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Is diversification dead?

Executive summary



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60/40: It's not over until it's over. 2022 flipped the script on the traditional 60/40 portfolio split, with inflation and growth dynamics switching the traditionally negative correlation between equities and bonds into a positive one. But we do not expect this to last: With inflation levels likely to stabilize in the mid-run, inflation expectations remaining anchored by the still strong credibility of central banks and economic shocks expected to remain demand-driven, stock-bond correlations should return to negative territory, promising positive diversification effects.

Looking beyond stocks and bonds, private assets also offer a diversification benefit due to the long-term capital commitment – but only if held to maturity.

Ultimately, they are also exposed to similar fundamental economic dynamics as their traded counterparts.

International diversification helps, especially in a world marked by growing divergence, fragmentation, and protectionism. But it is not enough to insulate portfolios from extreme 1% tail events, particularly when downturns are global.

Sector diversification is also key, considering the increased sectorial concentration risk of most equity and corporate markets. A good sectorial split is a useful downside protection tool, albeit not much of a return enhancer.

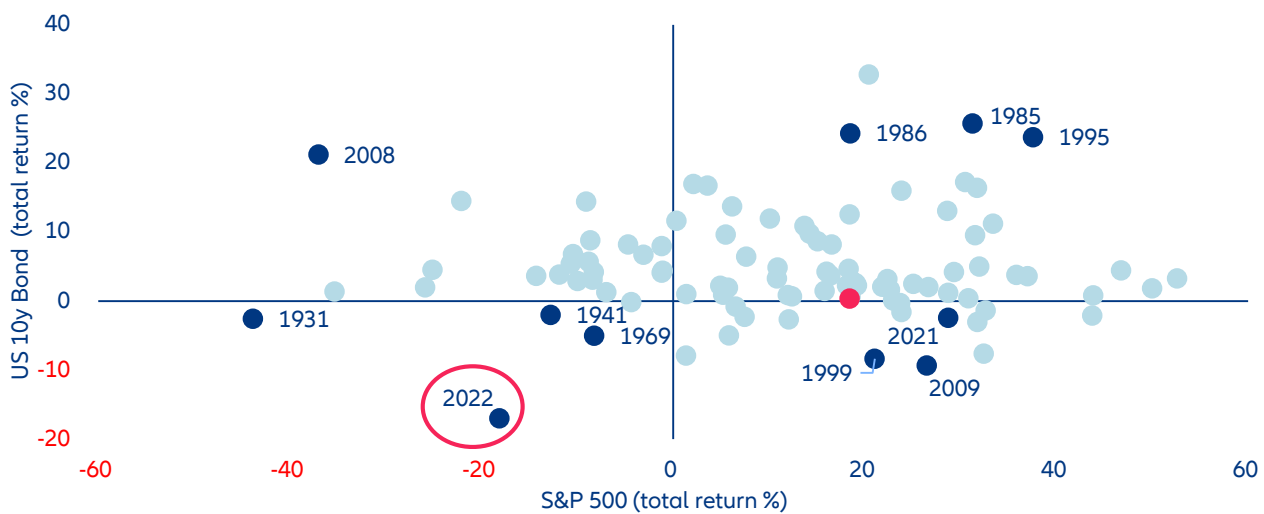


60/40: It's not over till it's over

Since the 1950s, equities have driven investment returns while government bonds provided downside protection: Investors were willing to sacrifice potential gains to limit their downside risk if markets happened to take a wrong turn. But the turn of the century brought in a significant shift: Bonds began yielding positive returns when equity markets were performing poorly. This new negative

correlation intensified the diversifying effect, reinforcing the traditional 60/40 portfolio split: holding 60% of investments in stocks and 40% in bonds to keep losses in check. Then 2022 flipped the script. The correlation between equities and bonds suddenly switched back to positive territory, catching many investors on the wrong foot (Figure 1).

Figure 1: US Equities vs 10y government bonds total return (%)



Sources: Refinitiv Datastream, Allianz Research

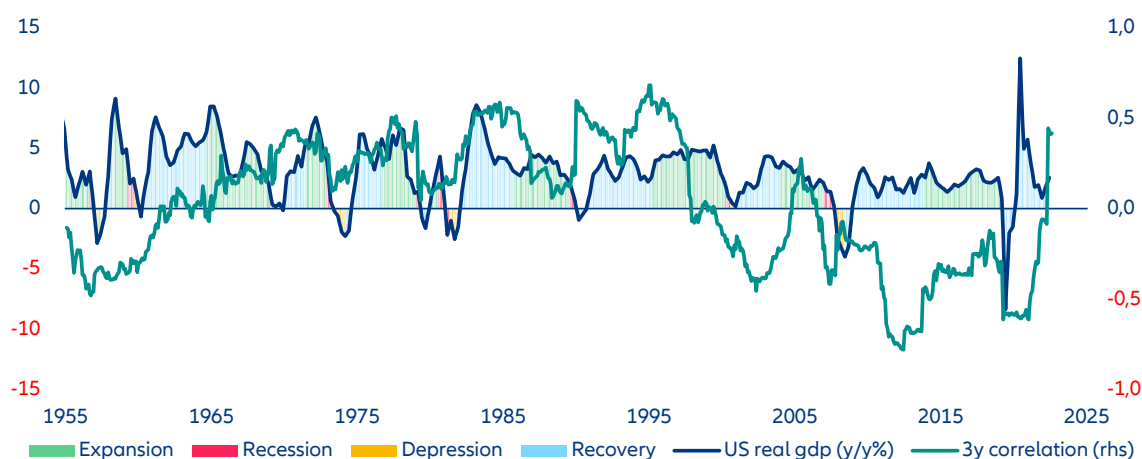
Note: Bonds refers to long-term US treasuries; Red dot indicates 2023

Why did the 60/40 portfolio break down? One explanation could lie in the phases of the business cycle. In Figure 2 and 3, we align a four-stage business cycle model with the peaks and troughs of business cycles dated by the US National Bureau of Economic Research (NBER). The approximation suggests that the positive diversification effect from the negative correlation between equity and bond returns tends to appear during economic contractions. In these periods, central banks lower interest rates, leading to a downward shift in the yield curve, coupled with a decline in equity markets. The biggest issue with this approach is that it fails to explain 2022, a year of positive correlations and no diversification. For reference,

only the business-cycle dating approach suggests that the US is currently in a recovery/expansion phase, setting the stage for positive returns across the board.

Moreover, this model does not reveal much about the factors that drive correlation dynamics, and even misses changes in correlations from positive to negative or vice versa (as seen in 2022). It also assumes that economic and business cycles remain comparable across time, regardless of the underlying economic forces at play or whether a recession emerges from internal or external factors.

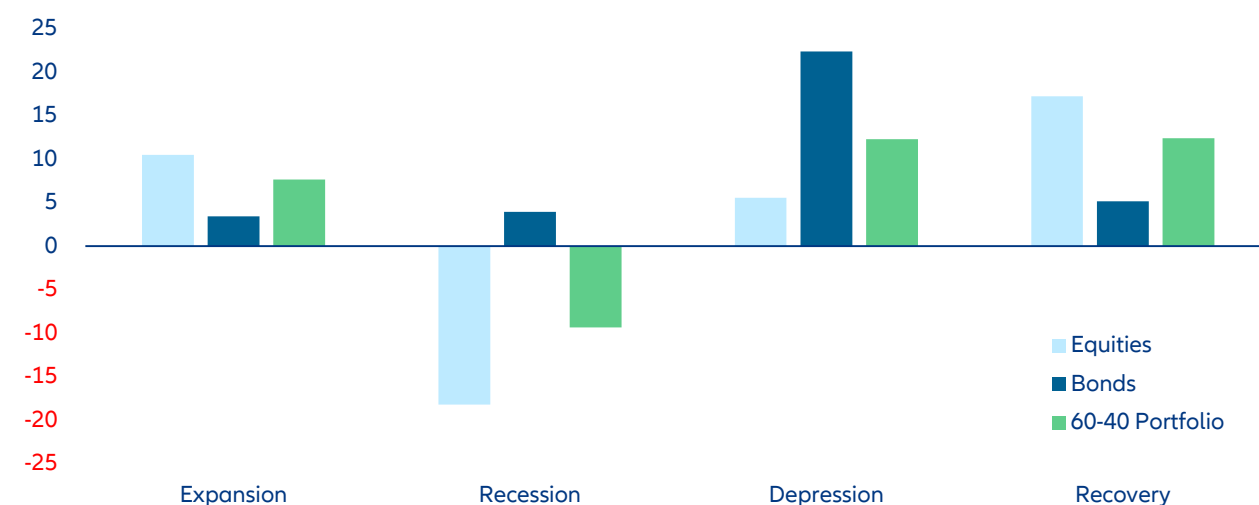
Figure 2: Business cycle split for real GDP and 3y correlation based on NBER business cycle dating



Sources: NBER, Refinitiv Datastream, Allianz Research

Note: Expansion-Recovery and Recession-Depression turning points are defined as the midpoint between peak-to-trough and vice versa.

