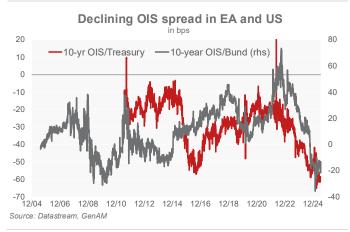# CORE MATTERS

Fading shelter of government bonds in a new fiscal era

Florian Späte, Martin Wolburg

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Our Core Matters series provides thematic research on macro, investment, and insurance topics

- Government bonds are traditionally chosen for safe-haven investments. However, in times of increased spending, e.g. the Big Beautiful Bill in the US or the German fiscal bazooka, rising public debt may be eroding their status.

- We analyse the monthly change of government bond yields for the largest eleven euro area economies and the US from 2006 to 2024. Our main conclusion is that government bonds are still a place to hide in stormy times but generally, investors prefer bonds that over the past overperformed in times of stress.

- Sovereign rating downgrades amid weakening public finances or low growth tend to dampen this relationship. This might affect the market status of for instance currently AAA-rated German debt.

Declining OIS spread in EA and US
in bps

— 10-yr OIS/Treasury   — 10-year OIS/Bund (rhs)

Source: Datastream, GenAM

- We also show evidence that the convenience yield – the premium investors are willing to forgo for liquid, safe government bonds – has decreased for both Bunds and US Treasuries.

- We construct an indicator based on various financial variables which reveals that the convenience yield for both Bunds and US Treasuries has indeed fallen noticeably as the government bond supply/demand ratio has increased since 2023.

- Given elevated – and often rising – fiscal deficits, increasing geopolitical fragmentation, and ongoing Quantitative Tightening by central banks, we see leeway for a further decline in the convenience yield, particularly for Bunds.

- This will lead to a further steepening of the core yield curve. Moreover, this opens more leeway for spreads of 'risky' bonds to tighten even further.

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Following the pandemic, geopolitical risks and – more recently – stringent US tariffs have led to a spike in global uncertainty. Looking ahead, in a fragmented world, spells of uncertainty or risk may become more frequent. The demand for low-risk assets may increase, as a result. Yet the concept of 'safe havens' is being challenged.

Traditionally highly rated government bonds are seen as "risk-free" assets. As the demand for safe assets has increased and the number of AAA-rated countries has declined over the past decades, yields on safe assets fell steadily until a few years ago, as investors were ready to pay a premium to hold these securities: the so called 'convenience yield'. Over the past years, however, there seems to be a shift in market perceptions of safe assets; e.g. we have ourselves advertised a long-standing and structural overweight for corporate bonds. Risk premia have declined, e.g. credit spreads have fallen to long-term lows and equity risk premia have shrunk. Rising government debt raises questions about debt sustainability. Given the high level of debt and the risk of a further deterioration in public finances, a key question for investors that we address here is whether investors should still treat government bonds as "safe assets".

Safe assets important for investors in times of high uncertainty

After returning to the definition and characteristics of a safe asset, we take a closer empirical look at euro area government bonds. We assess the risk of selected government securities losing their safe-haven assets status by analysing performance in times of stress and uncertainty. We then take a closer look at the convenience yields of Bunds and UST,

showing that it peaked a few years ago and has further downside. We conclude by outlining some investment implications.

1. What makes an asset a safe asset?

There is agreement in the [literature](#) that a safe asset is defined by three characteristics. First, it has a low default risk (quality); second, it retains its value also in tough times (robustness); third, it can be sold at or almost current market prices in most market conditions (liquidity). The most straightforward example are highly rated sovereign bonds as governments can always raise taxes to boost revenues. Other examples are precious metals like gold whose value normally respond positively to economic stress. Certain currencies like the USD, CHF and JPY are considered safe-haven investments because of their country's political stability and their wide usage and liquidity. Lastly, there also exist stocks whose performance tends to be relatively resilient through recessions, e.g. non-discretionary consumer goods, utilities and health care. The choice among those depends on whether the investor wants to stay within a certain asset class, on her/his acceptance of volatility and regulatory constraints.
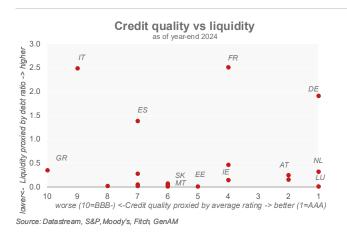
Quality, robustness and liquidity define a safe asset

