply our macro cascade modelling structure¹ (CASM) to them to adopt a consistent approach to all assets. The particularities governing the former – namely non-Gaussian behaviour and significant liquidity risk – makes CASM's approach based on estimated distribution and scenario simulation well suited. This approach will provide a comprehensive view of the outlook for the investment universe in support of the asset allocation decision process.

Incorporating alternative assets into the existing simulation framework involves defining a generalised model for each alternative asset, but also aims to include specific identifying features. The ultimate goal is to look for diversification along different angles: by type of asset, vintage – to take into account the J-curve effect – sector exposure, geography, and type of underlying manager. While the effort brings forth a unique set of challenges, it provides an opportunity where the assessment of the asset classes' risk profiles can be enhanced by the opportunities found in illiquid markets².

Data and model overview

Well-documented shortcomings in the underlying data for these asset classes include infrequent pricing, survivorship/backfill bias leading to biased estimates of expected returns and volatility. Corrections to these limitations include benchmarking to a public market equivalent (PME) such as the S&P 500 and the econometric methods as described in Woodward & Hall (2004)³. Along the lines of these best-practice methodologies, we transform the initial raw data into an unsmoothed series applying an inverse autoregressive process, while features unique to alternative assets such as vintage year, commitments and distributions are incorporating as add-ons on the instrument level.

In the case of real and alternative assets, performance is often not reported in terms of total return as for traditional asset classes, but usually in terms of internal rate of return (IRR), which increases both **calculation complexity and discrepancy**. While the total return is preferred as the basis of all our modelling practice, the IRR is helpful for comparative purposes when moving from broad definitions to more granular private assets (e.g. leveraged buyout or venture capital).

The role of illiquidity risk receives special emphasis within alternative assets, as it has the biggest impact on these within the investment universe and cannot be diversified away. As illustrated in a subsequent section dedicated to the issue of liquidity, integrating alternative assets in the investor's allocation therefore justifies incorporating a third dimension based on return and risk to the portfolio optimisation framework. Illiquidity is indeed a key feature of these assets, which can be considered as a risk but also as an opportunity for investors that are genuinely able to carry it.

Liquidity model

We define a liquidity event as a **sudden jump within a short period spanning from several quarters to over a year as a consequence of macro-level events, resulting in a haircut to the likely trading price of impacted assets**. Analysis of global phenomena, such as the dotcom bubble of the early 2000s, the 2009 GFC and most recently the outbreak of the Covid pandemic, show evidence of increased correlation and haircuts to a significant number of asset prices. These events have had a particularly outsized impact on alternative instruments⁴.

¹ Details of Amundi's asset modelling structure (CASM – Cascade Asset Simulation Model) can be found in the Methodological note in the Appendix.

² Interested readers can refer to the Amundi Insight paper "Allocating to real and alternative assets" or a detailed treatise on some other technical and implementation matters.

³ Woodward, S. and R. Hall. "Benchmarking the Returns to Venture." NBER Working Paper Series (2003): n. pag.

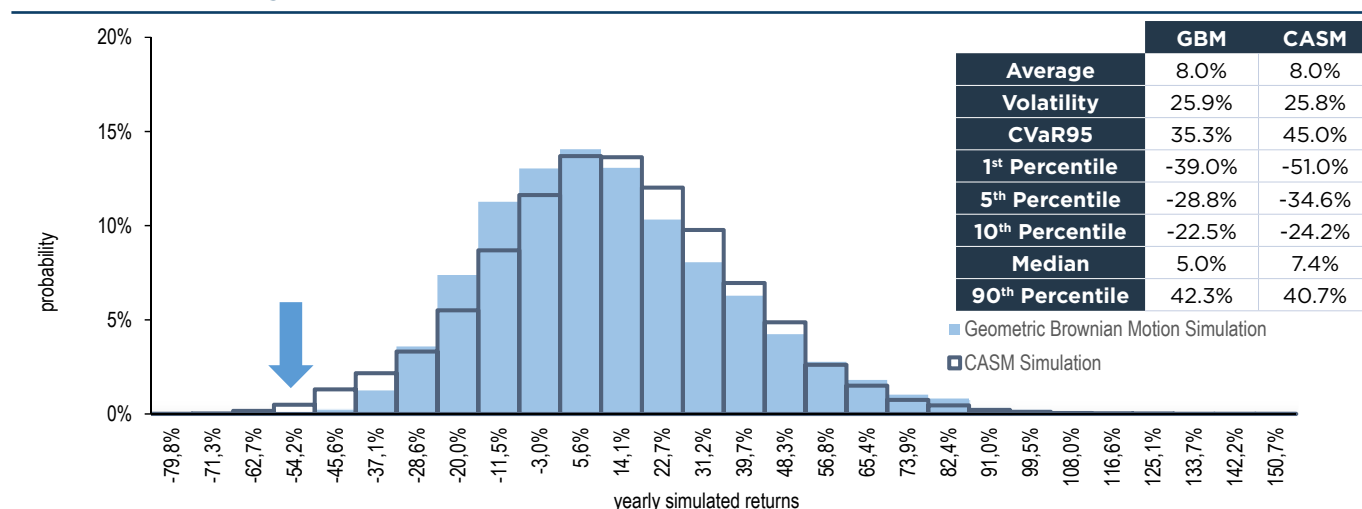
⁴ Luo, Yiyang. A study of stock market liquidity from 1973 to 2015. Diss. Massachusetts Institute of Technology, 2016.

Returns by asset class and asset allocation implications

Our approach to simulating liquidity risk is to **incorporate characteristics typical of past liquidity events:** an increasing exposure to a single risk factor, severity of the global economic downturn, and outlook of the recovery path. The inclusion of the liquidity component within the asset simulation results in an ex-ante asymmetrical distribution of returns with a higher probability of extreme negative returns. As these events are infrequent in nature – occurring approximately once every 10 years – a cursory inspection does not reveal significant differences in the summary measures (average and standard deviations). However, closer study of the left tail of the ex-ante return distribution shows that the magnitude and implications of the potential drawdown are magnified – greater losses at higher probabilities across multiple asset classes.

Graph 16 showcases the comparison of distributions of a Gaussian nature (for example resulting from a Geometric Brownian Motion) to that of a skewed one (such as for private equity derived using our simulation model). The inclusion of a liquidity event shifts the distribution, increasing both the probability and magnitude of a drawdown, evidenced by the fatter left tail at 1st and 5th percentile. A study of worst-case scenarios, as implied by the left tails of the distributions, show how the effect of a market downturn can be especially acute on alternative assets.

