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The slope of the yield curve is not a leading indicator of future growth.

Many investors still believe that the slope of the yield curve (we look at the slope between the central bank interest rate and the 10-year interest rate on public debt, and between the 2-year interest rate and the 10-year interest rate on public debt) is a leading indicator of future GDP growth.

We show that this has not been the case since the early 2010s in the United States as well as in Germany.

This disappearance of the role of the yield curve slope as a leading indicator of future growth is likely due to the disappearance of the correlation between inflation or expected inflation and growth, and the shift to monetary policies that ensure the credibility of the central bank.

If the anticipation of strong growth no longer affects expected inflation, it also no longer affects long-term interest rates.

Therefore, the idea that the slope of the yield curve can predict future growth should be abandoned.

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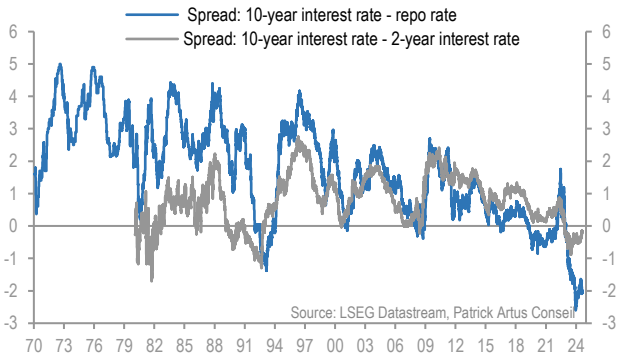
Many analyses still link the slope of the yield curve to future growth.

Many analyses still assume that the slope of the yield curve is a leading indicator of future growth. Chart 1a shows the slope of the yield curve in the United States, calculated as the difference between the 10-year interest rate on public debt and either the Fed Funds rate or the 2-year interest rate on public debt since 1970. Chart 1b shows the slope of the yield curve in Germany.

Chart 1A
United States: Spread between Treasury 10-year yield and Fed Funds rate and spread between Treasury 10-year yield and 2-year yield (as % point)



Chart 1B
Germany: Spread between interest rate on 10-year government bonds and repo rate and spread between interest rate on 10-year and 2-year government bonds (as % point)



The leading economic mechanism to explain the link between the slope of the yield curve and future growth is as follows: strong future growth leads to anticipated inflation, and anticipated inflation leads to an increase in long-term interest rates.

No more link between the slope of the yield curve and future growth since the early 1990s in the United States and since the early 2010s in the United States.

Tables 1a/b show the correlations between the slope of the yield curve and future growth in the United States for the 1970s, 1980s, 1990s, 2000s, and from 2010 to 2024. One can see a positive correlation between the slope of the yield curve and future growth (specifically GDP growth in 3 or 4 quarters) in the 1970s and 1980s. During the period from 2000 to 2009, a correlation appears between the slope of the interest rate curve and GDP growth with a very long lag of 5 to 10 quarters. From the 2010s onwards, there is no longer any correlation.

Table 1a: United States: Correlations between spread between Treasury 10-year yield and Fed Funds rate and real GDP growth

	GDP_q	GDP_{q+1}	GDP_{q+2}	GDP_{q+3}	GDP_{q+4}	GDP_{q+5}	GDP_{q+6}	GDP_{q+7}	GDP_{q+8}	GDP_{q+9}	GDP_{q+10}	GDP_{q+11}	GDP_{q+12}
From 1970 to 1979	0.215	0.505	0.737	0.843	0.823	0.708	0.558	0.357	0.198	0.093	-0.006	-0.058	-0.101
From 1980 to 1989	0.358	0.434	0.540	0.636	0.712	0.667	0.643	0.598	0.403	0.192	-0.046	-0.315	-0.510
From 1990 to 1999	-0.178	-0.107	-0.084	-0.087	-0.121	-0.171	-0.168	-0.141	-0.062	0.039	0.147	0.246	0.341
From 2000 to 2009	-0.298	-0.116	0.084	0.281	0.435	0.563	0.654	0.678	0.664	0.610	0.516	0.393	0.260
From 2010 to 2024	0.080	0.084	0.051	0.076	0.071	0.015	-0.066	-0.172	-0.195	-0.192	-0.104	-0.047	-0.004

Source : Patrick Artus Conseil

Table 1b: United States: Correlations between yield spread on Treasury and real GDP growth