Figure 3: Annualized total returns through different business cycle regimes (%)



Sources: Refinitiv Datastream, Allianz Research

Note: Bonds refers to long-term US treasuries

For a more nuanced approach, we can use a more detailed Hidden Markov Model (HMM)¹, which offers six distinct stages within the business cycle (Table 1):

- *Inflated growth*: GDP, inflation and industrial production growth performing positively and above trend; unemployment decreases; the Fed hikes interest rates.
- *Deflated growth*: GDP and industrial production growth perform positively and above trend; inflation is positive but muted; unemployment decreases; the Fed does not move.
- *Muddle through*: GDP, inflation and industrial production growth remain positive but below trend; unemployment decreases; the Fed does not move.
- *Stagflation*: GDP and industrial production growth are slightly below trend; inflation is far above trend; unemployment rises; the Fed aggressively hikes interest rates.
- *Recession*: GDP and industrial production growth are strongly below trend; inflation is at trend; unemployment rises; the Fed aggressively cuts interest rates.
- *Crisis*: GDP, inflation, and industrial production are well below trend; unemployment is strongly rising; the Fed aggressively cuts interest rates.

This methodology yields intriguing findings, with one noteworthy outcome being the bifurcation of economic downturns into two distinct categories: recessions and crises. This differentiation aligns with our intuitive understanding, reflecting how the severity and underlying economic dynamics of negative-performing economic landscapes have evolved over time. Furthermore, this approach introduces the historically infrequent yet significant “stagflation” scenario, which has garnered the attention of economic and market experts as a potential

risk for the past couple of years. Under this framework, the US economy appears to be in the “inflated growth” phase, which has historically exhibited a positive mid-term correlation between equities and bonds (Figure 4 & 5).

Next, we decompose long-term correlations using growth and inflation dynamics² (based on AQR’s “A changing Stock-Bond Correlation” publication) to see if changes in the interplay between these two economically relevant indicators have had something to do with the change in diversification effectiveness. The choice of the variables³ relies on the fact that accelerating growth tends to boost equity prices by elevating future cash flow expectations. However, this upward growth momentum is also likely to trigger a decline in bond prices due to heightened short-term rate expectations influenced by expected actions of central banks and the probable increase in real interest rates. Consequently, the growth impact on stocks and bonds is expected to move in opposite directions (in price terms).

Meanwhile, positive inflation data tends to diminish nominal cash flows for bonds and raise short-term interest rate expectations, thus leading to price declines. For equities, however, the jury is out as historical patterns vary. This results in stocks and bonds sharing similar sensitivities to inflation-related developments in some cases while sharing opposite sensitivities in other ones. Nonetheless, on a long enough time scale, the relationship seems to skew towards a positive relationship of both asset classes to inflation surprises (Figure 6).

Table 1: Business cycle phases based on HMM model (Z-scores)

| | Real GDP | CPI | Industrial Production | Unemployment | Fed Funds |
|------------------------|----------|------|-----------------------|--------------|-----------|
| Inflated growth | 0,6 | 0,2 | 0,5 | -0,4 | 0,6 |
| Deflated growth | 0,4 | -0,5 | 0,4 | -0,1 | -0,3 |
| Muddle through | -0,3 | -0,5 | -0,2 | -0,4 | 0,1 |
| Stagflation | -0,1 | 2,2 | -0,1 | 0,2 | 1,1 |
| Recession | -0,5 | 0,3 | -0,5 | 0,4 | -0,7 |
| Crisis | -1,1 | -0,2 | -1,2 | 0,9 | -0,5 |

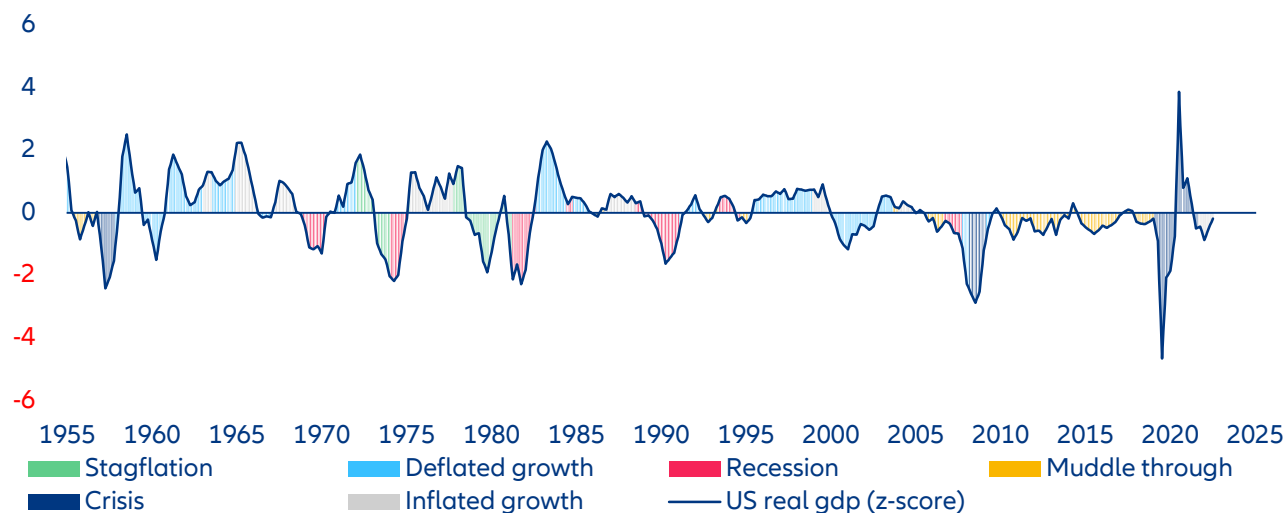
Sources: Refinitiv Datastream, Allianz Research

1 A Hidden Markov Model (HMM) is a probabilistic model that consists of a sequence of hidden states, each of which generates an observation. The hidden states are usually not directly observable and the goal of HMM is to estimate the sequence of hidden states based on a sequence of observations (Journal of machine learning)

2 The Journal of Portfolio Management (volume 49 number 4 – March 2023)

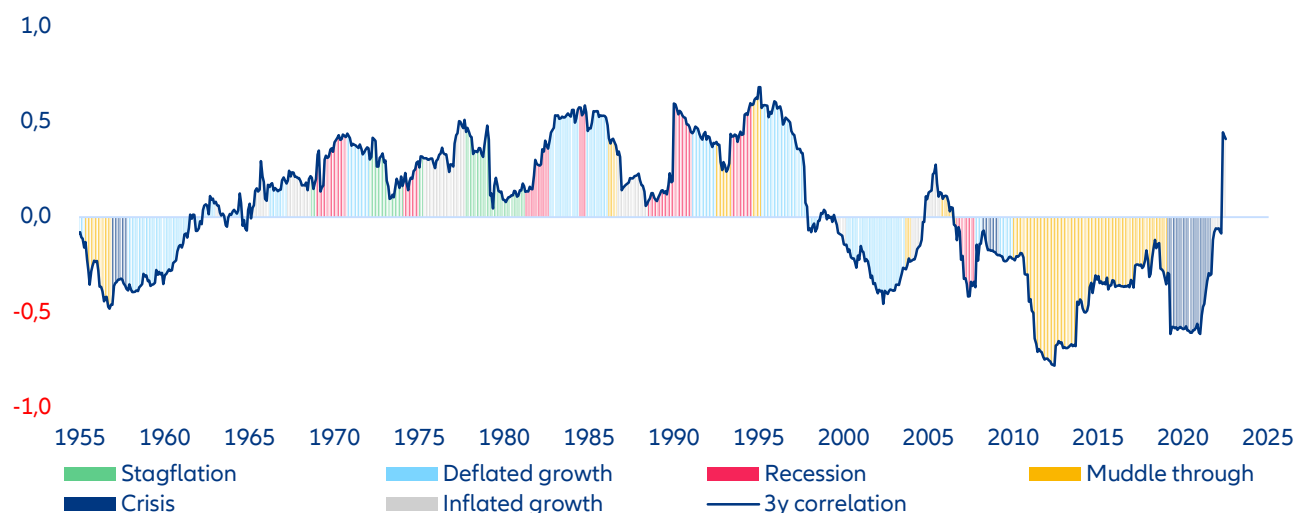
3 To capture structural changes in diversification regimes, we also include the correlation between growth and inflation to grasp the transition from the cost-push inflation shocks.

Figure 4: Business cycle phases based on HMM model



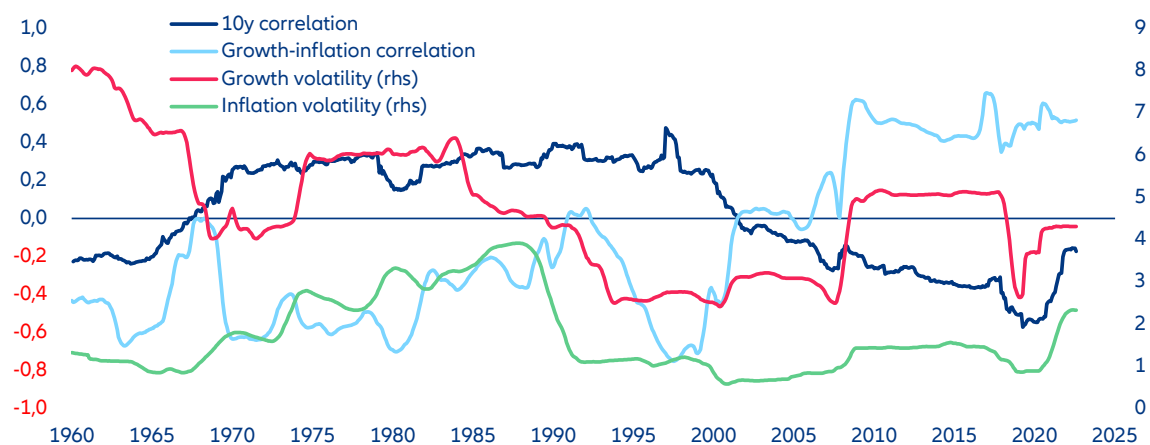
Sources: Refinitiv Datastream, Allianz Research

Figure 5: Business cycle phases and 3-year rolling correlation



Sources: Refinitiv Datastream, Allianz Research

Figure 6: 10y equity-bond correlation vs growth and inflation volatility



Sources: Refinitiv Datastream, Allianz Research

The results of the model suggest that fluctuations in inflation volatility are the primary driving force behind the correlation patterns of equity and bond returns over time, while growth volatility alone plays a minimal role. However, alterations in the interdependencies between growth and inflation also play a pivotal role in inducing structural shifts within correlation regimes. Unless there is a resurgence in cost-push inflation shocks and the ensuing monetary policy responses akin to the trends observed in the 1970s and 1980s, markets are likely to revert to a state resembling the post-2000 era. In this scenario, the negative correlation between equities and bonds would persist. But investors should closely monitor the potential emergence of “stagflationary” scenarios or rapid inflation upsurges, which could once again disrupt the prevailing negative correlation and associated positive diversification effect ⁴ (Table 2 and Figure 7).