2. Detecting safe government bonds within the euro area

Regulatory restrictions limit selected institutional investors' capability to invest in other asset classes than high quality fixed income. To protect against the volatility of risk assets, government bonds very often are the preferred choice. Traditionally, Bunds and US Treasuries have been prominent safe havens. However, as of late risks surrounding them (e.g. the German fiscal bazooka, Trumps' aggressive trade policies and 'Big Beautiful Bill') have let investor look for alternatives. Are there emerging risks for traditional safe assets at the horizon?

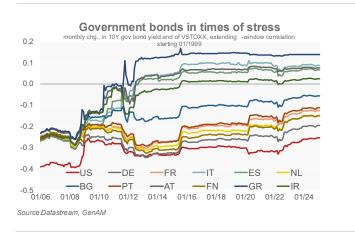*A shrinking universe of safe government bonds*

Credit quality considerations make the investment universe rather small. All EMU sovereign debt exhibits an investment grade. But currently only the low-debt countries Germany, the Netherlands and Luxemburg have a AAA-rating. And currently only the second-best ratings (S&P, Moody's and Fitch)

of the US and Austria are still AA+. This might potentially give rise to some scarcity of prime assets. The **liquidity** dimension is harder to capture. Ideally one would look at market indicators like the bid-ask spread and some measure of turnover. But these indicators are hard to get for all these countries over time. We follow a commonly used approach and assume that the size of the debt market correlates positively with liquidity. The reasons are that economies of scale in market making imply a lower bid-ask spread; countries with larger outstanding debt show significantly higher trading volumes and larger markets facilitate the development of benchmark securities that further enhance liquidity. Regarding EGBs it is found that issue size is a key determinant of liquidity; larger issues tend to be more resilient and maintain tighter spreads. We multiply a country's debt ratio with its share in global GDP according to the IMF's PPP. The graph below suggests that there is no significant correlation between our proxy for liquidity and the credit quality in the euro area. This is worth noting as research suggests that in normal times lower quality bonds tend to be more liquid due to active trading and higher yields, while high-quality bonds are often held by long-term investors, which reduces their market liquidity. The reverse applies to crisis times. If the US were to be included, the chart below would even show a positive correlation given the US rating of AA+ and that it is the largest government bond market (our liquidity proxy shows a value of 18) speaking against concerns about a shortage of safe assets from these two dimensions.

Credit quality vs liquidity
as of year-end 2024

Source: Datastream, S&P, Moody's, Fitch, GenAM

Crucial for investors is the **robustness** of a safe asset in stormy times, characterised by increased uncertainty and volatility. We proxy it by the VSTOXX. To detect the behaviour of government bonds in volatile time we look at the moving correlation between yields and VSTOXX since the start of EMU in January 1999. Interestingly, while until the GFC all government bonds gained in times of stress, the picture

became more heterogenous afterwards. The negative (extending-window) correlation with the VSTOXX receded (see graph below), especially for the US, and measured by correlation some bonds lost their safe-haven status (Italy, Spain, Austria, Greece, Ireland). The upshot is that safe-haven characteristics cannot be taken for granted and that market behaviour confirms that the universe of safe government bonds receded over the past decades.

Government bonds in times of stress
monthly chg., in 10Y gov bond yield and of VSTOXX, extending -window correlation starting 01/1999

Source:Datastream, GenAM

3. What will drive the degree of future assets safeness?

To assess the quality of a safe asset it is crucial to look at the determinants that make an asset a safe one in times of stress. They also give us an idea about the risk of current safe assets losing their status in the future by projecting these determinants.

