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Macroeconomic Outlook – September 2023



DBnomics

- Most data presented in the forthcoming slides are extracted from DBnomics
 (https://db.nomics.world/), an open-sourced databank created at CEPREMAP, and will be updated every Thursday at 6:00pm
- The project has been financed by generous grants from Banque de France, AFD, DG Trésor, France Stratégie and OECD
- The executive director of the DBnomics project is Christophe Benz
- The slides have been designed by Daniel Cohen and are updated by Jocelyn Maillard at CEPREMAP
- Corresponding codes to the DBnomics data are available in the Appendix
- All materials presented here can be freely used with proper acknowledgment
- Questions and comments about the presentation can be addressed at jocelyn.maillard@cepremap.org



Executive summary

- Markets and policymakers are following in parallel headline inflation, financial market and labor market trends.
- In response to inflationary pressures, monetary policy has been tightened up to levels unheard of for the last 20 years. This month the ECB raised again the interest rate to 4.00%, at the surprise of investors. The Fed paused its hikes but signaled that a last 25-bps increase should occur before the end of the year.
- Inflation has been decreasing in the US while it remains high in Europe. However, the returns to the 2% inflation target may be complex in the US as the Fed must deal with labor-market overheating and financial-market issues.
- The sheer threat of a recession should have reduced the price of energy, potentially cooling down inflationary pressures. The OPEC+ decision to curtail production has, however, lifted up oil prices.
- Sovereign yields are at a high level in the Euro Area as the uncertainty about inflation remains. However, the spreads between core countries and the periphery have been decreasing. Indeed, macroeconomic results have overcome expectations in countries as Spain or Greece while Germany's growth has been particularly low for the past year.
- The discrepancy between the tightening pace in the US and in the Euro Area has led, in 2022, to an appreciation of the USD against the EUR. However, as US inflation seems to have peaked before the EZ, this trend has reversed since October 2022.



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Growth and inflation in selected G20 countries





A The growth slowdown



Growth in advanced economies

The second quarter of 2023 has brought low but positive economic growth in all major advanced economies but Italy. France's growth was notably higher than expected. The OECD has moderately revised downward its growth projections for 2023 and 2024 for European countries, and upwards for the US.

Yearly GDP growth rate (YoY % change)

| | Yearly GDP growth rate % | | | | | | | | | | |
|-----------|--------------------------|------|------|---------|---------|--|--|--|--|--|--|
| Country | 2020 | 2021 | 2022 | 2023(P) | 2024(P) | | | | | | |
| Euro Area | (6.1) ¹ | 5.4 | 3.5 | 0.6 | 1.1 | | | | | | |
| Germany | (3.7) | 2.6 | 1.8 | (0.2) | 0.9 | | | | | | |
| France | (7.9) | 6.8 | 2.6 | 1.0 | 1.2 | | | | | | |
| Italy | (9.0) | 7.0 | 3.7 | 0.8 | 0.8 | | | | | | |
| UK | (11.0) | 7.6 | 4.0 | 0.3 | 0.8 | | | | | | |
| USA | (2.8) | 5.9 | 2.1 | 2.2 | 1.3 | | | | | | |
| Japan | (4.3) | 2.1 | 1.1 | 1.8 | 1.0 | | | | | | |

Quarterly GDP growth rate (% change over the previous period)

| | Quarterly GDP growth rate % | | | | | | | | | | |
|-----------|-----------------------------|-------|------|-------|-------|-------|-------|-------|-------|--|--|
| Country | 21Q2 | 21Q3 | 21Q4 | 22Q1 | 22Q2 | 22Q3 | 22Q4 | 23Q1 | 23Q2 | | |
| Euro Area | 2.0 | 2.1 | 0.5 | 0.7 | 0.8 | 0.3 | (0.1) | 0.1 | 0.1 | | |
| France | 0.9 | 3.0 | 0.6 | (0.1) | 0.4 | 0.3 | 0.1 | 0.0 | 0.5 | | |
| Germany | 2.2 | 0.7 | 0.0 | 1.0 | (0.1) | 0.4 | (0.4) | (0.1) | 0.0 | | |
| Italy | 2.5 | 2.9 | 0.8 | 0.1 | 1.2 | 0.3 | (0.2) | 0.6 | (0.4) | | |
| UK | 6.5 | 1.7 | 1.5 | 0.5 | 0.1 | (0.1) | 0.1 | 0.1 | 0.2 | | |
| USA | 1.7 | 0.7 | 1.7 | (0.4) | (0.1) | 0.8 | 0.6 | 0.5 | 0.5 | | |
| Japan | 0.5 | (0.4) | 1.1 | (0.6) | 1.3 | (0.3) | 0.1 | 0.8 | 1.2 | | |