What about the medium to long term? Historically, demand-driven shocks have been much more common than the supply-driven ones seen in 2022. Demand-driven

shocks are relatively more straightforward for central bankers to address as growth and inflation dynamics tend to follow a predictable trajectory, both moving in the same direction (decreasing inflation and growth). Translating this concept into the model’s coefficients, it implies that, on average, the components of growth volatility and growth-inflation correlation are prone to offsetting inflation volatility, consequently engendering a structurally negative correlation between stocks and bonds.

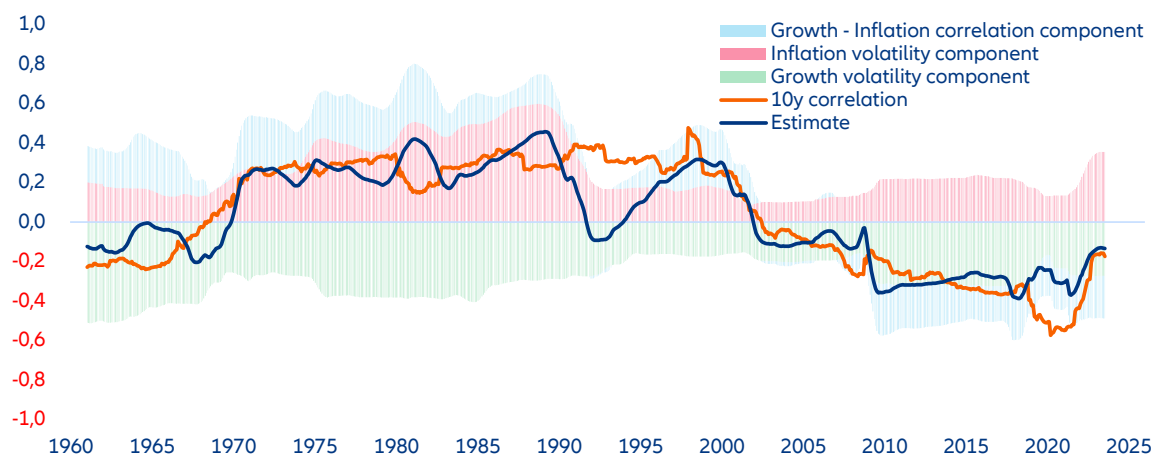
Moreover, as central banks reaffirm their goal of maintaining modest inflation rates (around 2%) to nurture growth, long-term inflation expectations are anchored. This reduces inflation volatility, thereby fostering negative correlations or a favorable diversification landscape. As a result, we believe the negative correlation between equity and bond returns, and consequently the positive diversification effect, is here to stay over the medium to long term (Figure 8).

Table 2 Model coefficients

| | Growth-inflation correlation | Inflation volatility | Growth volatility |
|-------------|------------------------------|----------------------|-------------------|
| coefficient | -0,06 | 0,15 | -0,42 |
| p-value | 0,00 | 0,01 | 0,01 |

Sources: Refinitiv Datastream, Allianz Research.

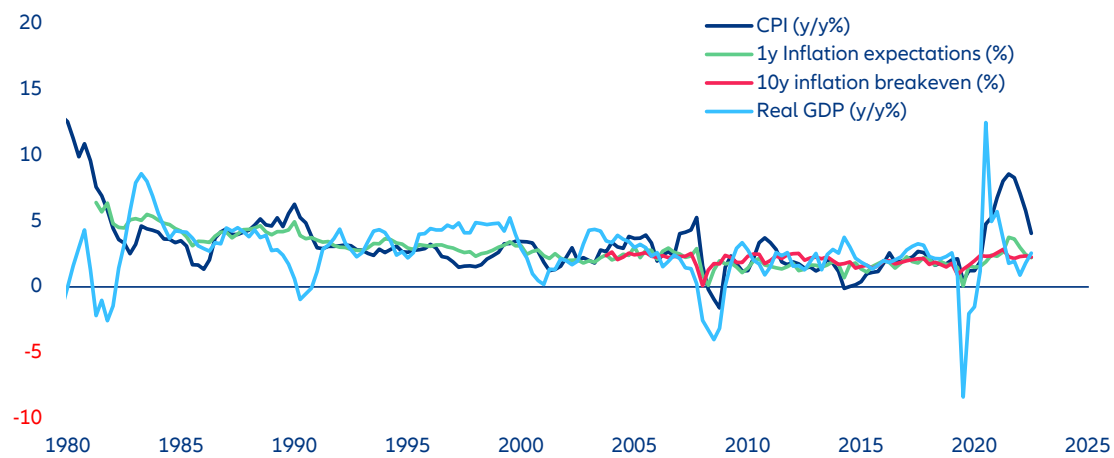
Figure 7: 10y correlation decomposition based on inflation and growth volatility



Sources: Refinitiv Datastream, AQR, Allianz Research

⁴ As shown in the journal of portfolio management article this approach displays good results across geographies

Figure 8: Business cycle phases and 3-year rolling correlation



Sources: Refinitiv Datastream, Allianz Research.

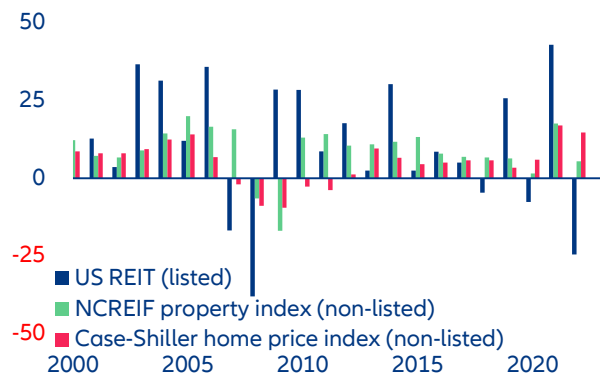


Unconventional guardians of downside risk

There are many ways to diversify a portfolio, including moving towards more complex assets, moving across the yield curve, using derivatives, investing in gold and other precious materials or even art. In this report, we look at three options: private assets, geographical and sector diversification.

Attracted by the prospect of higher returns in a low-yield environment, investors have increasingly turned to “illiquid” or private assets in recent years. But do these assets really help to diversify portfolios? On paper, the answer is yes. This strategy has been considerably successful and resilient, especially in times of heightened uncertainty. But a significant portion of the realized diversification benefit is supported by the lack of frequent market-based valuations or mark-to-market pricing of such assets and only holds if the capital commitment is kept throughout the investment period, and for as long as the investment vehicle or counterpart does not default. On the contrary, if the asset is sold in the secondary market, the diversification effect would immediately disappear as there would be an immediate mark-to-market realization, making the value of the asset converge towards the performance of its listed proxies. Take for example traded and non-traded real estate and private equity assets: Non-listed or private assets tend to bear downside risks better than their traded counterparts while providing, on average, a more positively skewed return profile due to their long-term capital commitment (Figure 9 & 10).

Figure 9: US real estate listed vs non-listed (yearly performance %)

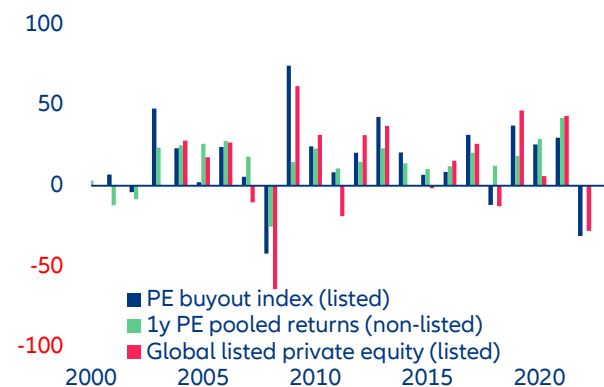


Sources: Refinitiv Datastream, Allianz Research.

Privately traded assets are not the holy diversification grail since they are also ultimately exposed to similar fundamental economic dynamics as their traded counterparts. Macroeconomic factors such as inflation, growth and monetary policy are likely to exert pressure on the eventual returns of private assets, albeit possibly with a delay. As a result, in prolonged periods of sluggish growth and lackluster market performance, counterparty risk can arise and the “traded” underperformance is likely to feed through into private asset valuations. However, due to policy interventions and the policy perma-put protection experienced during the last decade, it seems reasonable to believe that such a situation is highly unlikely as policymakers are likely to step in to avoid protracted crises.