Graph 16: **Private equity simulation including liquidity model (CASM model) and using Geometric Brownian Motion**



Source: Amundi Asset Management, CASM model. For illustrative purpose only.

Real Estate Model

As a first step in assessing the primary factors of real estate, we apply an unsmoothing procedure to the original data series to remove the serial correlation and underestimated volatility. Our real estate model is based on an interpretation of the cap rates⁵ breakdown into nominal economic growth and a risk premium.

The former aims to approximate both the level of and change in rental income, where GDP growth plus inflation approximates the long-term interest rate. The Wilkie model⁶ makes explicit the inflation component both on rental yields and on rental income, by using nominal economic growth. In this manner, **our model explicitly details the relationship with inflation and the macroeconomic environment.**

The latter represents the **real estate risk premium** that is assumed to be related to the equity premium based on the estimated beta, comprising the illiquidity premium/risk relevant to unlisted assets whose size has been defined accordingly.

We estimate the **average level of leverage for core real estate at 20-30%**, included in the asset class model as an add-on that can be adapted to the investor’s particularities.

It is worth noting our macro-based model for the medium-to-long-term horizon is based on the simulation of the **cap rate** (including the risk premium) and a mean reversion process to the long-run equilibrium, excluding

⁵ Cap rate (or capitalization rate) is a valuation measure used to compare different real estate investments. It is calculated by dividing the net operating income of the property in question by its market value

⁶ For a review of real estate models refer to “An Analysis of the Behaviour of Commercial Real Estate Indices (June 2002 Booth Marcato)”

Returns by asset class and asset allocation implications

tactical and valuation considerations. The model can be specified using a table below illustrates the breakdown of the real estate return, linked to projections of the following variables: equity (estimated beta in the range 0.25-0.5), inflation, GDP trend and cycle, liquidity risk model, interest rate and spread (for financing cost) with a particular focus on the long run. Those figures are theoretical indication for a core real estate type of investment, not including the contribution for manager selections.

EUROPE Real Estate		RISK FREE + INCOME GROWTH EXPECTATION		RISK PREMIUM		Net Leverage		
	=	Inflation	+	GDP Growth	+	Real Estate Premium (Equity + Liquidity)	+	
Long Run	4.7%	1.8%	+	1.2%	+	1.2%	+	0.5%

US Real Estate		RISK FREE + INCOME GROWTH EXPECTATION		RISK PREMIUM		Net Leverage		
	=	Inflation	+	GDP Growth	+	Real Estate Premium (Equity + Liquidity)	+	
Long Run	6.1%	2.2%	+	1.7%	+	1.8%	+	0.4%

Source: Amundi Asset management, CASM model, January 2021

Private Equity Model

In general, **private equity is considered to be a return enhancer rather than a risk diversifier due to its higher correlation with public equities.** A typical cashflow structure and timeline are generally represented by the so-called J-curve, with an attractive return about 10 years after the funds are committed (0-3 years in commitments, 4-10 years in distributions), while a lock-in period (during which invested money cannot be withdrawn) is implied beyond the medium term. This timeline has an outsized effect on the underlying data, where the presence of survival bias and infrequent pricing is notoriously harder to quantify due to lack of transparency within the industry. Consequently, private equity fund performance tends to show significant differences between the top and bottom return quartiles, making manager selection a critical step in private equity allocation.

Analysis of private equity investments found them to be particularly sensitive to current and anticipated economic conditions, including interest rate and capital availability expectations. While exhibiting high volatility, these funds tend to present consistently strong returns over the long-term horizon as liquidity risk is of less relevance.

Private equity returns can be broken down into an equity premium and a private equity specific premium.

The equity premium is the return component remunerating the public equity risk exposure. The equity contribution to the return is higher for listed private equity that is more closely correlated with public equity market (0.85-0.9), while for unlisted private equity we estimate a bigger contribution from the specific private equity risk. The private equity risk premium should account for the premium/discount on the embedded liquidity risk.

The trend in private equity returns results from the following simulated variables (that in our Cascade model corresponds to a specific model): equity model, private equity risk premium and liquidity risk model.

EUROPE Private Equity		RISK FREE + INCOME GROWTH EXPECTATION		RISK PREMIUM	
	=	Equity Return	+	Private Equity Premium (Equity + Liquidity)	
Long Run	8.7%	6.8%	+	1.9%	

US Private Equity		RISK FREE + INCOME GROWTH EXPECTATION		RISK PREMIUM	
	=	Equity Return	+	Private Equity Premium (Equity + Liquidity)	
Long Run	9.8%	7.5%	+	2.3%	

Source: Amundi Asset management, CASM model, January 2021

Returns by asset class and asset allocation implications

Infrastructure

A wide range of assets can be classified as infrastructure investments, as strategically important and capital-intensive real assets that fulfil major economic and social needs⁷. Infrastructure can be classified as equity or debt and as listed or unlisted. Our approach to unlisted infrastructure modelling focuses on a limited number of fundamental considerations: infrastructure assets are designed for public use for long periods of time, so they are closely linked to inflation in the respective country. These assets tend to generate stable, long-term cash flows resulting from tightly regulated pricing, and their returns are generally less closely correlated to other risky assets. Despite these features, our research indicates that infrastructure assets remain sensitive to liquidity events albeit to a lesser degree than most other assets with an absolute return or yield benchmark.

The diversification benefit associated with unlisted infrastructure equity investments is likely to be relevant, while less evident in the case of listed investments, evidenced by a close correlation with public equities. Notably, this exposure to equity risk makes listed infrastructure unsuitable to proxy the behaviour of its private counterpart. In this case, a robust dataset for unlisted infrastructure may be identified using a mark to market approach where returns capture market trends and serial correlation is avoided. We used EDHEC data as a reference for unlisted infrastructure as highlighted in the table below. Our analysis indicates that **the correlation with inflation is moderate** whereas it trends significantly higher with equities. This can be related to different dates and frequencies of fee and price updates between infrastructure assets and inflation, an effect that is more pronounced when looking at unlisted infrastructure.

Our infrastructure equity model defines the return target in terms of spread over inflation. We describe volatility in line with that of unlisted infrastructure (in the 12-15% range) and include some asymmetry determined by the liquidity model in describing the return distribution.