When doing so we build on the methodology developed in an ECB Working Paper that studied the sensitivity of yields to country-specific fundamentals and changes in risk. This paper looks at 40 advanced and emerging countries, on a monthly basis, from 1990 to 2018. We base our analysis on monthly data for the US plus the eleven largest euro area economies (Germany, France, Italy, Spain, the Netherlands, Belgium, Portugal, Austria, Finland, Greece and Ireland) for the period from January 2006 to September 2024. Following the same approach, we analyse the drivers of the monthly change in 10-year government bond yields[1]. Safe bonds should experience a fall in yields in times of stress when controlling for other, fundamental drivers.

As key explanatory variable that also turned out to be highly significant in other investigations[2] is self-fulfilling prophecy or

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[1] To ensure comparability across countries, we divide each country's change in bond yields by its standard deviation.

[2] The role of inertia in bond yield dynamics is well founded in the literature. Habib and Stracca (2012) introduced the idea that inertia helps

inertia, namely that current flows into bonds in times of stress are determined by their past performance in times of risk. We operationalise this variable by recursively computing the correlation between the change in yields and either the VSTOXX (INERTIA VSTOXX) or the VIX (INERTIA VIX) since the start of EMU. We also control for the standard macroeconomic, institutional and financial determinants of yields and central bank bond purchases and a proxy for bond liquidity (see annex 1).

The detailed results are displayed in annex 1. The variables are, except for growth, statistically significant and confirm that low inflation, sound public finances as well as QE and inflows of foreign assets are conducive to the returns of government bonds.

Euro area government bonds still exhibit safe haven status

To analyse the behaviour of government bonds in times of market stress, we augment our basic regression (equation 1 in annex 1) with various measures of uncertainty and risk. As displayed in annex 2, a rise in market volatility (higher VSTOXX) contributes to lower bond yields. However, given the focus of our sample on the euro area, the VIX is not significant. We also looked at other variables usually associated with safe-haven flow and found that an increase in the short-term or long-term macro risk favours lower yields too. Higher policy-induced uncertainty tends to lower yields too but was statistically insignificant (UNCERTAINTY). Other types of uncertainties like world trade uncertainty (WD TRDUNC), world uncertainty (WD UNCER) and EU uncertainty (EU UCER) were not statistically significant and rather counterintuitively hinted rather at higher yields. All in all, we conclude that there is no direct effect from policy uncertainty on yields.

However, there are also indirect effects from market stress on yields due to its effect on the coefficients of some explanatory variables. Our main conclusion from including a so-called interaction term (multiplying the change in the VSTOXX or the VIX with a certain variable) is that the effect on government bonds increases with the level of volatility, be it the VSTOXX or the VIX (see also annex 2). By the same procedure we find that in times of increasing market volatility the importance of the history (INERTIA) and of inflation is reduced. Our interpretation is that in times of overall stress government bonds with positive inertia-coefficients (non-safe assets) are less punished the higher the increase in the VSTOXX likely

reflecting larger scale flows from other assets into the overall government bond market.

Our analysis suggests that government bonds of all countries will benefit from higher risk. However, the government bonds which exhibited safe-haven properties in the past (for which the INERTIA variable is negative) have a higher probability to experience a fall in yields after a shock. Currently these are government bonds from the US, Germany, France, the Netherlands, Belgium, Portugal and Finland in our sample. From this perspective a sufficient number of government bonds still exhibits safe-haven properties. That said, a safe asset status cannot be taken for granted. Before the GFC all government bond yields considered here exhibited a negative correlation with the VSTOXX; for the others, the overall correlation weakened over the past years (see graph 1). A lowering of the rating, worsening public finances or low growth for instance will soften the effect on yields in times of stress and thereby slowly erode the reputation or self-fulfilling prophecy characteristic of this country's bonds, captured by the inertia variable here. A potential candidate is Germany whose new government announced a fiscal bazooka that according to our calculations has the potential to increase the debt ratio by about 5 pps over the coming five years. While this tends to weaken its safe-haven status, the ultimate effects depend on whether Germany will be able to boost growth and maintain its AAA-rating.

