# ECOINSIGHT

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## “GROWTH IS LOCAL, BOND YIELDS ARE GLOBAL: WHY DOES IT MATTER?”

ECONOMIC RESEARCH

BNP PARIBAS

The bank for a changing world

# EXECUTIVE SUMMARY - TABLE OF CONTENT



## GROWTH IS LOCAL, BOND YIELDS ARE GLOBAL: WHY DOES IT MATTER?

William De Vijlder


• Government bond yields in advanced economies have been highly correlated over the past four decades. Very often, changes in US Treasury yields are accompanied by significant changes in foreign long-term interest rates, except for Japan. The international co-movement of bond yields is higher than that of real growth or inflation.

• This matters for several reasons:

- Firstly, higher real yields can reflect an improvement in the growth outlook, but they could also be driven by foreign factors and act as a headwind to growth.
- Secondly, it plays a role in the calibration of monetary policy.
- Thirdly, it influences the difference between the cost of borrowing and the growth of revenues that will serve to pay back the debt.
- Fourthly, governments should be cognizant that a lack of fiscal discipline can create negative externalities, by pushing up bond yields abroad. This is particularly important for the US, given its central role in the global financial system, but also for EU fiscal governance.

• Finally, given the huge financing needs for the energy transition, AI, public goods, etc., whereby the impact on global long-term interest rates remains to be seen, every issuer of debt should prepare for the possibility of higher interest rates and stress test his balance sheet in order to test its resilience. This necessity has been illustrated by the jump in euro area bond yields following the recent announcement in Germany on creating a huge infrastructure fund, boost defense spending and plans of loosening the debt brake.



3

ADVANCED ECONOMIES' GOVERNMENT BOND YIELDS ARE HIGHLY CORRELATED

3

THE BILATERAL CORRELATION OF GOVERNMENT BOND YIELDS IS HIGHER THAN THAT OF REAL GROWTH OR INFLATION

3

WHEN IT RAINS IN THE US...

4

WHY DOES IT MATTER?

5

BOX: PROSPECT OF MASSIVE INCREASE IN GERMAN INFRASTRUCTURE AND DEFENSE SPENDING CAUSES JUMP IN BOND YIELDS

# GROWTH IS LOCAL, BOND YIELDS ARE GLOBAL: WHY DOES IT MATTER?



**Government bond yields in advanced economies are highly correlated, much more than the correlation of real GDP growth. Governments should be cognizant that a lack of fiscal discipline can create negative externalities, by pushing up bond yields abroad. Given the prospect of huge financing needs in the public and private sector, every issuer of debt should prepare for the possibility of structurally higher interest rates and stress test his balance sheet in order to test its resilience.**

## Advanced economies' government bond yields are highly correlated

Government bond yields in advanced economies have been highly correlated over the past four decades, Japan being, to some extent, an exception (*chart 1*). This topic has been extensively analysed in the academic literature, which offers a multitude of explanations: the wide adoption of inflation targeting by central banks, the success in terms of bringing down inflation and anchoring inflation expectations, the decline in real interest rates, the decline of the neutral rate of interest, the globalization of financial investments in a world of free capital mobility, the role of common shocks, etc. To put it differently, advanced economies' sovereign yields are highly correlated on the back of common policy objectives, correlated macro fundamentals and financial integration.[1]

## The bilateral correlation of government bond yields is higher than that of real growth or inflation

Nominal bond yields are influenced by a broad range of factors, but growth and price dynamics play a particularly important role, directly or indirectly. Consequently, the co-movement of bond yields raises the question whether real GDP growth and inflation are also highly correlated. *Chart 2* shows the average bilateral correlation of these variables between 10 advanced economies. Most of the time, the bond yield correlation is significantly higher than the correlation between real GDP growth. Until recently, this also held when comparing the average correlation of bond yields and inflation. For the latter, the correlation was structurally low before the global financial crisis in 2008-2009 (GFC) but it has increased subsequently, whilst manifesting significant swings. Considering that 3 of the 10 countries under consideration are euro area members, this may bias the bond yield correlations upwards in 'quiet' times, when spreads are stable or narrowing, and downwards in times of stress, when spreads are widening significantly, such as during the euro area sovereign debt crisis.