	GLOB INFRA	=	CPI	+	RISK PREMIUM
Long Run	6.1%	=	2.1%	+	4.0%

Source: Amundi Asset management, CASM model, January 2021

Private debt

Private debt is a heterogeneous asset class, including corporate debt, real estate debt and infrastructure debt, that offers a wide range of risk/return profiles to match investor needs and helps diversify credit portfolios. In general, we can nevertheless mention that for each specific private debt strategy, **we focus on the definition of the yield or spread vs. government rates in collaboration with our internal specialists.** When the private debt investment is pooled, the returns can be simulated assuming specific spread and default levels. Average default probabilities are derived considering the rating and seniority based on the data available for publicly traded investments. The price is derived from the spread and default and is consistent with the macro and financial factors in the cascade via the correlation structure. The leverage can be included by also considering the financing cost. The liquidity risk is embedded both in the spread simulation and in the default rate; the relevance of the liquidity model is higher than for publicly traded investments (speculative bonds) and the returns incorporate the liquidity premium.

The table below shows the modelling definition for a direct lending investment applying the modelling framework defined above. The return can be broken down into risk free plus spread (also including the liquidity premium), default loss, and net leverage (assuming 100% leverage). In this case we apply the liquidity model to capture the asymmetry of the distribution characterising private and illiquid assets, with a volatility around 10-11% and including leverage of 100%.

	US DIRECT LENDING	=	Risk Free	-	Default Loss	+	RISK PREMIUM Spread (including Liquidity premium)	+	Net Leverage
Long Run	6.1%	=	2.1%	-	2.0%	+	5.0%	+	1.0%
	EU DIRECT LENDING	=	Risk Free	-	Default Loss	+	Spread (including Liquidity premium)	+	Net Leverage
Long Run	5.4%	=	1.0%	-	1.5%	+	4.6%	+	1.3%

Source: Amundi Asset management, CASM model, January 2021

⁷ Economic infrastructure assets support economic activities and include transportation and utility assets, while social infrastructure assets are directed toward human activities and comprise educational, healthcare, and correctional facilities. The Paris Agreement negotiated in December 2015 with the target to reduce CO2 emissions and to invest into renewable energy has accelerated investment in and growth of renewable energy infrastructure.

Strategic Asset allocation on global universe with real and alternative assets

In the table below we present the simulated forward-looking statistics over the 10-year horizon for the alternative and real assets together with the standard asset classes as reference. **Those expectations incorporate the long term assumptions** discussed in the previous paragraphs and **the medium term dynamic for the underlying risk factors**. Given the greater uncertainty prevailing in the current macro and financial environment, we will be presenting the Conditional Value at Risk (CVaR) 95% as an additional asset class risk/return trade-off measure. Please note that the definition of the estimates are coherent with the definition of real and alternative assets we described in the sections above. Those **figures do not take into account alternative managers' potential added value** based on active selection capability which is particularly high in this area⁸.

Assets in local currency	10 year Expected Returns	10 Yr Simulated Volatility	10 Yr Simulated CVaR 95%
Standard Assets			
Global Aggregate	0.9%	4.2%	5.8%
Global EMBI	4.1%	11.1%	26.9%
Global High Yield	2.6%	8.3%	20.7%
Global Equity (DM)	5.9%	19.4%	36.4%
Emerging Markets Equity	6.5%	24.2%	39.6%
Real and Alternative			
Global Private Debt (Direct Lending)	5.4%	12.3%	22.7%
Global Real Estate	5.1%	11.5%	23.0%
Global Infrastructure	5.6%	12.5%	23.7%
Global Private Equity	7.9%	25.5%	52.3%

Source: Amundi Asset management, CASM model, February 2021. Local Currency

Regarding real assets, the table represents the modelling of core (moderate risk) real estate and direct lending on the private debt side. We assumed a leverage in the range 20-30% for Real Estate and a leverage of 100% for Direct Lending. In private equity, we considered the risk premium (and the leverage) implied by the LPX time series, premium calculated using a Beta versus the public market.

Equities indexes refer to MSCI, bond indexes refer to Barclays and ICE indexes. Real and alternative assets refer to Amundi proxies.

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.**

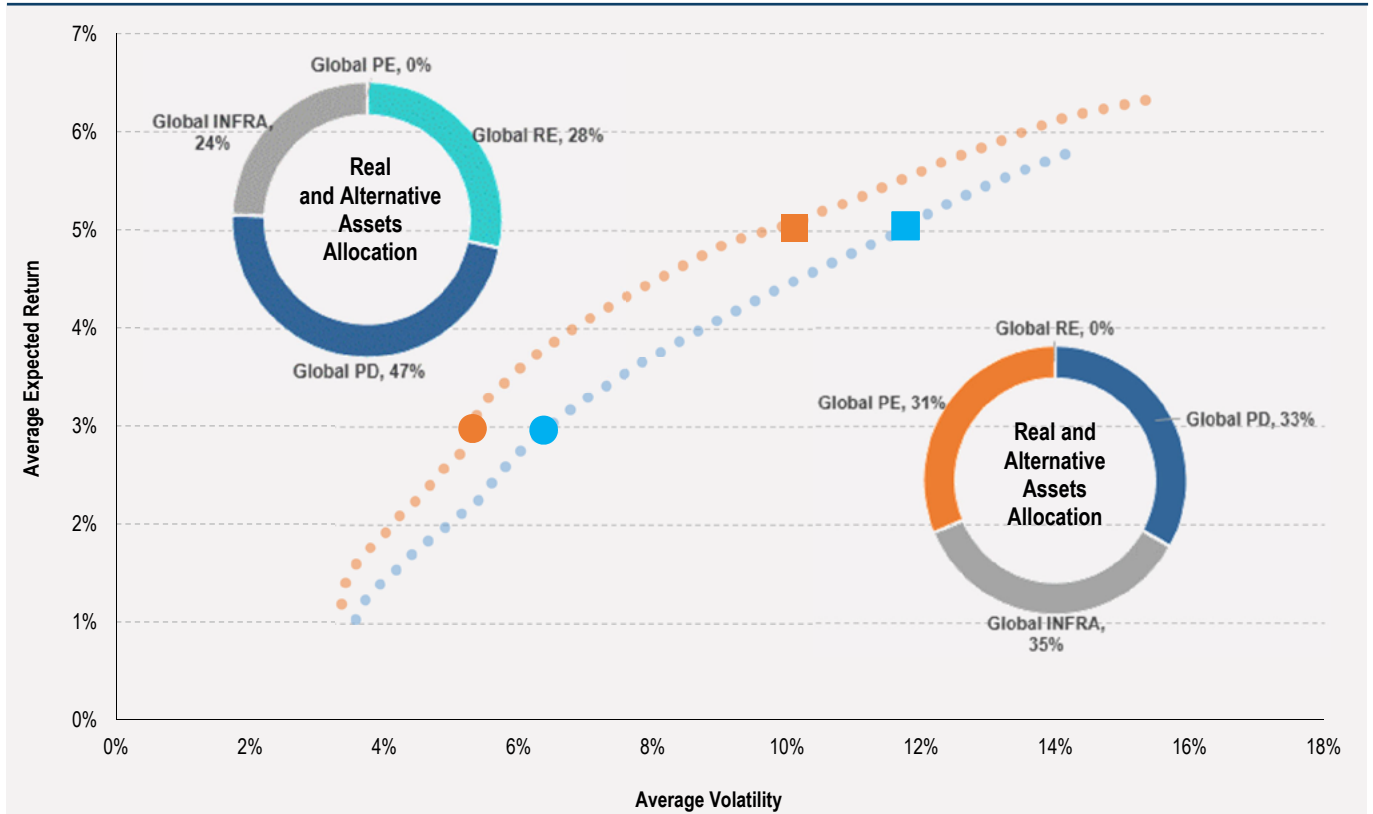
As we have previously highlighted, the classic Gaussian assumptions are not representative when analysing real and alternative asset returns. Our approach focuses on the definition of asymmetric distributions calibrated on the specific shortfall, closely connected with the liquidity risk. The optimisation exercise is designed to coherently incorporate those assumptions. The CVaR is the risk statistic used in the objective function, whereas variance is used in the classic mean variance framework. The optimisation scheme relies on simulated scenarios. It minimises the CVaR (which represents the expected shortfall) for every expected return target.