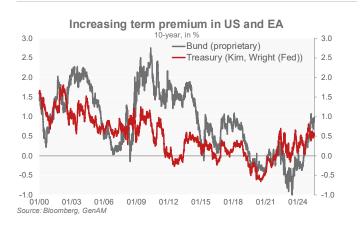## 4. Decline in the convenience yield

Another way of looking at government bonds as safe assets is the so-called convenience yield. This is the premium that investors are willing to forego to hold safe, liquid and scarce government bonds. Various developments in recent years suggest that the premium has fallen markedly recently (see SUERF or ECB).

One example is the evolution of swap spreads. In principle, both swaps and government bonds are risk-free assets and should trade at similar levels. Although liquidity considerations and regulation can lead to price differences, at least the changes in swap spreads over time tend to be a good indicator of the convenience yield. In both the US and the euro area, swap spreads have narrowed significantly (and even inverted) in recent years. While they have been negative for some time in the US, the 10-year Bund yield also rose above the corresponding swap rate in the autumn of 2024. The

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explain why certain currencies and yields behave as safe havens. But quite generally in the context of bond markets inertia were identified by

e.g. Brooks, Katz, and Lustig (2018), Vayanos and Vila (2009) and Bayaa and Qadan (2024).

negative swap spread indicates a declining or even negative convenience yield.

Increasing term premium in US and EA
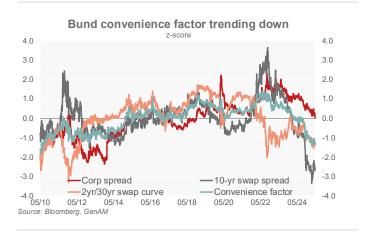10-year, in %

Source: Bloomberg, GenAM

This year's rise in the term premium also indicates a falling convenience yield. Fundamentally, the term premium and the convenience yield are related (but not identical) concepts. They are negatively correlated in the sense that an increasing compensation for investors to take on duration (=higher term premium) is accompanied by a declining benefit from holding safe and liquid government bonds (=lower convenience yield). The term premium is the difference between the long-term interest rate and the average of expected short-term interest rates over the life of the bond (expectation component). The term premium results from investors' compensation for duration risk. Bond market volatility, the issuer's debt ratio and the volume of outstanding bonds are important determinants of the development of the term premium. It cannot be observed directly and therefore must be estimated. (For US Treasuries, we use the methodology of Kim and Wright. For Bunds, we apply own estimates based on the NY Fed methodology.) There are various methods, but here too the trend has been towards rising term premiums on both sides of the Atlantic in recent years (for US Treasuries since 2020 and for Bunds since 2023). It has risen significantly since 2023 over concern about the fiscal outlook (see chart above).

Global government bond glut depresses the convenience yield

Expansionary fiscal policy raises long-term interest rates through two channels. First, it may raise growth and inflation expectations, increasing the expectation component of interest rates. In addition, the fiscal stimulus may lead to increased

uncertainty about the future, which affects the term premium. Second, the increase in the supply of safe government bonds associated with expansionary fiscal policy also leads to a higher term premium for a given level of demand, ceteris paribus.

Bund convenience factor trending down
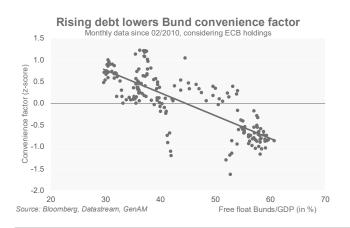z-score

Source: Bloomberg, GenAM

It is important to distinguish between these two effects to determine the cause of an increase in the term premium. For this, we construct a multi-factor model to estimate the evolution of the US and EUR convenience yields (defined as the difference between government rates and other risk-free rates). A falling convenience factor reflects a shift in the supply and demand of government bonds (and **not** the inflationary and growth-enhancing effects of fiscal policy as these impact government yields and other risk-free rates to the same extent). An increasing supply of core government bonds leads to a decrease in the convenience factor as the marginal benefit of holding safe (government) assets relative to other fixed income assets decreases. A falling convenience factor thus captures the additional compensation demanded by investors due to the shift in the supply/demand balance. Finally, the convenience factor provides more information about the ability to absorb spot supply. The term premium may also contain forward-looking information about future absorption capacity.