Commodities are also increasingly used to diversify portfolios since they have shown relatively low correlations with both equities and bonds on average, and offer a higher capacity for diversification especially in periods of inflation uncertainty. However, volatility and heterogeneity are high, which makes exploiting the diversifying effect more complicated. For example, one would have to overweight gold and precious metals exposure during market downturns while overweighting oil & gas or food-related commodities during rapidly inflationary or “stagflationary” stages (Figure 11).

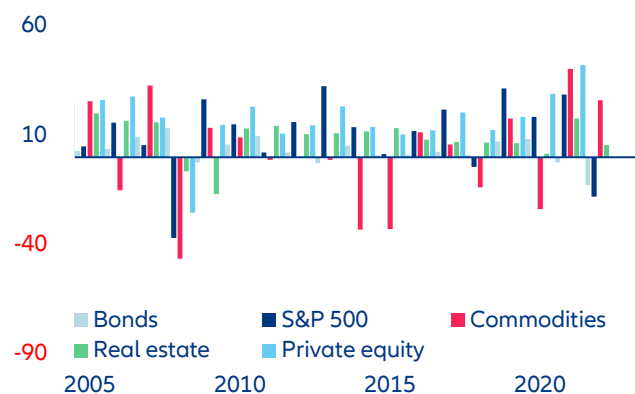
Figure 10: US private equity (PE) listed vs non-listed (yearly performance %)



Sources: Refinitiv Datastream, Allianz Research.

Translating this line of thinking into the diversification board, it is interesting to single out that during the decade of the 1990s, real estate seems to have been the biggest diversifier while commodities and gold played a key role only when there was either market and economic turmoil or inflationary shocks were on the way. This has now changed, especially since 2008, with real estate losing a bit of its diversification power and government bonds being the ultimate diversifier against other assets (Table 3 & 4). Building on that, it can also be confirmed that alternative or private assets seem not to fully hedge against market corrections as they follow the same directionality as their traded counterparts. Nevertheless, they do offer a soft diversification effect by consistently producing less volatility than their traded counterparts throughout the different business cycle phases. All in all, government bonds are set to remain one of the biggest diversifiers for market risk, with real estate being the king of soft diversification.

Figure 11: US private equity (PE) listed vs non-listed (yearly performance %)



Sources: Refinitiv Datastream, Allianz Research.

Table 3: Cross-asset yearly performance (%)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Cash | 5 | 6 | 4 | 2 | 1 | 1 | 3 | 5 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 2 |
| Government bonds | -2 | 15 | 8 | 13 | 3 | 4 | 3 | 4 | 9 | 13 | -2 | 6 | 10 | 2 | -3 | 5 | 1 | 1 | 2 | 1 | 7 | 8 | -2 | -13 |
| Inflation linked | | | 42 | 67 | 24 | 21 | 6 | 1 | 25 | -4 | 22 | 11 | 23 | 11 | -13 | 6 | -2 | 7 | 5 | -2 | 13 | 16 | 8 | -16 |
| ABS/ MBS | 3 | 10 | 8 | 8 | 3 | 3 | 3 | 5 | -1 | -21 | 19 | 12 | 4 | 6 | 1 | 3 | 1 | 3 | 3 | 2 | 6 | 5 | 0 | -7 |
| Corporates - IG | -2 | 9 | 11 | 10 | 8 | 5 | 2 | 4 | 5 | -7 | 20 | 10 | 8 | 10 | -1 | 8 | -1 | 6 | 6 | -2 | 14 | 10 | -1 | -15 |
| Corporates - HY | 3 | -5 | 5 | -2 | 28 | 11 | 3 | 12 | 2 | -26 | 58 | 15 | 4 | 16 | 7 | 3 | -5 | 17 | 7 | -2 | 14 | 6 | 5 | -11 |
| Infrastructure Debt | | | | | | 10 | 0 | 7 | 8 | -5 | 22 | 5 | 8 | 11 | 0 | 4 | -6 | 8 | 10 | -5 | 11 | 12 | -2 | -16 |
| CLO | | | | | | | | | | | | | | | | | | 10 | 9 | 0 | 9 | 7 | 4 | -3 |
| Public Equity | 21 | -9 | -12 | -22 | 29 | 11 | 5 | 16 | 5 | -37 | 26 | 15 | 2 | 16 | 32 | 14 | 1 | 12 | 22 | -4 | 31 | 18 | 29 | -18 |
| Private Equity | 44 | 3 | -12 | -8 | 24 | 25 | 26 | 28 | 18 | -25 | 15 | 23 | 11 | 15 | 23 | 14 | 10 | 12 | 20 | 12 | 18 | 29 | 42 | -18 |
| Real Estate | 11 | 12 | 7 | 7 | 9 | 14 | 20 | 17 | 16 | -6 | -17 | 13 | 14 | 11 | 11 | 12 | 13 | 8 | 7 | 7 | 6 | 2 | 18 | 6 |
| Commodities | 41 | 50 | -32 | 32 | 21 | 17 | 26 | -15 | 33 | -46 | 13 | 9 | -1 | 0 | -1 | -33 | -33 | 11 | 6 | -14 | 18 | -24 | 40 | 26 |
| Gold | 1 | -6 | 1 | 24 | 22 | 5 | 17 | 24 | 32 | 3 | 27 | 29 | 11 | 6 | -27 | -2 | -10 | 9 | 13 | -2 | 19 | 25 | -4 | 0 |

Sources: Refinitiv Datastream, Allianz Research.

Table 4: Post-2000s correlation matrix of monthly returns

| | Cash | Government bonds | Corporates - IG | Corporates - HY | Public Equity | Real Estate | Commodities | Gold |
|------------------|------|------------------|-----------------|-----------------|---------------|-------------|-------------|------|
| Cash | | | | | | | | |
| Government bonds | 0,1 | | | | | | | |
| Corporates - IG | 0,0 | 0,6 | | | | | | |
| Corporates - HY | -0,1 | -0,1 | 0,6 | | | | | |
| Public Equity | -0,1 | -0,2 | 0,3 | 0,7 | | | | |
| Real Estate | -0,2 | -0,2 | -0,1 | 0,0 | 0,1 | | | |
| Commodities | -0,1 | -0,2 | 0,1 | 0,4 | 0,4 | 0,2 | | |
| Gold | 0,1 | 0,3 | 0,3 | 0,1 | 0,0 | -0,1 | 0,2 | |

Sources: Refinitiv Datastream, Allianz Research

Note: IG – Investment Grade; HY – High Yield

Does going global help?

Diversifying investment portfolios via exposure to different geographical regions can complement diversifying by asset class, even though financial globalization and increasingly interconnected markets have somewhat reduced the benefits. Except for the US – given both its historically superior returns and its role as the source of global financial crises – the rationale for geographical diversification is still relevant for investors worldwide. Though every market is susceptible to reverberations from US-based financial upheavals, economic and market crises originating elsewhere often lack a comprehensive global or even regional impact as economies continue to exhibit significant disparities in terms of development, specialization, demographics, climate, geopolitics and geography. Moreover, the trajectory of globalization seems to have reached its zenith, with various factors indicating a potential shift in the status quo. Whether this denotes a localized peak or a more absolute turning point, it is evident that a more fragmented global landscape

is likely to yield ever diverging returns across markets, making geographical diversification more important.

There are two possible approaches to look at the effects of geographical diversification: The first is to assess bond-equity diversification in both advanced economies and emerging markets. The second centers on examining the effectiveness of diversification across various countries. We opt for the latter approach, especially since the current diversification status quo of negatively correlated stocks and bonds seems to apply for most economies, consequently we focus on the evaluation of equities and sovereign bonds as separate entities. Does investing across geographic regions yield higher and more stable returns from a risk adjusted perspective? Ex-ante, the response seems straightforward: Such an approach would have generated higher returns than investing solely in underperforming regions while falling short of the gains from investing exclusively in the outperforming regions.