In the following chart we represent the set of efficient portfolios obtained applying the CVaR optimisation to a global cross asset investment universe over a 10-year horizon (global aggregate bond, global HY bond, EMBI GD bond, global DM equity, global EM equity, global private debt (direct lending), global real estate, global infrastructure equity, global private equity).

⁸ Please refer to Amundi Insights paper "Real and Alternative Assets in Asset Allocation"

Returns by asset class and asset allocation implications

Graph 17: **Efficient Allocations on Global Cross Asset Universe including Real And Alternative Assets**



The efficient portfolios are represented using an efficient frontier like visual to explore the risk/return trade-off, even if the optimization methodology used is based on CVaR.

- Efficient Portfolios Standard Assets Only
- MODERATE RISK
- HIGH RISK
- Efficient Portfolios Including Real and Alternative
- MODERATE RISK
- HIGH RISK

Source: Amundi Asset management, CASM model, February 2021. Local Currency. Optimization based on CVaR 95% minimization, 10 yr horizon. Constraints included: min 10% Global Aggregate, max 25% Real and alternative assets. Diversification constraints on high risk fixed income and EM assets. The efficient portfolio are plotted considering average expected returns and average volatility that are the conventional measure used in the standard Markowitz efficient frontier, even if the objective function used is different.

The aim of this analysis is to explore diversification looking at a global asset universe including real and alternative assets, and to select asset allocations that could be suitable for global investors. For this reason, the asset classes are considered in local currency; potential currency bias can be considered as a second step analysis.

We have selected two CVaR constrained efficient portfolios considering 3% and 5% average expected return targets which correspond to moderate and high risk profiles.

In the pie charts, we highlighted the allocation within the real and alternative assets bucket, which represents respectively the 21% and the 25% of the global allocation.

In the following table we represent the allocation corresponding to 3% and 5% expected returns, respectively moderate and high risk profiles, considering the traditional asset universe only in one case and the universe including real and alternative assets for a maximum of 25%.

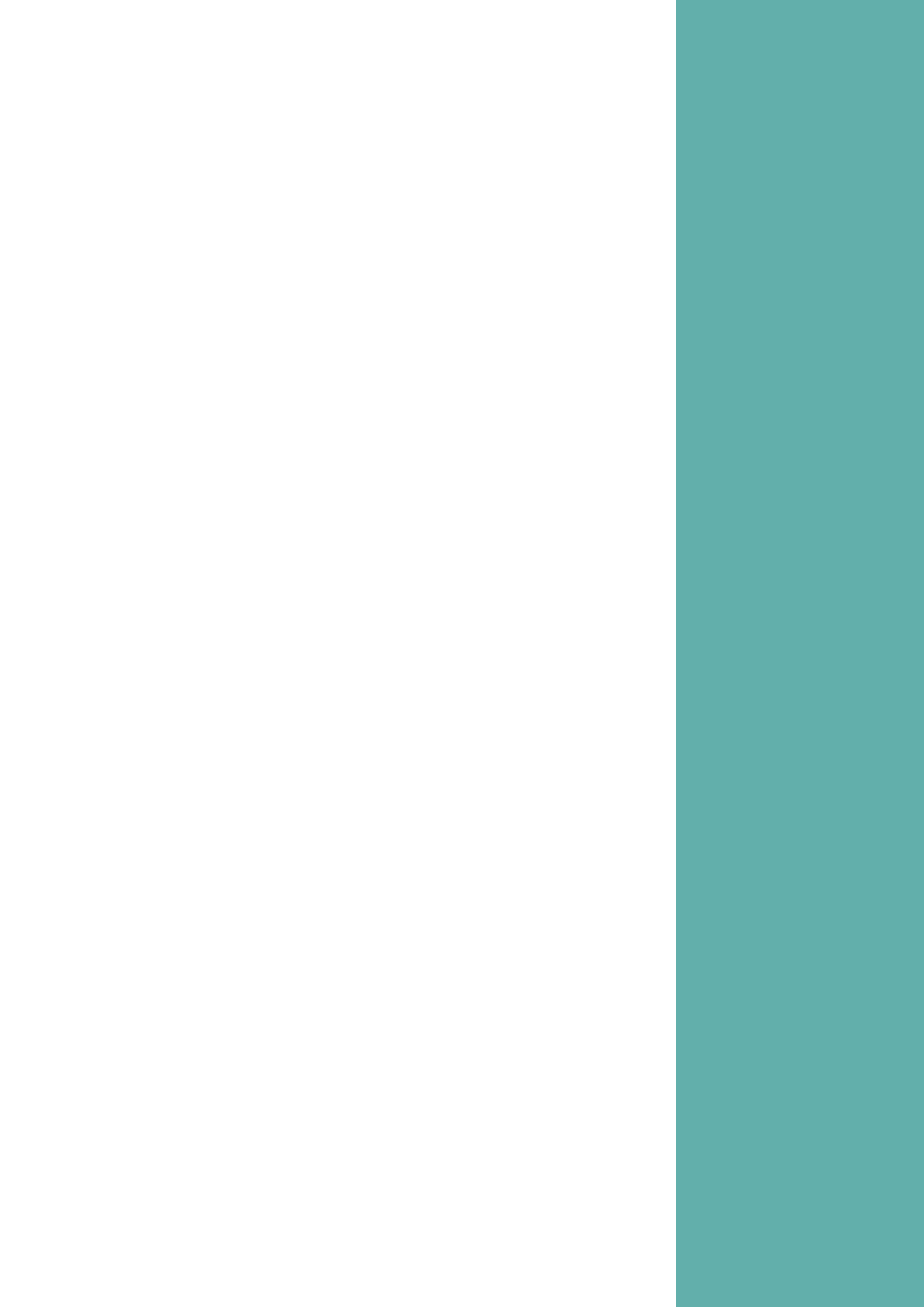
Returns by asset class
and asset allocation implications