Specifically[3], we proxy the convenience factor using firstly the AAA corporate bond spread over the 20-year yield of the underlying 'safe' bonds, as the credit risk premium for AAA-rated corporate bonds is negligible.[4] Secondly, 10-year swap spreads are also included in the calculation of the convenience factor. In both the US and the euro area, there is a clear negative relationship between the free float of core government bonds and the swap spread. Thirdly, we also consider the steepness of the swap curve. This can also be a
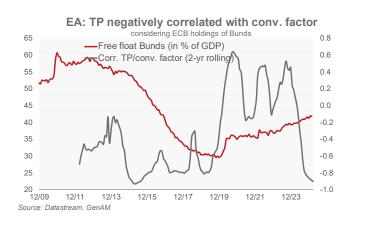
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[3] The concept of the convenience yield has been studied extensively in recent years (e.g., Canzoneri 2016, Jiang 2025). Measuring it is challenging, as it is an implicit, unobservable item. Some studies estimate it as residual after controlling for other factors such as credit risk, liquidity, and term structure.

[4] The AAA corporate bond index has a significantly shorter duration than 20-yr government bonds. However, as this difference barely changes over time, it has no impact on the results.

determinant of the convenience factor, as long-dated swaps are more sensitive to changes in the volume of outstanding government debt than short-dated swaps. The equally weighted average of these three variables results in the convenience factor. None of these variables is perfect and all react to factors other than the supply of government bonds, but the overall picture is consistent and shows a noticeable decline in the convenience factor since 2023 in both the US and the euro area. In the euro area in particular, the z-score of the convenience factor has recently fallen to its lowest level since 2010.[5] A simple regression analysis confirms that a high free float of Bunds (i.e. subtracting ECB holdings) is negatively correlated with the convenience factor.

Rising debt lowers Bund convenience factor
Monthly data since 02/2010, considering ECB holdings

Source: Bloomberg, Datastream, GenAM

The relationship between the term premium and the convenience factor is not stable over time. Generally, the term premium is negatively correlated with the convenience factor, but we can see in the case of Bunds that in 2020-2022, due to massive Quantitative Easing (QE), a rising term premium was accompanied by a rising convenience factor. More recently, however, amid rising free float of Bunds the correlation has become significantly negative again.

EA: TP negatively correlated with conv. factor
considering ECB holdings of Bunds

Source: Datastream, GenAM

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[5] A principal component analysis confirms the results. The first principal component across the standardized measures (as a proxy for the convenience factor) shows that Bunds in particular are currently cheap.

This suggests that the increase in the government bond supply/demand ratio is primarily responsible for the recent rise in the term premium (rather than higher growth and inflation expectations).

5. Further decline in Bund premium conceivable

Until the beginning of the decade, the liquidity requirements imposed by regulation in the aftermath of the Great Financial Crisis (GFC), QE by central banks and the saving glut emanating from the integration of emerging market economies had supported demand for core government bonds, increasing the convenience yield on both sides of the Atlantic. This process has been reversed in recent years. The shift in the supply/demand balance has led to a sharp increase in the free float of government bonds. In the US, the free float (including the Fed) as a percentage of GDP has risen by 7 percentage points to 73% since the end of 2019 and in Germany even by 12 percentage points to over 42%.
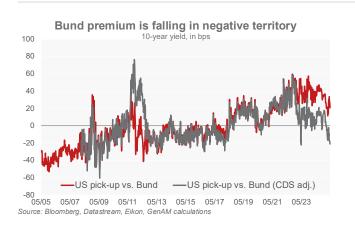
> *High budget deficits and QT continue to weigh on Bund premium*