*Chart 3* shows the average correlations for a smaller sample of countries, with Germany as the only country representing the euro area. This has a noticeable impact on the average bond yield correlation, which is now higher during the euro area sovereign debt crisis.

10-YEAR GOVERNMENT BOND YIELDS

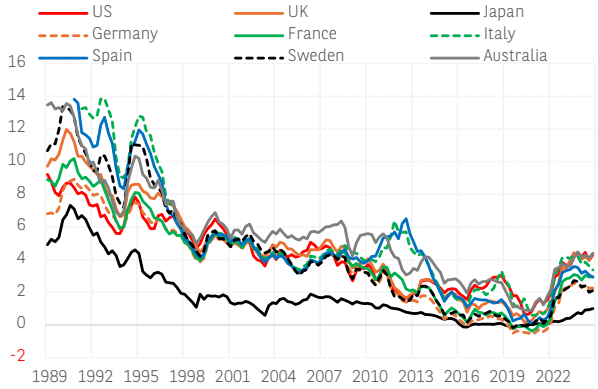


CHART 1

SOURCE: LSEG, BNP PARIBAS

AVERAGE BILATERAL CORRELATION* (ROLLING, 12 QUARTERS)

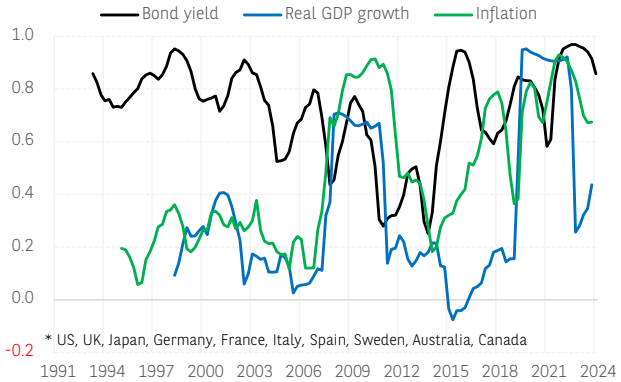


CHART 2

SOURCE: LSEG, BNP PARIBAS

## When it rains in the US...

Given the central role played by the US in the global financial system, it makes sense to focus on the correlation between a given country and the US. *Chart 4* does this for Germany, based on the view that due to their safety and liquidity, German sovereign bonds are the reference for other sovereign bonds in the euro area. Most of the time, the bond yield correlation has been very high. Post-GFC, the correlation between US and German inflation has increased significantly, as shown by the period average before and after the GFC. The growth correlation didn't really change. Comparing the average bond yield correlation before and after the GFC, one sees a marginal increase. Consequently, post-GFC, the average inflation correlation and bond yield correlation are essentially the same.

1 "Economic theory suggests at least two reasons why the factors embedded in sovereign yield curves may be correlated across countries. First, this correlation will be present if the underlying macro fundamentals—for example, productivity growth, saving–investment imbalances, and longer-term inflation expectations—that drive the factors are correlated across countries. Second, ... this correlation will also be present if countries are tightly financially integrated even if fundamentals themselves are independent across countries." Source: Sovereign Markets, Global Factors, Remarks by Richard H. Clarida, Vice Chair Board of Governors of the Federal Reserve System, at "Fostering a Resilient Economy and Financial System: The Role of Central Banks", 25th Annual Financial Markets Conference, sponsored by the Center for Financial Innovation and Stability, Federal Reserve Bank of Atlanta, 17 May 2021.