Forecast from OECD Economic Outlook, September 2023



Growth in emerging countries

Economic growth strongly decreased in the second quarter in China, readjusting to the previous high growth. The OECD has lifted 2023 and 2024 growth for Brazil and Mexico, but they have revised downwards the growth for the main emerging Asian countries.

Yearly GDP growth rate (YoY % change)

| | Yearly GDP growth rate % | | | | | | | | | | |
|-----------|--------------------------|------|------|---------|---------|--|--|--|--|--|--|
| Country | 2020 | 2021 | 2022 | 2023(P) | 2024(P) | | | | | | |
| China | 2.2 | 8.4 | 3.0 | 5.1 | 4.6 | | | | | | |
| S. Africa | (6.3) | 4.9 | 2.0 | 0.6 | 1.1 | | | | | | |
| Brazil | (3.3) | 5.0 | 2.9 | 3.2 | 1.7 | | | | | | |
| India | (5.8) | 9.1 | 6.8 | 6.3 | 6.0 | | | | | | |
| Mexico | (8.0) | 4.7 | 3.1 | 3.3 | 2.5 | | | | | | |
| Indonesia | (2.1) | 3.7 | 5.3 | 4.9 | 5.2 | | | | | | |

Quarterly GDP growth rate (% change over the previous period)

| | Quarterly GDP growth rate % | | | | | | | | | | | |
|-----------|-----------------------------|-------|------|------|-------|------|-------|------|------|--|--|--|
| Country | 21Q2 | 21Q3 | 21Q4 | 22Q1 | 22Q2 | 22Q3 | 22Q4 | 23Q1 | 23Q2 | | | |
| China | 1.3 | 0.7 | 1.6 | 1.0 | (1.9) | 3.2 | 0.5 | 2.2 | 0.8 | | | |
| S. Africa | 1.3 | (1.9) | 1.4 | 1.5 | (0.8) | 1.8 | (1.1) | 0.4 | 0.6 | | | |
| Brazil | (0.2) | 0.4 | 1.1 | 0.9 | 1.0 | 0.4 | 0.1 | 1.8 | 0.9 | | | |
| India | (7.5) | 9.3 | 2.0 | 0.5 | 0.9 | 2.0 | 1.1 | 2.1 | 1.9 | | | |
| Mexico | 0.7 | (0.6) | 1.4 | 1.4 | 1.0 | 1.2 | 0.6 | 0.8 | 0.8 | | | |
| Indonesia | 0.3 | 0.0 | 3.2 | 1.0 | 0.9 | 0.8 | 2.3 | 0.8 | 0.8 | | | |

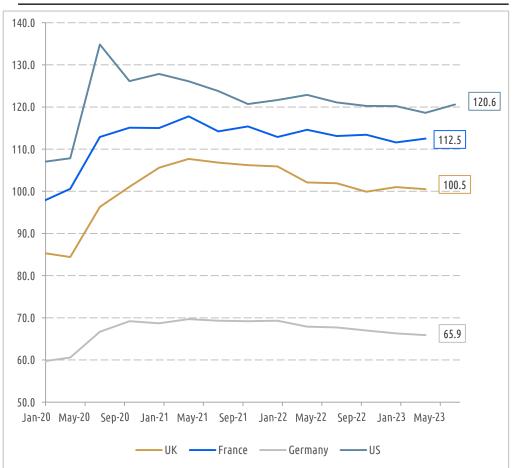
Forecast from OECD Economic Outlook September 2023