This development is not yet complete for several reasons. First, acceptance for fiscal profligacy has increased. Not only are deficits currently at elevated levels, but there is no sign of sustainable fiscal consolidation in sight. As described above, Germany has just adopted a reform of the debt brake and established an infrastructure fund while the US 'Big Beautiful Bill' will anchor the budget deficit at a high level.[6] Second, the growing geopolitical fragmentation is likely to reduce demand for core government bonds. The share of foreign holders of US government bonds has fallen by around 15 percentage points in recent years to only about one third. Third, the demographic transformation in Western economies is emerging as a critical driver of rising public debt burdens. As the share of citizens aged 65 and older expands, so too do fiscal pressures from pensions, healthcare, and long-term care, while the tax base contracts due to a smaller working-age population. It is estimated that each percentage point increase in the elderly population correlates with an approximate 7-point rise in the gross public debt/GDP ratio. Given the current lack of political will particularly in the euro area to implement sustainable social security reforms, the demographic shock is likely to strain public finances and expand the supply of government bonds. Fourth, the normalisation of central bank balance

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[6] The US administration's goal of reducing the budget deficit by streamlining the state is looking increasingly unrealistic. The initial results of DOGE are unsatisfactory, and the recent adoption of the tax bill to extend Trump's tax cuts runs counter to this ambition, too.

sheets is continuing, at least in the euro area. While there are efforts in the US to change the domestic demand for government bonds by adjusting regulations (banking and stablecoins) and the Fed will end Quantitative Tightening (QT) around mid-2026, we believe that the factors described above are set to prevail for even longer in the euro area.[7] **Therefore, we still see potential for a further decline in the convenience yield, particularly for the Bund.**

A decline in the convenience yield should not be confused with a loss of safe-haven properties. As shown above, both US Treasuries and Bunds can continue to function as secure investments during turbulent market phases – at least as long as the market turmoil is not fundamentally caused by doubts about the issuers' debt sustainability.

Bund premium is falling in negative territory
10-year yield, in bps

Source: Bloomberg, Datastream, Eikon, GenAM calculations
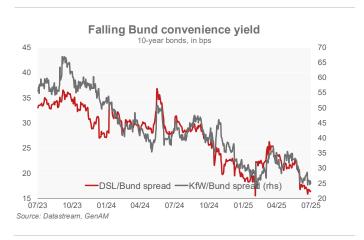
Following the IMF methodology, we remove the hedging costs from US Treasuries to compare the Bund premium with the US one. [8] This measure shows that (relative to US Treasuries) Bunds enjoyed a considerable premium during the European debt crisis (2011/12) and again between 2018 and 2022 (PSPP/PEPP). Since autumn 2022, however, the spread between 10-year US Treasuries and Bunds has fallen from 70 bps to just 20 bps (adjusted for hedging costs). If the spread is additionally adjusted for the lower credit rating of the US (by considering the different CDS premiums), it is already negative. This confirms that the Bund's convenience yield has fallen not only in absolute terms, but also relative to other perceived safe-haven assets such as US Treasuries.

6. Implications of a permanent decline in convenience yield

As shown above, we think the decline in the Bund's convenience yield is fundamentally driven and is unlikely to reverse. This has a direct impact on the European bond market. This may imply a permanently higher yield level for Bunds. Regardless of the growth and inflation environment, investors will be less keen to forego a premium for Bunds in the future. Conversely, spreads of other (risky and virtually risk-free) fixed-income assets have the potential to narrow further. Recourse to long-term averages may prove misleading in this respect, as the structure of the bond market has changed for good – it is increasingly displaying the characteristics of the pre-GFC era again in which a Bund premium was not taken for granted. In this respect, the spread between issuers with a similar credit rating to Bunds may well narrow further. The yield curve is also likely to get steeper. In addition to the cyclical movements determined by monetary policy, investors will demand a higher premium to hold long-term maturities.

Permanently higher Bund yield expected

However, increased liquidity and investors' preference for German government bonds, which is likely to continue in the future, albeit at a reduced level will continue to ensure a positive spread even for highly rated issuers (e.g. KfW).