Tab 24: Allocation on Global Universe including Real and Alternative Assets

		Expected Return	Volatility	CVaR 95%	Global Aggregate	EMBI + HY	Global Equity (DM+EM)	Global RE	Global PD	Global INFRA	Global PE
MODERATE RISK	Traditional Assets Only	3.0%	6.4%	14.9%	52%	30%	18%	0%	0%	0%	0%
	Including Real and Alternative	3.0%	5.3%	12.6%	49%	30%	0%	6%	9%	5%	0%
HIGH RISK	Traditional Assets Only	5.0%	11.8%	28.8%	10%	28%	62%	0%	0%	0%	0%
	Including Real and Alternative	5.0%	10.1%	25.5%	10%	30%	35%	0%	9%	8%	8%

Source: Amundi Asset management, CASM model, February 2021. Local Currency. Optimisation based on CVaR 95% minimisation, 10-year horizon. Constraints included: min 10% Global Aggregate, max 25% Real and alternative assets. Diversification constraints on high-risk fixed income and EM assets.

For the moderate risk profile, the allocation including real and alternative assets replaces part of the high-risk fixed income and equity allocation with real estate, private debt and infrastructure. Study of the high-risk profile confirms some preference for private debt and infrastructure with a private equity allocation. The pickup of the latter, suitable for a higher risk tolerance profile, is supported by our outlook for higher return (and risk) within our universe.



4



ESG Thematics

ESG Thematic Focus

In this ESG thematic focus we demonstrate ESG has an intrinsic value explained by sizing the equity risk premium, besides when referred to environmental ESG has a specific meaning and implications that we tested on the empirical evidence.

Investors' changing preferences for ESG can have a large impact on assets' valuations. We measured arbitrage activity in "green" ETFs to estimate shifts in investors' appetite for environmental responsibility not yet priced into the underlying assets. A standard demand shock predicts a 6-month outperformance of 60 bp of the best environmental-rated firms.

Lorenzo PORTELLI,
Head of Cross
Asset Research

ESG Long Term ERP will be an important component

Essentials

Despite the undoubtable social relevance of the ESG mindset, finding a precise estimate of the positive impact on performance in financial markets is no easy task. Crucial questions always arise when addressing the ESG financial puzzle for example: Does an ESG Equity Risk Premium (ERP) exist? Is it a genuine ESG risk premium or is it the unintended outcome of a combination of traditional investing factors? Is it constant or time varying? This analysis tries to answer these questions from a top-down perspective reaching the following conclusions: **after adjusting for traditional factors, there is a strong evidence of a positive time invariant ESG equity risk premium round +200 bps.**

Summary

- Beside its clear social, environmental and economic importance, we have found that ESG can add consistent value from a financial perspective once the ESG framework and guidelines are defined, developed and implemented properly.
- According to our top-down analysis, we explicitly calculated the **Amundi ESG Equity Risk Premium** and isolated the **three main components**: two related to the ESG theme (the beta time varying and the pure alpha ones) and one related to traditional macro and financial factors. Both confirm the existence of a positive relationship between equities' extra performance and ESG theme.
- **The beta time varying component** is linked to the focus and importance of the ESG mindset and is positively correlated with an increase in popularity and importance as investors recognise the relevant impact ESG factors can have on investment returns. **The pure alpha ESG ERP is significantly positive** (+197 bp) and is consistently generated by the success of Amundi's internal criteria used to define ESG during the stock selection process in line with Amundi's deep corporate values.
- **The third component, related to traditional macro and financial risk factors, confirm the existence of an ESG ERP tilt to other variables, hence a so called "beta transfer" effect.** This component of ESG risk premium is negatively correlated to risk sentiment and inflation, and positively correlated to rates. Hence, ERP bodes well in challenging phases of the market that reveal the companies more focused on the ESG theme with better balance sheets and more robust business models.
- Due to its nature and according to the findings above, **Amundi ESG Equity factor will be an important driver of long-term returns providing a powerful source of adding extra performance and fruitfully diversifying cross asset portfolios in a historically low-return environment.**

There is also a time varying component related to the focus on ESG from investors beside the pure alpha ESG ERP

- Assuming that the long term is considered the equilibrium point of financial markets where no variables are diverging from the steady state, and then we can consider the pure alpha ESG ERP the most appropriate estimate of ESG contribution to the long-term equity risk premium. Hence, **the estimated value of +197 bp should be added to the long-term returns derived by traditional factors.**

There is also a time varying component related to the focus on ESG from investors beside the pure alpha ESG ERP

ESG Risk premium identification and factor breakdown.

Despite the undoubtable social relevance of the ESG mindset, finding a precise estimate of the positive impact on performance in financial markets is no easy task. Crucial questions always arise when addressing the ESG financial puzzle for example: Does an ESG Equity Risk Premium (ERP) exist? Is it a genuine ESG risk premium or is it the unintended outcome of a combination of traditional investing factors? Is it constant or time varying? This analysis tries to answer these questions from a top-down perspective.