Table 5: Correlations between the MSCI USD monthly total returns from equity markets. The lower triangle refers to the period between 1970 (or later, see legend) until 1999, and the upper triangle to the period since 2000

| | | Upper triangular: 2000 - Today | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|-----|---------|-----|-----|-----|-----|-----------|-----|-----|-----|-----|
| | | AES | | | | | | | | | | LatAm | | | EM Asia | | | | | EM Europe | | | | |
| | | US | DE | FR | IT | ES | NL | UK | AU | JP | CN | BR | MX | CL | CH | KO | TA | IN | MY | TH | ID | TK | RS | |
| Lower triangular: 1970 (or earliest since then) - 1999 | AES | US | | 0,8 | 0,8 | 0,7 | 0,7 | 0,8 | 0,8 | 0,8 | 0,7 | 0,8 | 0,6 | 0,7 | 0,5 | 0,5 | 0,7 | 0,6 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 |
| | | DE | 0,4 | | 0,9 | 0,9 | 0,8 | 0,9 | 0,9 | 0,8 | 0,6 | 0,7 | 0,6 | 0,7 | 0,6 | 0,6 | 0,7 | 0,6 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,5 |
| | | FR | 0,4 | 0,6 | | 0,9 | 0,9 | 0,9 | 0,9 | 0,8 | 0,6 | 0,8 | 0,6 | 0,7 | 0,6 | 0,5 | 0,7 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 |
| | | IT | 0,2 | 0,4 | 0,4 | | 0,9 | 0,8 | 0,8 | 0,7 | 0,6 | 0,7 | 0,6 | 0,7 | 0,5 | 0,5 | 0,6 | 0,5 | 0,6 | 0,5 | 0,5 | 0,4 | 0,5 | 0,5 |
| | | ES | 0,3 | 0,4 | 0,4 | 0,4 | | 0,8 | 0,8 | 0,7 | 0,6 | 0,7 | 0,6 | 0,7 | 0,5 | 0,5 | 0,6 | 0,5 | 0,6 | 0,5 | 0,5 | 0,4 | 0,5 | 0,5 |
| | | NL | 0,6 | 0,7 | 0,6 | 0,4 | 0,4 | | 0,8 | 0,8 | 0,6 | 0,7 | 0,6 | 0,7 | 0,5 | 0,6 | 0,7 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 |
| | | UK | 0,5 | 0,4 | 0,5 | 0,3 | 0,4 | 0,6 | | 0,8 | 0,6 | 0,8 | 0,7 | 0,7 | 0,6 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,6 | 0,5 | 0,5 | 0,5 |
| | | AU | 0,5 | 0,3 | 0,4 | 0,2 | 0,3 | 0,4 | 0,5 | | 0,6 | 0,8 | 0,7 | 0,7 | 0,6 | 0,6 | 0,7 | 0,6 | 0,7 | 0,6 | 0,6 | 0,6 | 0,5 | 0,4 |
| | | JP | 0,3 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,3 | | 0,6 | 0,5 | 0,6 | 0,4 | 0,5 | 0,6 | 0,5 | 0,5 | 0,4 | 0,5 | 0,4 | 0,4 | 0,5 |
| | | CN | 0,7 | 0,3 | 0,4 | 0,3 | 0,3 | 0,5 | 0,5 | 0,6 | 0,3 | | 0,7 | 0,7 | 0,6 | 0,6 | 0,7 | 0,6 | 0,6 | 0,5 | 0,6 | 0,5 | 0,5 | 0,6 |
| Lower triangular: 1970 (or earliest since then) - 1999 | LatAm | BR | 0,2 | 0,1 | 0,1 | 0,1 | 0,3 | 0,2 | 0,1 | 0,2 | 0,2 | 0,2 | | 0,7 | 0,7 | 0,5 | 0,6 | 0,5 | 0,6 | 0,5 | 0,5 | 0,4 | 0,5 | 0,5 |
| | | MX | 0,4 | 0,2 | 0,3 | 0,2 | 0,3 | 0,2 | 0,2 | 0,3 | 0,2 | 0,4 | 0,3 | | 0,6 | 0,4 | 0,7 | 0,5 | 0,6 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 |
| | | CL | 0,3 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 | 0,1 | 0,2 | 0,1 | 0,4 | 0,3 | 0,3 | | 0,5 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 | 0,3 |
| | EM Asia | CH | 0,4 | 0,2 | 0,2 | 0,0 | 0,2 | 0,2 | 0,3 | 0,3 | 0,0 | 0,4 | 0,3 | 0,4 | 0,4 | | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,4 | 0,5 | 0,4 |
| | | KO | 0,2 | 0,1 | 0,1 | 0,2 | 0,2 | 0,1 | 0,2 | 0,3 | 0,4 | 0,2 | 0,0 | 0,2 | 0,1 | 0,1 | | 0,7 | 0,6 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 |
| | | TA | 0,2 | 0,2 | 0,2 | 0,1 | 0,2 | 0,2 | 0,1 | 0,2 | 0,2 | 0,2 | 0,1 | 0,3 | 0,3 | 0,6 | 0,2 | | 0,6 | 0,6 | 0,6 | 0,4 | 0,4 | 0,5 |
| | | IN | 0,1 | 0,0 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,2 | 0,3 | 0,2 | 0,4 | 0,2 | 0,1 | 0,3 | | 0,6 | 0,6 | 0,6 | 0,5 | 0,4 |
| | | MY | 0,4 | 0,3 | 0,3 | 0,2 | 0,3 | 0,5 | 0,4 | 0,3 | 0,3 | 0,5 | 0,1 | 0,3 | 0,3 | 0,5 | 0,3 | 0,3 | 0,2 | | 0,5 | 0,5 | 0,4 | 0,3 |
| | EM Europe | TH | 0,4 | 0,3 | 0,3 | 0,2 | 0,3 | 0,3 | 0,3 | 0,4 | 0,3 | 0,4 | 0,2 | 0,4 | 0,4 | 0,5 | 0,5 | 0,4 | 0,1 | 0,6 | | 0,6 | 0,5 | 0,4 |
| | | ID | 0,3 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,1 | 0,2 | 0,1 | 0,3 | 0,1 | 0,2 | 0,2 | 0,4 | 0,3 | 0,1 | 0,2 | 0,4 | 0,4 | | 0,4 | |
| | | TK | 0,1 | 0,2 | 0,1 | 0,1 | 0,1 | 0,2 | 0,1 | 0,0 | 0,1 | 0,1 | 0,2 | 0,1 | 0,1 | 0,1 | 0,0 | 0,1 | 0,2 | 0,2 | 0,1 | 0,1 | | 0,4 |
| | | RS | 0,4 | 0,3 | 0,4 | 0,3 | 0,3 | 0,4 | 0,4 | 0,3 | 0,3 | 0,5 | 0,6 | 0,5 | 0,7 | 0,3 | 0,1 | 0,6 | 0,3 | 0,5 | 0,3 | 0,6 | 0,5 | |

Sources: Refinitiv Datastream, Allianz Research. Notes: 1\ For the lower triangle, the starting date is the newest between availability of both countries: AEs 1970, China and India 1993, Russia 1995 and the rest 1988. 2\ On the upper triangle, the correlations with the Russian equities end in February 2022. 3\ China A shares used for China.

From an asset perspective, looking at historical behavior across countries over the past five decades, we find a consistent uptick in correlations among various markets. Notably, the EUR-denominated countries within our sample exhibit the highest correlations, aligning with expectations due to the synchronization prompted by the introduction of the single currency and common Eurozone policies. Among emerging markets, Mexico and South Korea stand out with strong correlations to advanced economies, while Indonesia, Turkey and Russia exhibit relatively lower degrees of correlation (Table 5 & 6).

Diversification matters the most during market downturns. In this regard, our analysis shows that geographical

diversification has suffered a further erosion. Table 7 & 8 shows how frequently the most unfavorable monthly returns in the US equity market (represented by the 1st decile of the distribution) have aligned with the poorest performance (once again, the 1st decile of the distribution). Notably, over 80% of instances where the US equity market experienced its worst 10% of monthly returns since 1999 coincided with the lowest 10% monthly performances of the German equity market, hinting that when things go south, relying on geographical diversification may not work.

Table 6: European equity total yearly return performance since 1995 (in % and EUR)