Falling Bund convenience yield
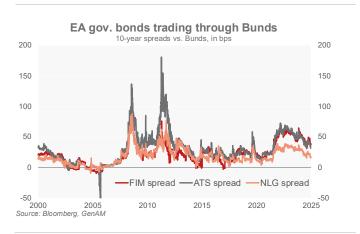10-year bonds, in bps

Source: Datastream, GenAM

In principle, these considerations are also relevant for the European government bond market. First, euro area government bond spreads have also tended to narrow in recent years. This is all the more true for the highly rated euro area core countries. If the Bund convenience yield continues to fall,

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[7] The Genius Act, passed on July 18, should also be considered in this context. It aims to regulate stablecoins and establish the US as a global leader in digital assets in the long term. As stablecoins are backed by t-bills, demand at the short end of the yield curve is strengthened, enabling

the US Treasury to issue more t-bills (thereby reducing the bond glut at the long end) and limiting financing costs for US government debt.

[8] Specifically, we calculate the 10-year yield pick-up of US Treasuries compared to Bunds. To abstract from currency risks, the currency is hedged throughout the term (xccy hedging).

as we expect, it is not out of the question that we could see a return to the pre-GFC situation where these bonds are traded through Bunds. The Netherlands, for example, has a lower debt/GDP ratio and a lower budget deficit. Given the recent fiscal paradigm shift in Germany, the gap is likely to widen even more. In the CDS market, this is already reflected in higher insurance premiums for Germany than for the Netherlands. Although the above models do not quantify the effect of higher liquidity in German government bonds precisely, it raises the question of whether investors' preference for these bonds will be sufficient in the long term to secure a lower yield than European peers.

EA gov. bonds trading through Bunds
10-year spreads vs. Bunds, in bps

Source: Bloomberg, GenAM

concerns about the central role of the US financial market, resulted in a substantial cheapening of US Treasuries against other assets in April. Bunds, on the other hand, temporarily benefited, confirming their safe-haven status. Swap spreads widened, and Bunds outperformed other euro area government bonds. However, as the US administration de-escalated the trade war, the effects then reversed.

The tariff war could raise interest rate also due to another factor: foreign investors still hold a considerable share of the US government bond market. The recurrent US trade deficit requires persistent capital inflows into the US and is ultimately one of the main reasons for heavy foreign purchases of US Treasuries. Japan and China remain among the largest foreign holders of US Treasuries. If the US succeeds in significantly reducing the trade deficit (although we doubt that tariffs can achieve this), domestic buyers will need to step in to replace them, provided the budget deficit remains high. As the above makes clear, given the shift in supply and demand, they will only be willing to do so at a higher yield, i.e. a lower convenience yield.

7. Conclusions

In this report, we explained that core government bonds will remain investors' asset of choice in troubled times. However, sound fundamentals will play an even greater role in determining the extent to which government bonds can serve as a safe haven in the future.

The shift from a global savings glut to a global bond glut will still have significant consequences for financial markets. In the future, investors may demand an increasing premium for duration risk from sovereign issuers. Therefore, yield curves are likely to steepen, and (real) interest rates may rise (although financial repression polices will help to limit the rise in short-term rates). Additionally, if the rise in government debt will continue outpace the private sector, spreads on risky fixed income assets will tighten further. Having said this, we do not expect Germany to lose its AAA rating in the medium term, given that its fundamental position is still solid in international comparison.

The financial market turbulence of April 2025, following "Liberation Day", also illustrates the relevance of the theses derived in this Core Matter. For instance, a loss of confidence in the reliability of US economic policy, coupled with mounting

Annex 1 :

As **traditional macroeconomic variables** to explain the change in the standardized 10-year government bonds yields we consider:

GDP	growth domestic product, % yoy
INFL	headline inflation, % yoy
DEBT RATIO	public debt-to-GDP-ratio, %
BUDGET BAL	government revenues minus expenses, % of GDP
QE GOVDEBT	stock of purchases of government bonds proxied by the ECB net purchases under PSPP in case of the euro area economies and Treasury securities held outright in case of the Fed divided by the total amount of government debt outstanding securities to control for monetary policy effects.
NFA	stock of net foreign assets as % of GDP to control from capital flows from abroad.
RATING AVG	average rating score from the major three (S&P, Moody's, Fitch) rating agencies
EPRE SCORE	Oxford Economic's economic and political risk score
SIZE	a country's debt ratio multiplied with its PPP-based share in global GDP
VSTOXX	volatility index for European equities
VIX	volatility index for US equities
INERTIA VSTOXX	Expanding correlation between a monthly change in yields and the change in the VSTOXX
INERTIA VIX	Expanding correlation between a monthly change in yields and the change in the VIX