We started by building a historical series of a raw ESG risk premium adopting official Amundi ESG standards and criteria and calculating the relative performance of the best quintile of the **MSCI EMU index vs. the benchmark**. So, the ERP is calculated considering only the best-in-class stocks vs. MSCI EMU index, hence without specifically shorting the worst-in-class quintile. **The analysis focuses on the EMU region, as it is the universe on which the Amundi methodology has been built and applied.**

Graph 18: **ESG Equity Risk premium Cumulated Returns**



We identified and detected the **component related to traditional macro financial factors** like sentiment, rates, inflation, value/growth and size in order to avoid unintended or spurious relations, the so-called “beta transfer” effects. Then we **isolated the residual ESG part and we have found that is significantly positive** and can be split into two components:

1. **Time varying beta related to investors’ focus on the ESG theme tracked by our Narrative trend index.**
2. **A specific idiosyncratic alpha related to Amundi ESG criteria quality on selecting performing companies.**

ESG Thematics

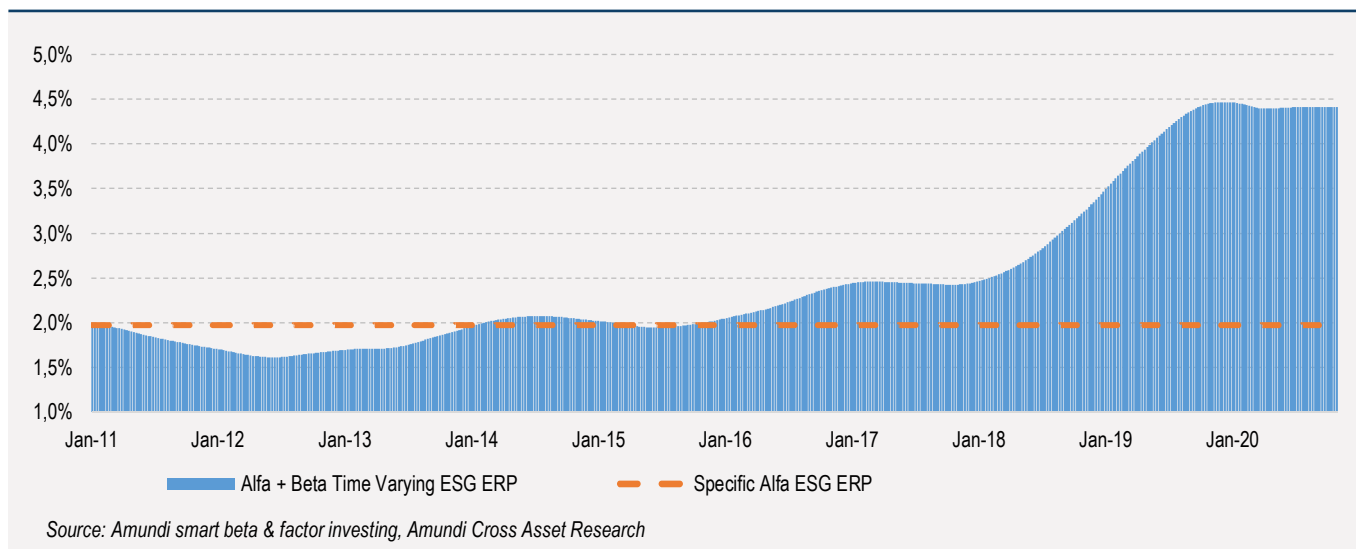
Tab 25: ESG Equity Risk Premium Factors decomposition on MSCI EMU

Variables	Values/Sign	Significance
Alpha ESG component	+197 bp	High
Beta ESG Investors Focus	+	High
Value/Growth	+	High
Size	-	Low
Risk Sentiment	-	High
Delta 10 yr. rates	+	Low
Delta US CPI YoY	-	High

Methodological note: regression of yearly ESG ERP returns on: ESG Amundi Track index, Relative performance Values vs. Growth, Small vs. Large cap, Amundi Combo Risk Sentiment index, US 10 yr. govies and US CPI YoY. Overlapping data for returns have been used in order to overcome short time series history (statistics adjusted for Heteroskedastic Auto Correlation for testing significance). Data Sample: 1 Jan. 2013 - 31 Oct. 2020. Source: Bloomberg, Amundi Factor Investing Team, Amundi Cross Asset Research.

To understand if those results can be generalised, we applied the same methodology to the MSCI ESG leader indexes. We found similar results for the EMU region; for the US the time varying component is significant and can be linked to the flows to ESG investments that are growing across the world, while the alpha component is not statistically significant.

Graph 19: ESG ERP: ESG focus & Selection components



Source: Amundi smart beta & factor investing, Amundi Cross Asset Research

Investment conclusions and implications.

1. **Raw ESG ERP increases when risk sentiment deteriorates, interest rates move higher and inflation decelerates** (hence when real rates increase). It means it performs better when financial conditions become more challenging.
2. The residual part is positively exposed to focus on/interest in the ESG narrative, meaning that **outperformance is clearly related to demand/appetite for this factor investing as inflows trend** suggest in the latest years.
3. There's an **idiosyncratic "pure" alpha** related to Amundi's approach to selection criteria based on ESG corporate values independent from all other macro-financial considerations.

4. If we wrap all the results, the key message is that ESG factor, once it is declined in a rigorous and disciplined way, enables us to select companies with a strong commitment to ESG, a solid business model and cost of financing combined with awareness of the mission & view for broad global stakeholders.

Long Term implications for equity returns.

By construction, long-term equilibrium is associated with a steady state where the variables in the equations do not fluctuate. Translating this definition into the ESG ERP framework means that **in the long run we must assume no variation in ESG track index, rates, inflation, risk sentiment and relative performance of value/growth/size investments.**

Therefore, we can assess the **pure alpha of ESG ERP as the positive contribution of this factor to the long-term EMU equity returns.** Hence, we can reasonably plug around 200 bps into the expected long-term return equation. This assumption holds considering a full implementation of the ESG methodology, while we are aware that in the reality the implementation needs to adapt to specific investor requirements and targets also related to the understanding and relevance of the ESG factor and its components.

Marie BRIÈRE, *PhD*,
Head of Investor
Research Center

Green preferences, and its impact on long-term returns

The past decade has seen significant **changes in the way investors perceive environmental risks.** There are several reasons for that. First, the information available on climate-change costs has grown considerably, for example on major hurricanes (Katrina and Sandy, for example), or wildfires, such as those that ravaged California or Oregon in 2019 and 2020. In addition, many regulatory initiatives have emerged, especially in Europe (the European Commission action plan for sustainable finance, green taxonomy, European labels, etc.), to improve the transparency of available climate information and encourage investors to take environmental criteria into account in their portfolio construction (Barberis, Brière and Janin, 2021). Many initiatives have emerged, bringing together bankers or investors (such as the Climate Finance Leadership Initiative / Climate Action 100+ and Principles for Responsible Banking) for joint actions such as engagement or divestment campaigns (Brière, Pouget and Ureche-Rangau, 2019; and Dimson, Karakas and Li, 2020). Finally, individual investors' appetite for responsible investments has also increased considerably (Eurosif, 2020; Brière and Ramelli, 2021a).