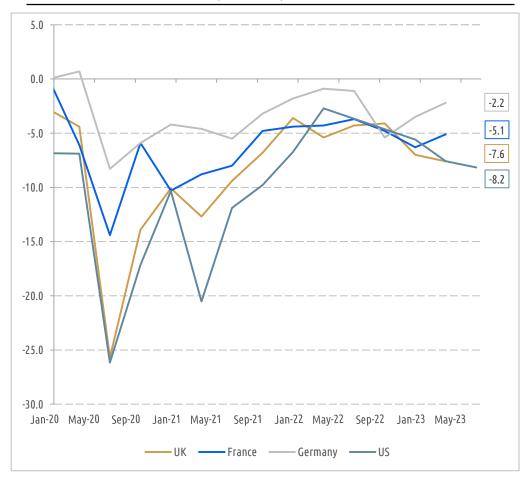
Government debts have reached a new plateau in the G4 countries¹

Inflation acted as a moderating factor on the evolution on debt ratios. Deficits decreased in France and Germany in the first quarter of 2023 while it kept increasing in the UK and the US.

General Government debt (% of GDP) - Since 2020



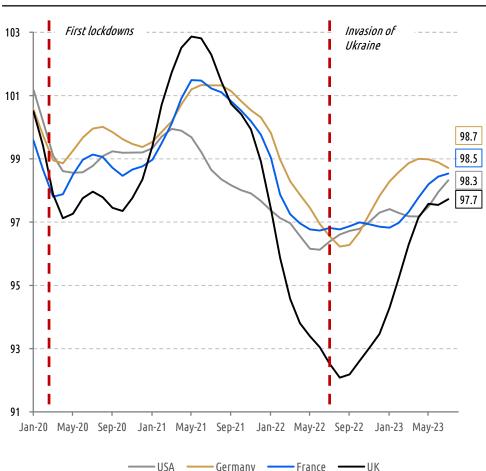
General Government deficit (% of GDP) - Since 2020



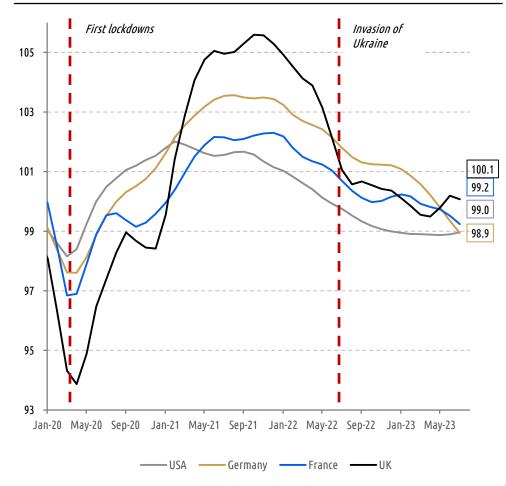
Consumer confidence is on an upward path for the main European countries but remaining at rather low levels.

Business confidence, however, has been on a decreasing path for the last year.

Consumer confidence indicator - Since Jan. 2020



Business confidence indicator – Since Jan. 2020



7



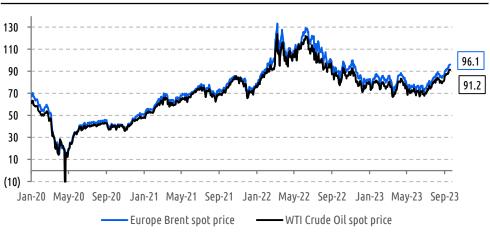
B The seeds of inflation



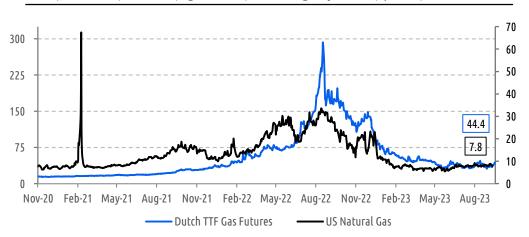
Russian invasion added inflationary pressure. Yet, prices of raw materials have mostly returned to their pre-war range.

Natural-gas-price difference between the US and Europe has decreased but a one to five discrepancy remains between the two markets. Wheat price is slowly decreasing, almost reaching its pre-COVID level. However, oil prices have been increasing again since May.