The **derived regression results** are:

Change in yields and fundamentals

Variables	1	2	3	4
C	-12.66***	-11.14***	-13.70***	-14.47***
INERTIA VSTOXX(-1)	0.96***		0.88***	
INERTIA VIX(-1)		0.27***		0.22***
GDP(-12)	-0.02	-0.06*	-0.04	-0.05
INFL(-12)	0.59***	0.42***	0.55***	0.40***
DEBT RATIO(-12)	0.05***	0.04***	0.06***	0.04***
BUDGET BAL(-12)	-0.21***	-0.19***	-0.16***	-0.11*
D(QE GOVDEBT)	-1.24***	-1.37***	-1.24***	-1.37***
NFA(-12)	-0.004***	-0.004***	-0.004***	-0.004***
EPRE SCORE(-12)			0.26	0.89***
RATING AVG(-12)	0.12***	0.07		
SIZE	-1.59***	-0.92***	-1.79***	-0.94***
adj. R^2	0.58	0.52	0.57	0.52

*Source: GenAM, stars denote level of statistical significance: * 10%, ** 5%, *** 1%.*

Numbers in ( ) after the variable denote the time lag in months and D( ) denotes the change of a variable against the month before. We used a panel regression with fixed country effects and random period effects to derive our results.

Annex 2:

The risk variables used to investigate the change of long-term government bond yields in times of stress are the following and all taken from Datastream:

UNCERTAINTY   Country-specific economic policy uncertainty index based on the Hites Ahir, Nicholas Bloom and Davide Furcer approach

Long-term MACRO RISK   Citi world long-term macro risk index

Short-term MACRO RISK   Citi world short-term macro risk index

World trade uncertainty   GDP weighted based on the Hites Ahir, Nicholas Bloom and Davide Furcer approach

World uncertainty   GDP weighted based on the Hites Ahir, Nicholas Bloom and Davide Furcer approach

EU uncertainty   based on the Hites Ahir, Nicholas Bloom and Davide Furcer approach

The **derived regression results** including interaction terms are:

Yield change and market stress

Basic model (1) augmented by	
Direct impact from risk factors	
Lower yields	Higher yields
change in VSTOXX*	change in WORLD TRADE UNCERTAINTY
change in VIX	change in EU UNCERTAINTY
change in long-term MACRO RISK**	change in WORLD UNCERTAINTY
change in short-term MACRO RISK**	
change in UNCERTAINTY	
Indirect impact: Interaction of VSTOXX/VIX with risk factors	
Lower yields	Higher yields
long-term MACRO RISK*change in VSTOXX*	long-term MACRO RISK*change in VIX
short-term MACRO RISK*change in VSTOXX	short-term MACRO RISK*change in VIX
UNCERTAINTY*change in VSTOXX**	
UNCERTAINTY*change in VIX***	
EU UNCERTAINTY*change in VSTOXX***	
EU UNCERTAINTY*change in VIX***	
World TRADE UNCERTAINTY*change in VSTOXX***	
WORLD TRADE UNCERTAINTY*change in VIX***	
Indirect impact: Interaction of VSTOXX with fundamentals	
Lower yields	Higher yields
(INERTIA VSTOXX(-1))*change in VSTOXX*	
GDP Y(-12)*change in VSTOXX	
INFL(-12)*change in VSTOXX**	
DEBT RATIO(-12)*change in VSTOXX	
BUDGET BAL(-12)*change in VSTOXX	
D(QE GOVDEBT)*change in VSTOXX	
NFA(-12)*change in VSTOXX	
RATING AVG(-12)*change in VSTOXX	
SIZE*change in VSTOXX	

*Source: GenAM, variables marked in are statistically significant with stars denoting the level of significance: * 10%, ** 5%, *** 1%.*

Imprint