This shift in investors' appetite has several consequences: (1) on the one hand, it **modifies investors' appreciation of climate risks**, e.g. the way in which they incorporate fundamental climate information into asset prices; and (2) on the other hand it **modifies the demand for green assets**, by changing preferences for different types of available assets, such as "green" and "brown" (Pastor *et al.*, 2020). Identifying these two components and their impact on prices is unfortunately very difficult because the two effects potentially have an impact on asset valuations. When we observe an increase in the price of green assets relative to conventional assets, we do not know whether this is related to the incorporation of fundamental information or to a change in investor preferences.

Our forthcoming research (Brière and Ramelli, 2021b) proposes a **unique way to estimate the changes in investors' preferences for green assets** that are not related to fundamental information, and to measure their impact on long-term equity returns. To do this, we evaluated **arbitrage activity on the climate ETFs market** and estimated the changes in investor appetite for this theme, which are not yet incorporated into the value of the underlying securities that make up these ETFs.

The underlying mechanism is as follows: while fundamental demand shocks are expected to affect the price of the ETF and the underlying assets equally, non-fundamental demand shocks can impact the two prices differently. This may be because the ETF market is more sensitive to the shock than the underlying assets or because it is subject to a greater shock. In either case, this non-fundamental demand shock drives the price of the ETF away from the underlying assets' prices and leads to an ETF premium (Brown, Davies, Ringgenberg, 2020). The authorised participants will then buy (or sell) ETF shares to correct the mispricing, generating observable flows on the ETFs. By measuring the difference between these arbitrage flows on green and conventional ETFs, we can thus obtain an estimate of the non-fundamental demand for green assets.

Our work shows that a standard non-fundamental demand shock points to **long-term outperformance of 60 bp over a six-month horizon of the best environmental-rated firms**, an impact of the same order of magnitude as the impact of fundamental climate news. Companies are also able to profit from this new funding, by **increasing their capital investment and their cash holdings**.

Beyond taking climate risks into account, changes in **investor preferences for green assets therefore have a significant impact on prices and long-term returns**. They can also shift investments from “brown” to “green” companies, which affects the cost of capital and, in turn, affects investment, in a potentially virtuous circle. The market for “green” assets is booming and is arguably not in equilibrium today. In a world where investor preferences are likely to remain heterogeneous, a key question is what new equilibrium is heading towards.

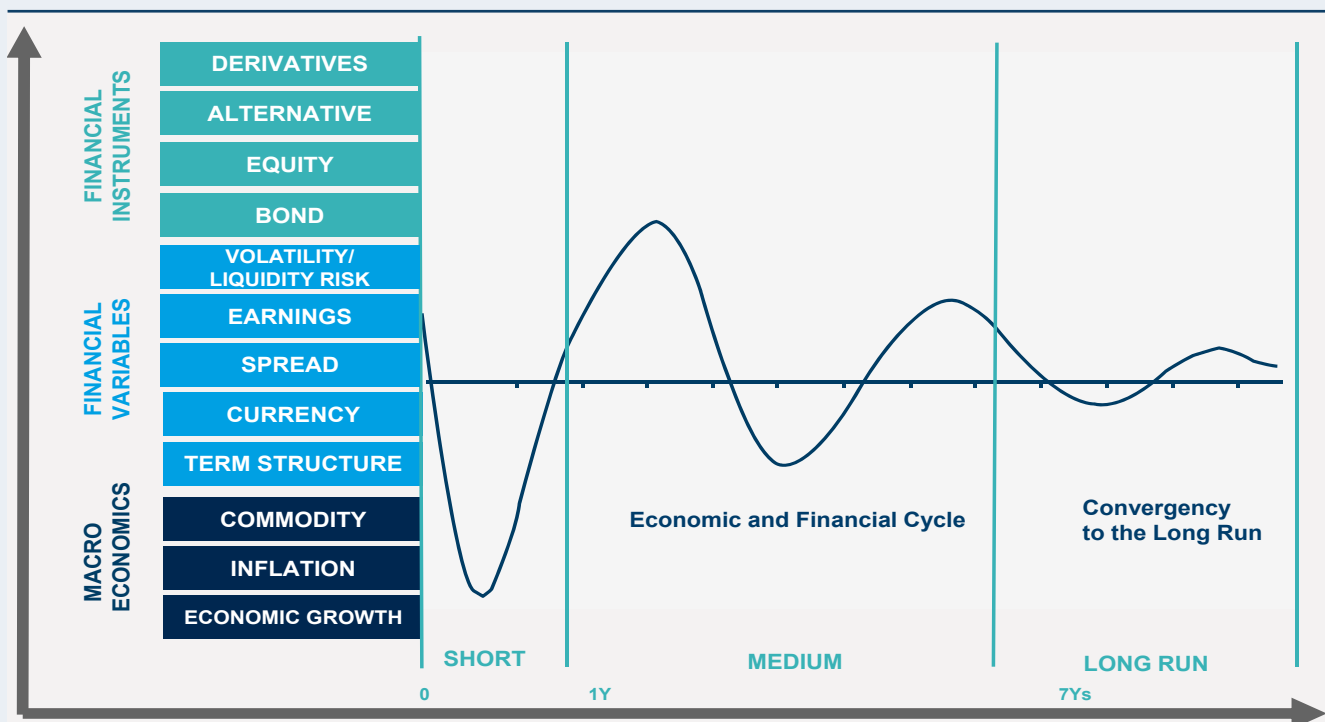
CASM: our medium- to long-term asset classes modelling framework

Jung Hun KIM MOON, CFA, Senior Quantitative Analyst

Tom WALSH, Senior Quantitative Analyst

We believe capital markets are not always efficient and that markets can and do deviate from estimates of long-term fair value. The first layer of diversification is via asset class and we have developed a disciplined approach to asset allocation which blends quantitative input and qualitative assessment to identify enhanced asset allocation portfolios. When modelling asset class returns, our integrated multivariate approach for modelling all the assets (and potential liabilities) focuses on the complex relationships between factors as correlations that are fundamental for asset allocation decisions, besides the investment horizon drives the selection of the variables. We rely on the theoretical framework, enhanced by best practices. **Our approach is dynamic to capture changes in correlation and volatility and is simulation based, where the focus is on articulating scenarios assessing probability. Returns can be broken down into macro and financial factors, asset class models are built coherently based on clear relations.**