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Europe | 14 | 27 | 45 | 20 | 36 | -2 | -15 | -30 | 16 | 13 | 27 | 20 | 3 | -43 | 33 | 12 | -8 | 18 | 21 | 7 | 9 | 3 | 11 | -10 | 27 | -3 | 26 | -9 |
| Eurozone | 9 | 28 | 42 | 30 | 40 | -2 | -18 | -33 | 20 | 13 | 26 | 23 | 9 | -44 | 29 | 3 | -14 | 21 | 24 | 5 | 11 | 5 | 13 | -12 | 26 | 0 | 23 | -12 |
| Germany | 8 | 23 | 46 | 20 | 41 | -10 | -18 | -43 | 37 | 8 | 27 | 22 | 23 | -43 | 23 | 17 | -15 | 30 | 27 | 3 | 10 | 7 | 13 | -18 | 24 | 3 | 14 | -16 |
| UK | 13 | 33 | 43 | 9 | 32 | -6 | -9 | -28 | 10 | 11 | 24 | 17 | -2 | -46 | 39 | 16 | 1 | 14 | 15 | 8 | 3 | 3 | 7 | -10 | 23 | -18 | 28 | 1 |
| France | 5 | 29 | 30 | 32 | 52 | 2 | -18 | -33 | 17 | 11 | 27 | 21 | 3 | -40 | 29 | 3 | -13 | 21 | 22 | 4 | 12 | 9 | 14 | -7 | 29 | -4 | 30 | -7 |
| Italy | -1 | 9 | 59 | 43 | 17 | 6 | -22 | -21 | 16 | 24 | 19 | 20 | -3 | -47 | 24 | -8 | -20 | 12 | 16 | 4 | 15 | -7 | 14 | -13 | 31 | -6 | 25 | -8 |
| Spain | 21 | 51 | 48 | 40 | 23 | -10 | -6 | -28 | 32 | 20 | 21 | 34 | 12 | -37 | 41 | -16 | -8 | 3 | 27 | 9 | -6 | 3 | 12 | -11 | 15 | -12 | 9 | -1 |
| Poland | -9 | 66 | -10 | -13 | 54 | 2 | -23 | -14 | 13 | 50 | 44 | 25 | 15 | -52 | 38 | 24 | -27 | 39 | -1 | -2 | -16 | 4 | 36 | -8 | -4 | -19 | 17 | -22 |
| Netherlands | 19 | 39 | 46 | 15 | 26 | 3 | -17 | -32 | 8 | 5 | 32 | 18 | 9 | -45 | 39 | 9 | -9 | 19 | 26 | 10 | 13 | 8 | 18 | -9 | 35 | 14 | 37 | -23 |
| Belgium | 18 | 22 | 34 | 56 | 1 | -11 | -5 | -27 | 14 | 34 | 27 | 23 | -11 | -64 | 54 | 7 | -7 | 39 | 23 | 19 | 26 | -4 | 5 | -22 | 24 | -15 | 11 | -6 |
| Sweden | 25 | 45 | 32 | 6 | 112 | -16 | -23 | -41 | 38 | 27 | 28 | 29 | -8 | -47 | 61 | 44 | -12 | 22 | 21 | 6 | 7 | 5 | 7 | -8 | 25 | 14 | 33 | -23 |
| Czech Republic | -25 | 37 | -10 | -7 | 23 | 9 | 3 | 22 | 38 | 74 | 68 | 20 | 41 | -40 | 24 | 5 | -2 | 2 | -12 | 11 | -7 | 0 | 22 | 3 | 9 | -11 | 70 | -6 |
| Greece | 9 | 11 | 57 | 76 | 76 | -36 | -26 | -37 | 41 | 36 | 34 | 21 | 20 | -64 | 21 | -41 | -61 | 4 | 46 | -32 | -57 | -9 | 13 | -33 | 46 | -33 | 16 | 7 |
| Portugal | -6 | 42 | 74 | 19 | 7 | -4 | -17 | -26 | 20 | 17 | 14 | 33 | 13 | -49 | 37 | -4 | -19 | 3 | 7 | -29 | 13 | 8 | 10 | -6 | 27 | 6 | 9 | 8 |
| Hungary | -23 | 117 | 127 | -15 | 31 | -22 | -4 | 11 | 10 | 79 | 37 | 20 | 5 | -60 | 72 | -3 | -31 | 21 | -10 | -17 | 52 | 39 | 23 | -1 | 22 | -19 | 21 | -27 |
| Austria | -12 | 13 | 19 | -7 | 7 | -5 | 0 | 0 | 31 | 60 | 44 | 23 | -7 | -67 | 40 | 18 | -34 | 25 | 9 | -20 | 16 | 15 | 40 | -23 | 17 | -11 | 53 | -21 |
| Switzerland | 35 | 8 | 69 | 15 | 9 | 14 | -17 | -24 | 12 | 7 | 35 | 15 | -4 | -26 | 23 | 21 | -3 | 20 | 22 | 15 | 13 | -1 | 9 | -4 | 36 | 3 | 29 | -12 |
| Denmark | 11 | 28 | 57 | 2 | 32 | 11 | -10 | -28 | 25 | 22 | 44 | 25 | 14 | -45 | 33 | 40 | -13 | 30 | 20 | 22 | 39 | -13 | 19 | -11 | 31 | 32 | 29 | 2 |
| Finland | -4 | 43 | 39 | 107 | 197 | -8 | -34 | -41 | 0 | -1 | 36 | 17 | 35 | -52 | 9 | 19 | -29 | 15 | 42 | 15 | 15 | 0 | 9 | 3 | 13 | 12 | 18 | -8 |
| Norway | -1 | 35 | 24 | -35 | 55 | 6 | -7 | -21 | 24 | 43 | 45 | 31 | 19 | -62 | 83 | 20 | -6 | 18 | 6 | -10 | -4 | 18 | 14 | -3 | 14 | -9 | 33 | 0 |
| Ireland | 18 | 25 | 38 | 29 | 2 | -7 | 3 | -37 | 20 | 33 | 13 | 32 | -28 | -70 | 9 | -12 | 18 | 5 | 36 | 17 | 30 | -4 | 4 | -21 | 41 | 6 | 17 | -21 |

Sources: Refinitiv Datastream, Allianz Research.

Table 7 & 8: Comparison of the lower tails of the distribution: considering the lowest monthly returns of US equities, in which % of the time corresponded with the lowest 10% of the rest of others equity markets. Upper: AEs; Lower: EMs

| | DE | FR | IT | ES | NL | UK | AU | JP | CN |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Since 1970 | 55,2% | 49,4% | 45,1% | 48,0% | 62,5% | 55,2% | 46,5% | 46,5% | 53,8% |
| 1970-1999 | 30,6% | 33,3% | 36,1% | 30,6% | 41,7% | 44,4% | 36,1% | 38,9% | 36,1% |
| Since 2000 | 82,3% | 67,1% | 54,9% | 67,1% | 85,4% | 67,1% | 57,9% | 54,9% | 73,2% |

| | CH | KO | TA | IN | MY | TH | ID | BR | MX | CL | TK | RS |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Since earliest | 36,4% | 53,4% | 46,1% | 34,0% | 41,3% | 34,0% | 34,0% | 43,7% | 51,0% | 41,3% | 29,1% | 29,1% |
| Earliest-1999 | 11,9% | 23,8% | 35,7% | 11,9% | 47,6% | 47,6% | 47,6% | 47,6% | 47,6% | 11,9% | 11,9% | 11,9% |
| Since 2000 | 42,7% | 61,0% | 48,8% | 39,6% | 39,6% | 30,5% | 30,5% | 42,7% | 51,8% | 48,8% | 33,5% | 33,5% |

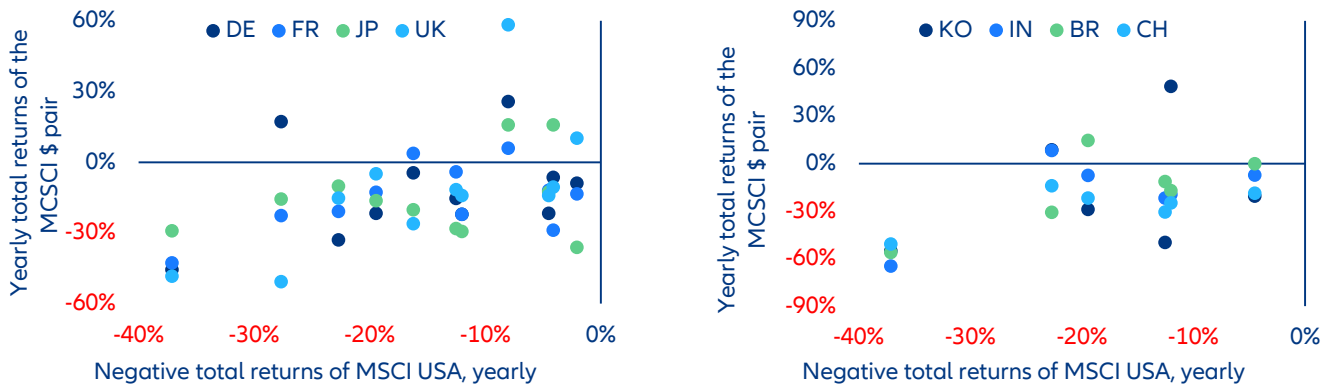
Sources: Refinitiv Datastream, Allianz Research.

Finally, providing an alternate visual depiction of the same trend (Figure 12 & 13) underscore that among all the years when the MSCI USA generated negative total returns, other major equity markets recorded positive returns just once – in 1977. Conversely, in the remaining 10 instances, either no market (in six instances) or just one market (in four instances) managed to yield positive returns.

In other words, no other equity market can completely shield a portfolio against a downturn in the US equity market. This is understandable, given the indisputable dominant status of the US market and its associated currency. However, does the principle of diversification

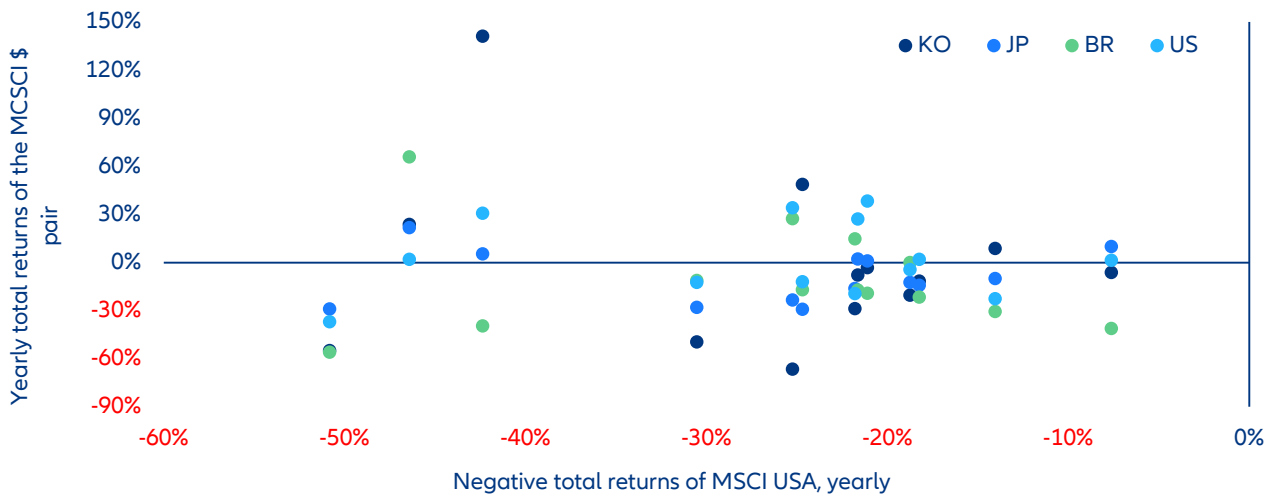
hold true for non-US investors? Crises emanating from the US typically have global repercussions but what about local crises? To explore this, Figure 14 mirrors the chart previously seen in Figure 12 & 13, but this time for China since 1993. The outcome is markedly different: Among the three most severe crises, instances abound where markets such as the US, Japan or South Korea registered positive returns. Conversely, in the remaining cases, the situation is more balanced. Similarly, Table 9 shows the annualized returns during distinct crises that did not originate in the US..