*Chart 5* analyses the correlation between US and euro area growth, respectively inflation. Euro area bond yields are again represented by German Bunds. For GDP growth, two correlations have been calculated, one based on quarter-on-quarter data and the other on year-on-year quarterly growth numbers. The latter facilitate the comparison with inflation, which is also calculated on a year-on-year basis. The purpose is to explore whether the autocorrelation that is inherent in a year-on-year growth number influences the correlation between the US and euro area data. As shown by the chart, the correlation is indeed higher, whilst remaining far below the inflation and bond yield correlations.

Focusing on bond markets now, *chart 6* shows the quarterly change in foreign bond yields for a given change in the same quarter in 10-year US Treasury yields. Except for Japanese government bond yields, changes in Treasury yields are accompanied by significant changes in foreign sovereign yields, considering that the beta is mostly higher than 0.5. This means that a 50 basis points increase in US yields in a given quarter has been accompanied by an increase in foreign yields of at least 25 basis points.

For Germany, the beta mostly fluctuates in a range between 0.6 and 0.8 (*chart 7*). Clearly, the change in US yields only partly explains the change in German yields, although it's a significant part (the regression $R^2$ over the full sample is 0.57). Moreover, in 81% of observations, the change in US and German yields has the same sign. The beta calculation brings the correlation analysis one step further, but this does not mean that the variation in German yields is caused by the change in US yields. Research on the co-movement in Treasury yields and Bund yields shows that, when reacting to news, the causality works in both directions. FOMC policy announcements influence Treasury yields as well as Bund yields, but this also applies in case of ECB policy announcements, which influence Bund yields and Treasury yields.[2] An important factor in the co-movement between US and German long-term bond yields is the "*strong co-movement between the premia, especially at the long end of the yield curve, both in terms of the levels as well the changes in the two series.*"[3] A causality analysis shows that *"only a small fraction of the joint dynamics can be attributed to one region driving the other.*" This points towards a common global factor that influences the term premium in both regions.

## Why does it matter?

Considering that the correlation between the US and the euro area in terms of real growth is well below that of government bond yields, it is tempting to conclude that growth is 'local' whereas sovereign yields are determined in a global market. Admittedly, the reality is more nuanced. Foreign growth shocks create spillovers and in highly export-oriented countries, cyclical developments abroad play an important role in the growth of GDP.[4] Local bond yields in turn are influenced by domestic factors such as the stance of monetary policy (policy rates, the evolution of the central bank's balance sheet) and public sector borrowing requirements.

The latter's role was perfectly illustrated by the jump in euro area bond yields following the recent announcement in Germany on creating a huge infrastructure fund, boost defense spending and plans of loosening the debt brake (*see box*).