Graph 20: Representation of the CASM model along the 2 dimensions on the vertical axis the cascade and on the horizontal the time horizon



CASM is the acronym of Cascade Asset Simulation Model. The architecture of CASM can be broadly defined in two dimensions. Our belief is that the first dimension is made up of a top-down “cascading” effect (hence the name of the simulation platform Cascade Asset Simulation Model), starting at the top with the various macroeconomic variables, reflected subsequently in the financial market risk factors. Initially proposed by Wilkie (1984) and further developed by Dempster et al. (2009), this cascade structure is at the root of the platform’s interdependent linear and non-linear relationships between any risk factors, which are ultimately used to define the levels of the different assets and financial instruments. The second dimension of CASM portrays a representation of the future evolution of the aforementioned “cascade” effect. The unique formulation allows for simulation of coherent scenarios between the different risk factors from the short to the long time horizon. In the short term, CASM blends econometric models and quantitative short-term outlooks from in-house practitioners. In the long term, we assume the market variables are subject to a mean reverting process, defined formally through structural break analysis and general equilibrium formulation. The short term evolves into long run state through the medium-term dynamic driven by business cycle variables.

Source: Amundi Asset Management – CASM model.

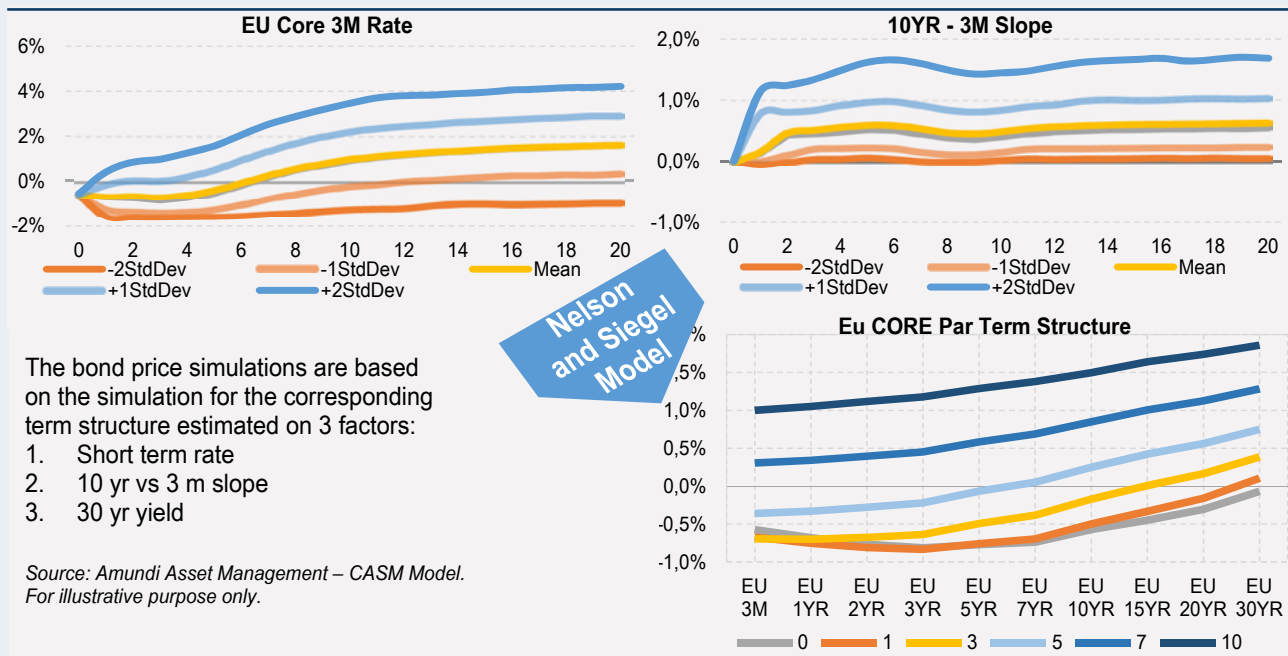
Appendix

The model under which we operate is called the **Cascade Asset Simulation Model (CASM)**, which was developed within Amundi in collaboration with Cambridge University professors. The CASM framework combines our short-term financial and economic outlook and incorporates medium-term dynamics into a long-term equilibrium, to simulate forward-looking returns for different asset classes over several horizons. CASM model parameters are estimated quarterly to incorporate data updates and our short-term outlook. The significance of the parameters is verified at least annually. CASM generates scenarios of asset prices and underlying economic and financial factors that ultimately lead to Amundi's expected returns. It is also used for deploying strategic asset allocation and asset-liability management analysis based on client-specific requirements.

The CASM model covers macro and financial variables for major regions, in particular, the US, UK, Eurozone, Japan, and Emerging Markets. As the platform is internally developed, it can be adapted to incorporate specific asset classes and inputs related to client specifications.

The process for generating the scenarios reflecting our view of economic and financial market trends is a close collaborative process between a wide variety of teams within Amundi. The estimation process starts from the **definition and discussion of the short- to medium-term outlooks for macro and financial variables** for each region under consideration (US, EU Core, UK, etc.). At each step of the process, results are analysed against stylised facts and coherence. This is a quantitative process based on quantitative inputs and it **iterates until adequate results are reached in terms of statistical accuracy**, then the results are assessed from a qualitative point of view (coherency checks). The estimation process for each region progresses from calibrating macro and financial variables to simulating asset prices, where asset prices granularity is regulated by the exposure to existing risk factors.

Graph 21: From cash rate, slope and 30-yr to Term structure simulation: a graphical representation



Price and returns are simulated by applying **Monte Carlo methodology**. Stochastic generation of sample scenarios of risk factors and resulting asset prices allow consideration of a wide range of possible prices and control the uncertainty surrounding these. The additional flexibility allows us to vary starting assumptions and the effect possible future developments have on the assets. This possibility enhances our ability to simulate coherent scenarios across any instrument in a multi-asset portfolio, a feature that is particularly relevant in institutional investors with long time horizons¹.

¹ See examples from Dempster et al. (2007) and (2009)

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