Figure 12 & 13: What happened in other equity markets in the years when the MSCI USA yielded negative total returns? Upper: major AEs since 1970; Lower: major EMs since 1993



Sources: Refinitiv Datastream, Allianz Research.

Figure 14: What happened in other equity markets in the years when the MSCI China A (USD) yielded negative total returns?



Sources: Refinitiv Datastream, Allianz Research.

Table 9: Annualized total equity returns (MSCI USD indexes)

| Period | Crisis | Performance most affected | Others |
|-------------|---------------------------------|---------------------------------------|---------------------------------------|
| 1988 – 1998 | Asian tigers, Japan lost decade | JP: 5%, TH: 8%, KO: 4% | US: 26%, France: 23%, UK: 22%, BR:27% |
| 2010 - 2014 | Eurozone | ES: 13%, IT: 14% | US: 25%, CH: 17%, JP: 18% |
| 2020 | Covid | BR: -19%, RS: -12%, TH: -11%, TK: -9% | US: 21%, DE: 12%, CH: 30%, KO: 45% |

Sources: Refinitiv Datastream, Allianz Research.

When it comes to sovereign bonds, the advent of the single currency notably amplified interconnections among economies in the Eurozone. This integration stems from the shared monetary policy framework and even the collective issuance of bonds – a phenomenon that extends to nations not having adopted the single currency but nevertheless maintaining heavily linked monetary trajectories. But the synchronization observed in equity markets is less pronounced for sovereign bonds. This remains true even when considering the far-reaching ramifications of US Federal Reserve cycles across various markets. While major economies have experienced a period of relative

stability marked by consistently low inflation rates over the last three decades, there exists a greater degree of variability. This spectrum spans from the prolonged quiescence witnessed in Japan, complete with yield-curve control measures, to certain substantial emerging markets grappling with double-digit inflation metrics. Notable instances include the Eurozone debt crisis or the scenario of asynchronous development seen in the case of China (Table 10).

Table 10: Correlations between local currency sovereign bonds indexes (in USD) monthly total returns from different countries. The upper triangle refers to the period between 1974 (or later, see legend) and 2010, and the lower triangle to the period since 2010

| | | Upper triangular (only AEs): earliest (between 1974 and 1997) - 2010 | | | | | | | | | | Emerging Markets | | | | | | | | | |
|------------------------------|------------------|--|------|-----|-----|-----|-----|-----|-----|-----|-----|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | AES | | | | | | | | | | | | | | | | | | | |
| | | US | DE | FR | IT | ES | NL | UK | AU | JP | CN | BR | CH | IN | MY | TH | ID | TK | RS | PO | |
| Lower triangular: since 2010 | AES | US | | 0,4 | 0,4 | 0,3 | 0,4 | 0,4 | 0,4 | | 0,2 | 0,4 | | | | | | | | | |
| | | DE | 0,5 | | 1,0 | 0,9 | 0,9 | 1,0 | 0,7 | | 0,4 | 0,4 | | | | | | | | | |
| | | FR | 0,5 | 1,0 | | 0,9 | 1,0 | 1,0 | 0,7 | | 0,4 | 0,4 | | | | | | | | | |
| | | IT | 0,2 | 0,8 | 0,9 | | 1,0 | 0,9 | 0,7 | | 0,3 | 0,5 | | | | | | | | | |
| | | ES | 0,3 | 0,9 | 0,9 | 0,9 | | 0,9 | 0,7 | | 0,3 | 0,5 | | | | | | | | | |
| | | NL | 0,5 | 1,0 | 1,0 | 0,8 | 0,9 | | 0,7 | | 0,4 | 0,4 | | | | | | | | | |
| | | UK | 0,5 | 0,7 | 0,7 | 0,5 | 0,6 | 0,7 | | | 0,2 | 0,4 | | | | | | | | | |
| | | AU | 0,3 | 0,7 | 0,7 | 0,5 | 0,6 | 0,7 | 0,6 | | | | | | | | | | | | |
| | | JP | 0,6 | 0,5 | 0,5 | 0,2 | 0,3 | 0,5 | 0,4 | 0,5 | | 0,1 | | | | | | | | | |
| | | CN | 0,3 | 0,7 | 0,7 | 0,5 | 0,6 | 0,7 | 0,6 | 0,9 | 0,4 | | | | | | | | | | |
| Lower triangular: since 2010 | Emerging Markets | BR | 0,0 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,3 | 0,6 | 0,2 | 0,5 | | | | | | | | | |
| | | CH | 0,2 | 0,2 | 0,2 | 0,1 | 0,2 | 0,2 | 0,2 | 0,3 | 0,2 | 0,3 | 0,1 | | | | | | | | |
| | | IN | 0,1 | 0,3 | 0,4 | 0,4 | 0,4 | 0,4 | 0,2 | 0,5 | 0,1 | 0,4 | 0,4 | 0,1 | | | | | | | |
| | | MY | 0,3 | 0,6 | 0,6 | 0,6 | 0,6 | 0,6 | 0,5 | 0,7 | 0,4 | 0,6 | 0,6 | 0,3 | | | | | | | |
| | | TH | 0,4 | 0,6 | 0,6 | 0,5 | 0,6 | 0,6 | 0,5 | 0,7 | 0,5 | 0,6 | 0,6 | 0,6 | 0,4 | | | | | | |
| | | ID | 0,2 | 0,3 | 0,4 | 0,3 | 0,3 | 0,4 | 0,3 | 0,6 | 0,3 | 0,5 | 0,5 | 0,3 | 0,5 | 0,6 | | | | | |
| | | TK | 0,0 | 0,1 | 0,1 | 0,2 | 0,1 | 0,1 | 0,0 | 0,2 | 0,0 | 0,1 | 0,4 | 0,2 | 0,3 | 0,3 | 0,3 | | | | |
| | | RS | -0,2 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,2 | 0,5 | 0,1 | 0,5 | 0,5 | 0,0 | 0,3 | 0,5 | 0,3 | | | |
| | | PO | 0,2 | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 0,5 | 0,7 | 0,3 | 0,7 | 0,5 | 0,2 | 0,5 | 0,7 | 0,6 | 0,4 | 0,2 | 0,5 |

Sources: Refinitiv Datastream, Allianz Research.

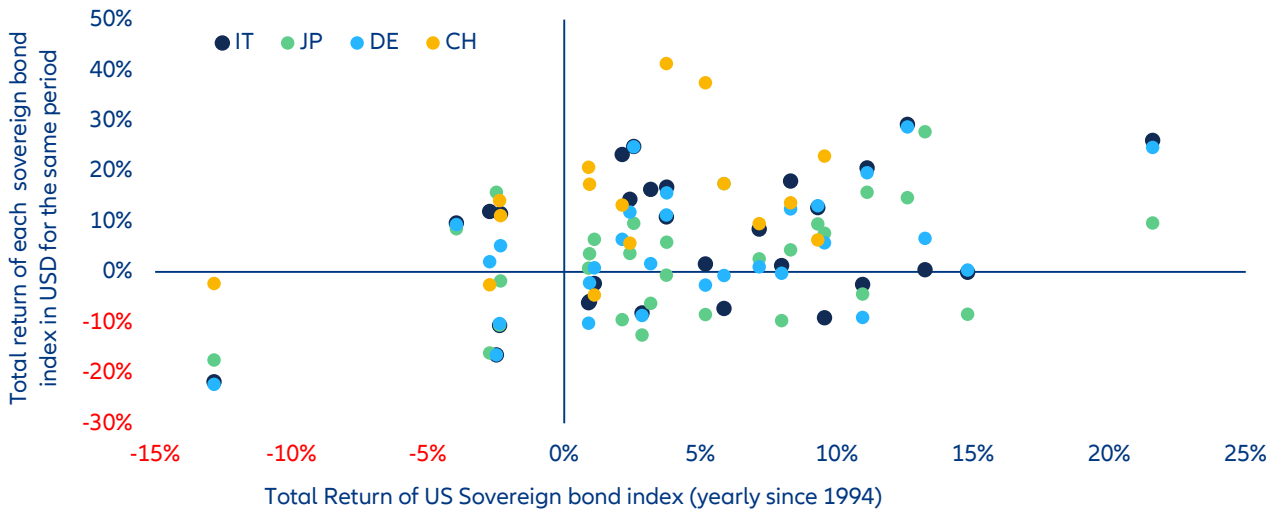
Diverging from the pattern observed in equities and in contrast to the scenario post-Autumn 2021 – which saw the reverberations of ultra-low interest rates during a global pandemic and the impact of a market-shaking conflict in global commodities – opportunities for refuge have emerged when the US bond market experienced downturns. Instances such as 1994 and 2013 stand as notable examples of favorable years for major Eurozone (EUR) countries, juxtaposed with less favorable outcomes for the US (USD). Conversely, an investor engaged in US sovereign bonds would have realized positive returns during the years 1997, 2005, 2010 and 2015, though significant Eurozone markets experienced losses during these periods ⁵ (Figure 15).