**AVERAGE BILATERAL CORRELATION***

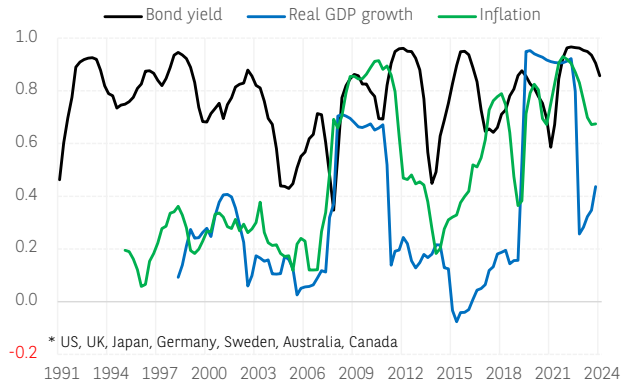


CHART 3 SOURCE: LSEG, BNP PARIBAS

**ROLLING CORRELATION BETWEEN THE US AND GERMANY (QUARTERLY DATA, 12 QUARTER WINDOW)**

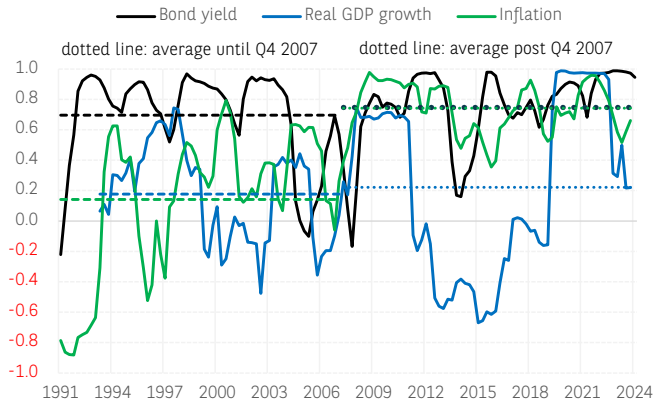


CHART 4 SOURCE: LSEG, BNP PARIBAS

**ROLLING CORRELATION (12 QUARTERS) BETWEEN THE US AND THE EURO AREA**

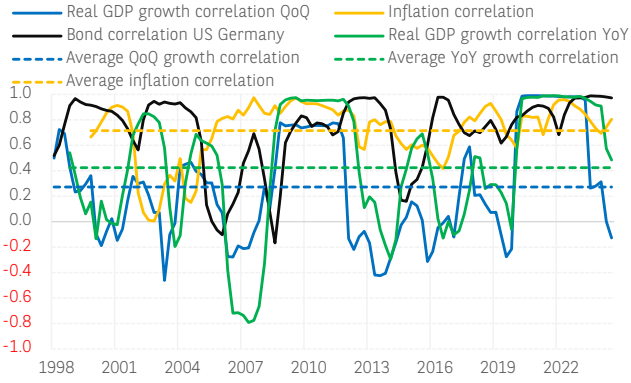


CHART 5 SOURCE: LSEG, BNP PARIBAS

2 Source: Curcuru, Stephanie E., Michiel De Pooter, and George Eckerd, Measuring monetary policy spillovers between U.S. and German bond yields," International Finance Discussion Papers 1226, Board of Governors of the Federal Reserve System, April 2018.
3 Source: Nikolay Iskrev, Term premia dynamics in the US and Euro Area: who is leading whom?, Banco de Portugal, January 2018.
4 Average annual real GDP growth in the euro area between 2000 and 2023 was 1.3% with a contribution of domestic demand of 1.1 percentage points and net exports 0.2 ppt (exports 1.5 ppt, imports -1.3 ppt). However, these numbers are biased because imports are subtracted from exports, instead of subtracting the import content from each component of final demand separately. For an analysis of this issue see Henk Kranendonk and Johan Verbruggen, Decomposition of GDP growth in European countries - Different methods tell different stories, CPB Document No 158, January 2008.

Yet, research by the IMF shows that on average the global business cycle only accounts for 20% of the volatility of a country's output[5], whereas as mentioned above, the $R^2$ of a regression that explains the quarterly change in German yields as a function of the change in US yields is 0.57.

Why does it matter that growth is predominantly driven by domestic demand and bond yields to a large degree by global factors? Firstly, this observation should be considered when interpreting the level and fluctuations in bond yields. A rise in real yields could reflect an improvement in the growth outlook but it could also be driven by foreign factors and act as a headwind for the local economy. Secondly, it influences monetary transmission. This point was made by Richard Clarida when he was vice chair of the Board of governors of the Federal Reserve. "*Global integration of sovereign bond markets has important implications … for how central banks calibrate the transmission of policy and policy guidance to the real economy via the yields on long-maturity bonds that are relevant for saving, investment, and asset valuation.*"[6]

Thirdly, it influences the difference between the cost of borrowing and the growth of revenues that will serve to pay back the debt. In public finance, this difference is referred to as r-g, respectively the average cost of the outstanding stock of public debt and the expected long-term growth rate of nominal GDP (which matters for the evolution of tax revenues). A similar line of thinking can be applied to households and companies -the cost of debt versus the growth in household income or cashflows. Governments should be cognizant that a lack of fiscal discipline can create negative externalities, by pushing up bond yields abroad. This is particularly important for the US, given its central role in the global financial system and the projected increase of its public debt ratio, which is concerning to say the least.[7] It also emphasizes the need for rigorous fiscal governance at the EU level.