	GDP_q	GDP_{q+1}	GDP_{q+2}	GDP_{q+3}	GDP_{q+4}	GDP_{q+5}	GDP_{q+6}	GDP_{q+7}	GDP_{q+8}	GDP_{q+9}	GDP_{q+10}	GDP_{q+11}	GDP_{q+12}
From 1970 to 1979	0.131	0.389	0.642	0.791	0.794	0.714	0.594	0.396	0.262	0.152	0.004	-0.059	-0.112
From 1980 to 1989	0.355	0.466	0.618	0.652	0.675	0.613	0.438	0.384	0.281	0.063	-0.079	-0.275	-0.470
From 1990 to 1999	-0.297	-0.187	-0.139	-0.089	-0.070	-0.106	-0.099	-0.100	-0.059	-0.003	0.038	0.098	0.185
From 2000 to 2009	-0.432	-0.260	-0.060	0.122	0.283	0.399	0.493	0.555	0.592	0.606	0.572	0.498	0.382
From 2010 to 2024	0.088	0.117	0.088	0.063	0.032	-0.003	-0.031	-0.048	-0.050	-0.066	-0.065	-0.088	-0.071

Source : Patrick Artus Conseil

Tables 2a/b show the correlations between the slope of the yield curve and future growth in Germany

Table 2a: Germany: Correlations between spread between interest rate on 10-year government bonds and repo rate and real GDP growth

	GDP_q	GDP_{q+1}	GDP_{q+2}	GDP_{q+3}	GDP_{q+4}	GDP_{q+5}	GDP_{q+6}	GDP_{q+7}	GDP_{q+8}	GDP_{q+9}	GDP_{q+10}	GDP_{q+11}	GDP_{q+12}
From 1970 to 1979	-0.212	-0.007	0.146	0.207	0.197	0.152	0.039	-0.137	-0.268	-0.349	-0.364	-0.276	-0.147
From 1980 to 1989	0.388	0.528	0.428	0.243	0.126	0.063	0.078	0.212	0.367	0.456	0.444	0.355	0.264
From 1990 to 1999	0.367	0.419	0.402	0.332	0.240	0.131	0.047	-0.001	-0.032	-0.060	-0.032	0.032	0.148
From 2000 to 2009	-0.411	-0.094	0.204	0.411	0.532	0.529	0.490	0.454	0.363	0.275	0.160	0.026	-0.084
From 2010 to 2024	0.402	0.383	0.328	0.288	0.180	0.058	-0.018	-0.093	-0.070	-0.025	0.044	0.097	0.165

Source : Patrick Artus Conseil

Table 2b: Germany: Correlations between yield spread on government bonds and real GDP growth

	GDP_q	GDP_{q+1}	GDP_{q+2}	GDP_{q+3}	GDP_{q+4}	GDP_{q+5}	GDP_{q+6}	GDP_{q+7}	GDP_{q+8}	GDP_{q+9}	GDP_{q+10}	GDP_{q+11}	GDP_{q+12}
From 1980 to 1989	0.303	0.445	0.501	0.443	0.400	0.304	0.213	0.246	0.282	0.403	0.508	0.540	0.602
From 1990 to 1999	-0.365	-0.257	-0.110	0.004	0.083	0.144	0.207	0.196	0.190	0.147	0.133	0.182	0.232
From 2000 to 2009	-0.747	-0.539	-0.216	0.076	0.291	0.445	0.502	0.526	0.537	0.520	0.444	0.337	0.220
From 2010 to 2024	0.391	0.375	0.328	0.290	0.192	0.081	-0.015	-0.083	-0.088	-0.068	-0.010	0.017	0.098

Source : Patrick Artus Conseil

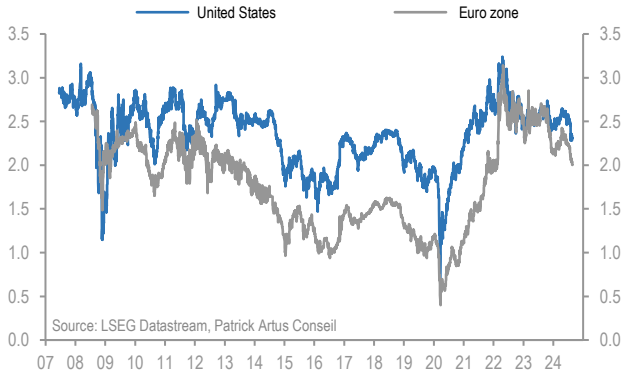
One can see a **positive correlation between the slope of the yield curve and future growth** with a one-quarter lead in the 1980s and 1990s, and with a lead of 3 to 9 quarters in the 2000s. From the 2010s, the slope of the yield curve in Germany has a weakly positive correlation with current growth (that of the current quarter). Therefore, it cannot be considered a leading indicator of future growth.

Summary: Why has the correlation between the slope of the yield curve and future growth disappeared since the early 2010s in the United States and in Germany?

The disappearance of the correlation between the slope of the yield curve and future growth implies **that we should stop interpreting an inversion of the yield curve as signaling a recession**.

Why has the correlation between the slope of the yield curve and future growth disappeared? Probably **due to the credibility of central banks, which has eliminated the link between expected inflation and growth. Chart 2** shows the stability of expected inflation measured by 10-year inflation swaps, particularly the absence of strong inflation expectations, with expected inflation remaining stable at a moderate level (until 2014 and since 2021) or low level (from 2014 to 2020).

Chart 2
10-year inflation swaps



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