A final examination of performance across various Federal Reserve cycles offers deeper insights into this matter, encompassing the performance of emerging markets excluding China, which was not covered in Table 11. One notable observation is that even in the context of a US-based investor, a geographically diversified bond portfolio spanning advanced economies proves advantageous.

This benefit becomes particularly evident when considering the bonds of countries such as Italy, Spain or France. However, a different set of conclusions emerges concerning investments in the local currency bonds of emerging markets. In this scenario, unless yields are notably elevated or the currency exhibits the robustness akin to advanced economies' currencies (e.g. in the case of China), exchange-rate fluctuations have the potential to offset a significant portion of returns stemming from higher yields. This in turn erodes the possibility of realizing substantial gains. Moreover, when scrutinizing the recent cycle, it becomes apparent that China stands out as the only country demonstrating a discernible diversification capability.

In short, international diversification does help in most circumstances, particularly in a world characterized by growing divergence, fragmentation and protectionism. But it might not fully insulate portfolios against extreme 1% tail events, particularly when such downturns manifest at a global scale.

Figure 15: Calendar-year total returns: sovereign bond indexes across AEs vs US Bond Index (in USD)



Sources: Bloomberg, Refinitiv Datastream, Allianz Research. All maturities.

Table 11: Annualized local currency bonds performance (total returns in USD) in between the different Fed cycles

| | US | CN | UK | DE | NL | FR | ES | IT | JP | AU | BR | IN | CH | MY | TH | TK | CL | ID | RS | PO |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|------|------|------|------|-----|------|------|
| 1989 - 1995 | 12% | | | 13% | 13% | 15% | | 18% | | | | | | | | | | | | |
| 1995 - 2000 | 7% | 7% | | -0% | 0% | 1% | 3% | 4% | -1% | | | | | | | | | | | |
| 2000 - 2007 | 5% | 11% | 9% | 10% | 10% | 10% | 11% | 11% | 1% | | | | | | | | | | | |
| 2007 - 2019 | 4% | 2% | 1% | 3% | 3% | 3% | 4% | 3% | 3% | 13% | 7% | 7% | 18% | -3% | 3% | -4% | -6% | 5% | -4% | 4% |
| 2019 - Today | -1% | -2% | -5% | -5% | -6% | -5% | -4% | -2% | -8% | -5% | 0% | -1% | 8% | -24% | -13% | -45% | -35% | -1% | -36% | -10% |

Sources: Refinitiv Datastream, Allianz Research.

⁵As mentioned before, we are talking in common USD terms.

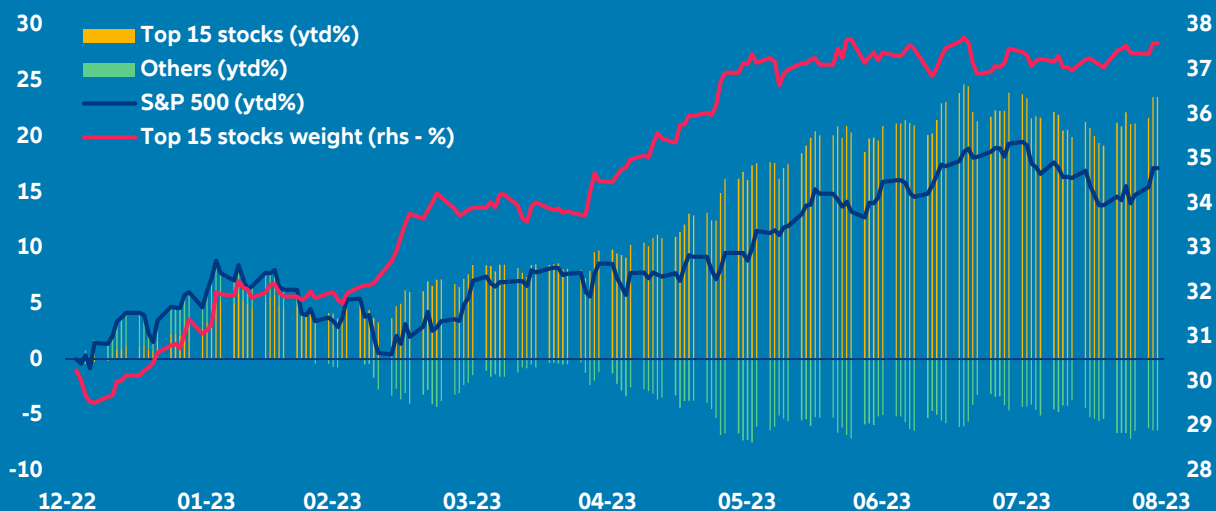
Sector selectivity

Many investors may inadvertently be over-exposed to certain sectors as most market value-based indices are prone to an increase in concentration with the outperformance of certain sectors, as seen with the S&P 500 index. As of today, a mere 10-15 technology mega caps (representing close to 40% of the overall index) have been responsible for most of its performance. Being exposed to heavily concentrated indices not only defeat the purpose of sectorial diversification in return terms but also inadvertently increases the counterparty risk concentration (Figure 16).

and health care were structural risk mitigators, cushioning the market downturn. The energy sector after the outbreak of war in Ukraine and sanctions against Russia is another example. However, correlations across sectors tend to be positive thus it can be inferred that diversifying by sector offers downside protection rather than enhances return generation (Table 12).

To put example of sector diversification, during the 2008 financial crisis, defensive sectors such as consumer staples

Figure 16: S&P500 2023 return breakdown (in %)



Sources: EU Comext, EU Prodcom, BGS, WMD, Allianz Research. Note: Calculations based on imports in values, own production in tons, EU consumption calculated as own production + imports – exports in tons. Quota applied to % of EU consumption in own production. The base year is 2022.

Table 12: Yearly US equity sector returns (in %)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| S&P 500 | 21 | -9 | -12 | -22 | 29 | 11 | 5 | 16 | 5 | -37 | 26 | 15 | 2 | 16 | 32 | 14 | 1 | 12 | 22 | -4 | 31 | 18 | 29 | -18 |
| S&P 500 - Growth | 28 | -22 | -13 | -24 | 26 | 6 | 4 | 11 | 9 | -35 | 32 | 15 | 5 | 15 | 33 | 15 | 6 | 7 | 27 | 0 | 31 | 33 | 32 | -29 |
| S&P 500 - Value | 13 | 6 | -12 | -21 | 32 | 16 | 6 | 21 | 2 | -39 | 21 | 15 | 0 | 18 | 32 | 12 | -3 | 17 | 15 | -9 | 32 | 1 | 25 | -5 |
| Telecommunications | 19 | -39 | -12 | -34 | 7 | 20 | -6 | 37 | 12 | -30 | 9 | 19 | 6 | 18 | 11 | 3 | 3 | 23 | -1 | -13 | 33 | 24 | 22 | -40 |
| Consumer Discretionary | 25 | -20 | 3 | -24 | 37 | 13 | -6 | 19 | -13 | -33 | 41 | 28 | 6 | 24 | 43 | 10 | 10 | 6 | 23 | 1 | 28 | 33 | 24 | -37 |
| Consumer Staples | -15 | 17 | -6 | -4 | 12 | 8 | 4 | 14 | 14 | -15 | 15 | 14 | 14 | 11 | 26 | 16 | 7 | 5 | 13 | -8 | 28 | 11 | 19 | -1 |
| Energy | 19 | 16 | -10 | -11 | 26 | 32 | 31 | 24 | 34 | -35 | 14 | 20 | 5 | 5 | 25 | -8 | -21 | 27 | -1 | -18 | 12 | -34 | 55 | 66 |
| Utilities | -9 | 57 | -30 | -30 | 26 | 24 | 17 | 21 | 19 | -29 | 12 | 5 | 20 | 1 | 13 | 29 | -5 | 16 | 12 | 4 | 26 | 0 | 18 | 2 |
| Real Estate | | | | -10 | 29 | 29 | 13 | 41 | -18 | -42 | 27 | 32 | 11 | 20 | 2 | 30 | 5 | 3 | 11 | -2 | 29 | -2 | 46 | -26 |
| Material | 25 | -16 | 3 | -5 | 38 | 13 | 4 | 19 | 23 | -46 | 49 | 22 | -10 | 15 | 26 | 7 | -8 | 17 | 24 | -15 | 25 | 21 | 27 | -12 |
| Information Technology | 79 | -41 | -26 | -37 | 47 | 3 | 1 | 8 | 16 | -43 | 62 | 10 | 2 | 15 | 28 | 20 | 6 | 14 | 39 | 0 | 50 | 44 | 35 | -28 |
| Industrials | 22 | 6 | -6 | -26 | 32 | 18 | 2 | 13 | 12 | -40 | 21 | 27 | -1 | 15 | 41 | 10 | -3 | 19 | 21 | -13 | 29 | 11 | 21 | -5 |
| Health Care | -11 | 37 | -12 | -19 | 15 | 2 | 6 | 8 | 7 | -23 | 20 | 3 | 13 | 18 | 41 | 25 | 7 | -3 | 22 | 6 | 21 | 13 | 26 | -2 |
| Financials | 4 | 26 | -9 | -15 | 31 | 11 | 6 | 19 | -19 | -55 | 17 | 12 | -17 | 29 | 36 | 15 | -2 | 23 | 22 | -13 | 32 | -2 | 35 | -11 |

Sources: EU Comext, EU Prodcom, BGS, WMD, Allianz Research. Note: Calculations based on imports in values, own production in tons, EU consumption calculated as own production + imports – exports in tons. Quota applied to % of EU consumption in own production. The base year is 2022.



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