Oil prices in historical perspective (USD per barrel)



EU (left scale) and US (right scale) natural gas prices (ϵ/MWh)



Copper prices in historical perspective (USD/tonne)



CBOT Wheat (USD/Bushel)



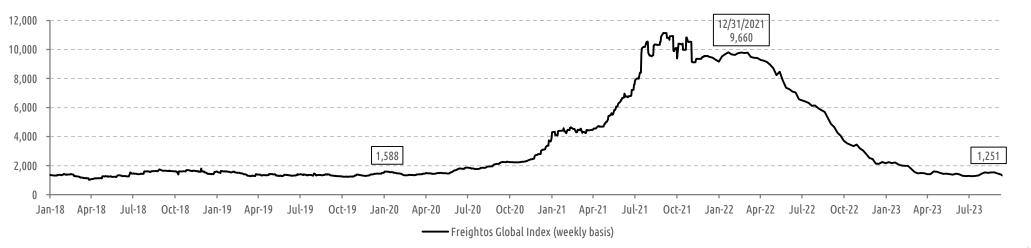
Supply chain disruptions are easing up significantly

Transportation costs have returned to their pre-crisis level.

% of EU business reporting shortages of materials and equipment in the construction industry as a limiting production factor



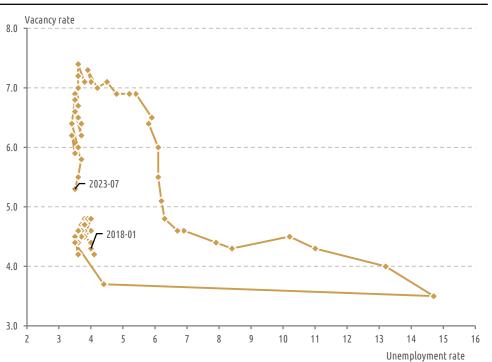
Shipping Container Index (based on spot rate for 40 feet containers)



Labor markets remain tight... (1/2)

The unemployment rate, both in the US and the EZ, remain at very low levels. In the US, the vacancy/unemployment ratio, however, is falling since February, easing up recruitment constraints.

Beveridge curve - USA (01-2018 - 07-2023), Monthly



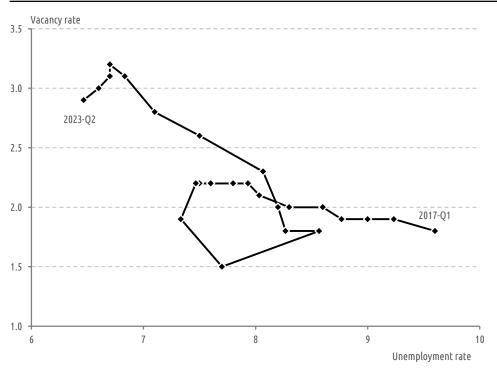
Unemployment rate (% of labor force) - Monthly

Civilian unemployment rate - Total - USA - Seasonally adjusted

Indicator | 09-22 | 10-22 | 11-22 | 12-22 | 01-23 | 02-23 | 03-23 | 04-23 | 05-23 | 06-23 | 07-23 | 08-23

Rate | 3.5 | 3.7 | 3.6 | 3.5 | 3.4 | 3.6 | 3.5 | 3.4 | 3.7 | 3.6 | 3.5 | 3.8

Beveridge curve – Euro Area (Q1-17 – Q2-23), Quarterly



Unemployment rate (% of labor force) - Monthly

 Unemployment according to ILO definition - Total - Euro area - Seasonally adjusted

 Indicator
 08-22
 09-22
 10-22
 11-22
 12-22
 01-23
 02-23
 03-23
 04-23
 05-23
 06-23
 07-23

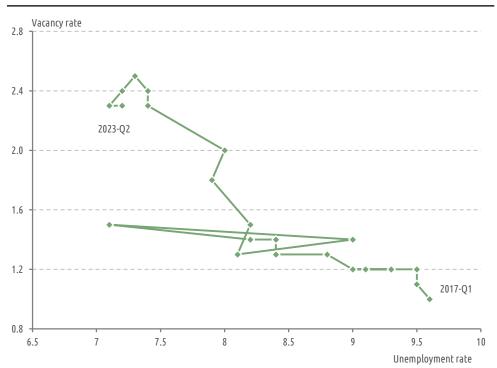
 Rate
 6.7
 6.7
 6.7
 6.7
 6.6
 6.5
 6.5
 6.5
 6.4
 6.4



Labor markets remain tight... (2/2)

The vacancy/unemployment ratio still at record high levels in France.