Finally, it matters because of the huge financing needs for the energy transition, the technological revolution (AI) and the increased needs for public goods (education, healthcare, defense, etc.), whereby it remains to be seen how these will influence the global level of long-term interest rates. Against this background, every issuer of debt should prepare for the possibility of higher interest rates and stress test his balance sheet in order to test its resilience.

**ROLLING BETA**
**(12 QUARTER WINDOW, QUARTERLY CHANGE IN BOND YIELDS)**

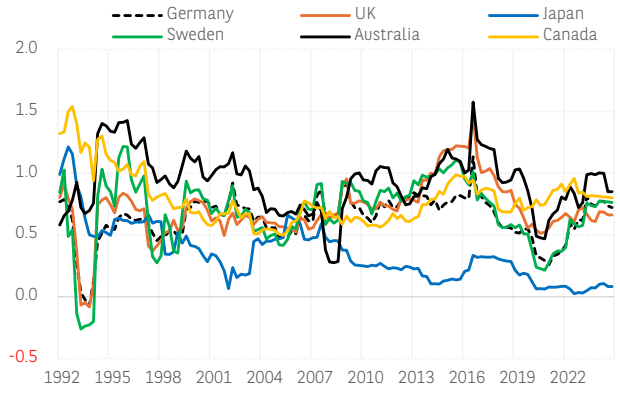


CHART 6

SOURCE: LSEG, BNP PARIBAS

**ROLLING BETA**
**(12 QUARTER WINDOW, QUARTERLY CHANGE IN BOND YIELDS)**

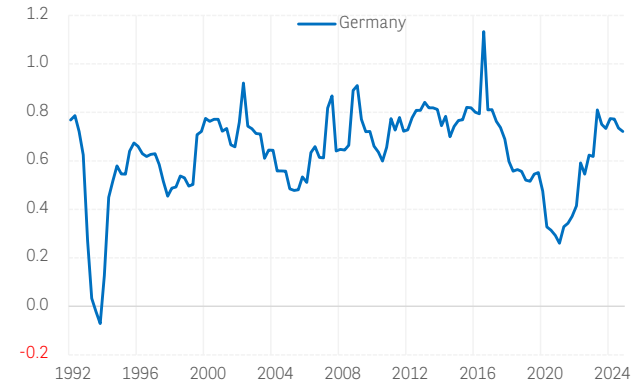


CHART 7

SOURCE: LSEG, BNP PARIBAS

*Article completed on March 7 2025*

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**Economic advisor of the general management**

5 Source: Eric Monnet and Damien Puy, Has Globalization Really Increased Business Cycle Synchronization?, IMF Working paper 16/54, March 2016. The authors analyse 21 countries in North America, Europe, Asia and Latin America and did not find any difference in co-movement between the Bretton Woods era (1950-1971) and the Globalization period (1984-2006).
6 Source: Richard H. Clarida (2021).
7 The US Congressional Budget Office projects that by 2035, the federal debt would reach 118% of GDP versus 97,8% in 2024. By 2055, it projects a debt ratio of 154%. Source: CBO, Budget projections, January 2025.

## PROSPECT OF MASSIVE INCREASE IN GERMAN INFRASTRUCTURE AND DEFENSE SPENDING CAUSES JUMP IN BOND YIELDS

On Tuesday 4 March 2025, the Bundesbank presented a reform proposal for the central government's debt brake to support urgently needed investments to strengthen the country's infrastructure and defense[1], but this hardly moved the bond market (*chart 8*). After all, everything depends on what the new government would decide. That same day, during a press conference in Berlin in the evening with the heads of the CSU and SPD, Friedrich Merz (CDU), who is widely expected to be the next German chancellor, announced that the three parties that are negotiating to form a new government had agreed that defense spending above 1 percent of GDP would be exempt from the debt brake. Given the rising threats, the "whatever it takes" principle should apply in terms of German defense. In addition, a EUR 500 bn fund for infrastructure investments would be created.[2] A plan would also be presented to reform the debt brake.