Beveridge curve - France (Q1-17 - Q2-23), Quarterly



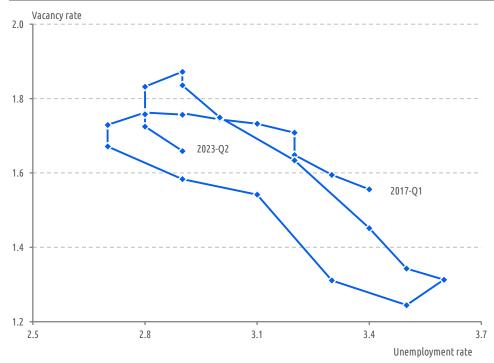
Unemployment rate (% of labor force) – Monthly (Eurostat)

Unemployment rate – Total – France- Seasonally adjusted
Indicator | 08-22 | 09-22 | 10-22 | 11-22 | 12-22 | 01-23 | 02-23 | 03-23 | 04-23 | 05-23 | 06-23 | 07-23

Rate 7.2 7.1 7.2 7.2 7.2 7.1 7.1 7.1 7.3 7.3 7.3 7.4

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Beveridge curve - Germany (Q1-17 – Q2-23), Quarterly



Unemployment rate (% of labor force) - Monthly

 Unemployment according to ILO definition - Total - Germany - Seasonally adjusted

 Indicator
 08-22
 09-22
 10-22
 11-22
 12-22
 01-23
 02-23
 03-23
 04-23
 05-23
 06-23
 07-23

 Rate
 3.1
 3.1
 3.1
 3.0
 3.0
 3.0
 2.9
 2.9
 2.9
 2.9
 2.9

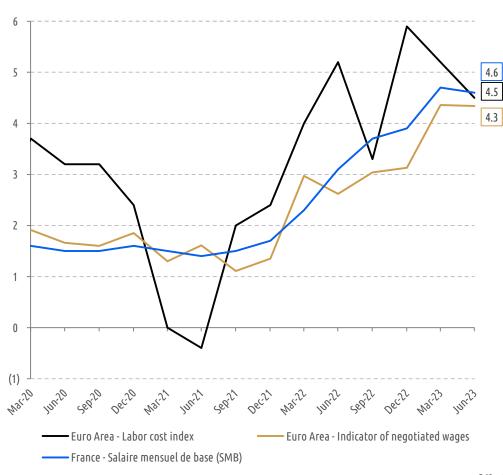
The verdict on wage inflation in 2023, both in the US and the EZ, is still open

Although wage inflation is lower in the Euro Area, it may not have reached its peak yet, leaving open the question of the extend of monetary tightening.

Wage growth tracker (nominal wage growth of individuals) – US (Monthly)



Indicator of negotiated wages¹ in the Euro Area (Quarterly)





C Inflation unbound



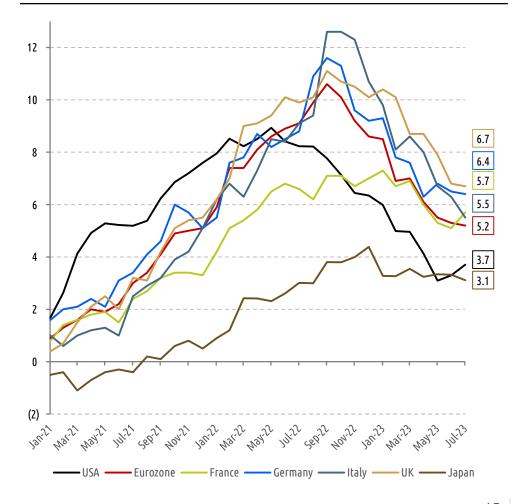
Inflation is coming down from its peak both in Europe and the US

Headline inflation is decreasing quickly in the US (despite a rebound in August) while remaining at high levels in Europe. Germany and the UK have particularly high inflation levels. Core inflation remains at high levels in the US and the EZ, making it difficult to speculate about the course of monetary policy.