The prospect of a significant increase in government borrowing in Germany triggered a jump in Bund yields when markets opened the following morning. Other euro area bond markets also saw sizeable increases in yields. At the close on Wednesday 5 March, the 10-year Bund yield had increased 30bp, the biggest rise since the fall of the Berlin Wall.[3]

Interestingly, compared with the action in euro area bond markets, the move in US Treasury yields was subdued so unsurprisingly, the euro appreciated strongly versus the US dollar (*chart 9*). One can argue that the news from Germany was a textbook example of a 'local' shock, as opposed to a global one. Another interpretation is that increased defense spending in Europe would allow the US to spend less thereby benefitting the country's public finances. Finally, diverging expectations on the growth outlook -improving in Europe based on the prospect of more public spending, weakening in the US due to elevated uncertainty that is impacting households and companies- also playing a role.

1 Source : Bundesbank proposes debt brake reform for sound public finances and increased investment | Deutsche Bundesbank, 4 March 2025.
2 Source : Union und SPD einigen sich auf Milliardenkredite für Verteidigung und Infrastruktur - DER SPIEGEL, 4 March 2025, Germany's Friedrich Merz strikes 'game-changing' deal to boost defence spending, FT, 4 March 2025.
3 Source: German Bonds Slump Again as Debt Selloff Spreads Around World - Bloomberg, 6 March 2025.

**BOND MARKET**

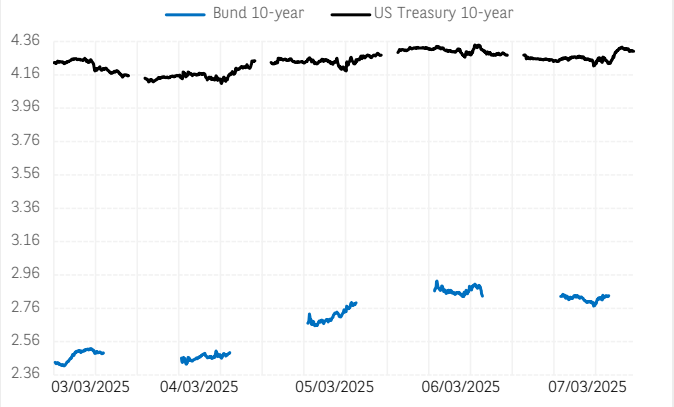


CHART 8 SOURCE: BLOOMBERG, BNP PARIBAS

**EURO VS. USD**

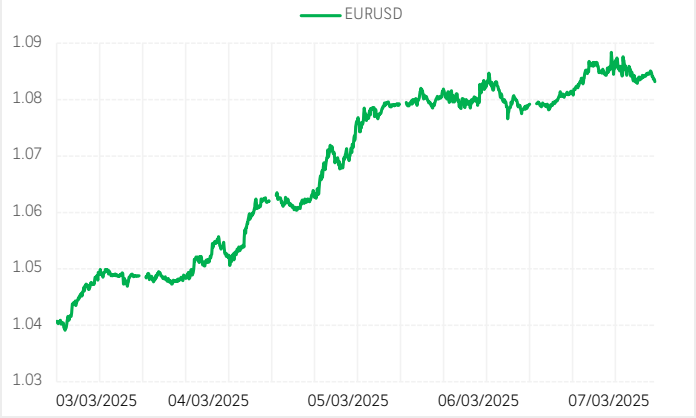


CHART 9 SOURCE: BLOOMBERG, BNP PARIBAS

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