CPI and core inflation in advanced economies (YoY % change)

| CPI and core initia | CPI and core inflacion in advanced economies (YOY % change) | | | | | | | | | | | |
|---------------------|---|--------|-------|--------|-------|--------|--------|-------------|-------|-----|-----|-----|
| Mon | thly \ | ′еаг-с | on-Ye | ar inf | latio | n rate | es (%) | – 20 | 22/20 | 23 | | |
| Country | Sep | Oct | Nov | Dec | Jan | Feb | Маг | Арг | May | Jun | Jul | Aug |
| US | 8.2 | 7.8 | 7.1 | 6.4 | 6.3 | 6.0 | 5.0 | 5.0 | 4.1 | 3.1 | 3.3 | 3.7 |
| US core | 6.6 | 6.3 | 6.0 | 5.7 | 5.5 | 5.5 | 5.6 | 5.5 | 5.3 | 4.9 | 4.7 | 4.4 |
| Euro Area* | 9.9 | 10.6 | 10.1 | 9.2 | 8.6 | 8.5 | 6.9 | 7.0 | 6.1 | 5.5 | 5.3 | 5.2 |
| Euro Area core* | 4.8 | 5.0 | 5.0 | 5.2 | 5.3 | 5.6 | 5.7 | 5.6 | 5.3 | 5.5 | 5.5 | 5.3 |
| France* | 6.2 | 7.1 | 7.1 | 6.7 | 7.0 | 7.3 | 6.7 | 6.9 | 6.0 | 5.3 | 5.1 | 5.7 |
| France core* | 3.7 | 4.1 | 4.2 | 4.2 | 4.2 | 4.6 | 4.6 | 4.7 | 4.4 | 4.4 | 4.3 | 4.0 |
| France INSEE | 5.6 | 6.2 | 6.2 | 5.9 | 6.0 | 6.3 | 5.7 | 5.9 | 5.1 | 4.5 | 4.3 | 4.9 |
| France core INSEE | 4.5 | 5.0 | 5.3 | 5.3 | 5.6 | 6.1 | 6.2 | 6.3 | 5.8 | 5.7 | 5.0 | 4.6 |
| Germany* | 10.9 | 11.6 | 11.3 | 9.6 | 9.2 | 9.3 | 7.8 | 7.6 | 6.3 | 6.8 | 6.5 | 6.4 |
| Germany core* | 4.7 | 5.1 | 5.1 | 5.4 | 5.1 | 5.4 | 5.9 | 5.6 | 5.1 | 6.1 | 6.2 | 6.3 |
| Italy* | 9.4 | 12.6 | 12.6 | 12.3 | 10.7 | 9.8 | 8.1 | 8.6 | 8.0 | 6.7 | 6.3 | 5.5 |
| Italy core* | 4.4 | 4.6 | 4.7 | 4.8 | 5.2 | 5.5 | 5.3 | 5.3 | 5.1 | 4.9 | 4.7 | 4.0 |
| UK | 10.1 | 11.1 | 10.7 | 10.5 | 10.1 | 10.4 | 10.1 | 8.7 | 8.7 | 7.9 | 6.8 | 6.7 |
| UK core | 6.5 | 6.5 | 6.3 | 6.3 | 5.8 | 6.2 | 6.2 | 6.8 | 7.1 | 6.9 | 6.9 | 6.2 |
| Japan | 3.0 | 3.8 | 3.8 | 4.0 | 4.4 | 3.3 | 3.3 | 3.5 | 3.2 | 3.3 | 3.3 | 3.1 |
| Japan core | 1.8 | 2.5 | 2.8 | 3.0 | 3.2 | 3.4 | 3.7 | 4.1 | 4.2 | 4.3 | 4.3 | 4.3 |

CPI Inflation (YoY % change) - since January 2021



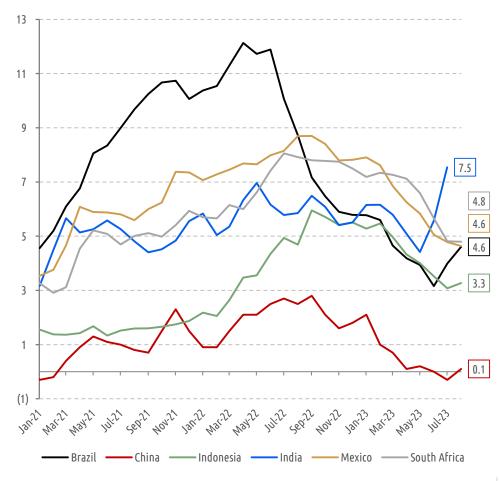
Inflation remains at high levels in most emerging economies, especially India

China remains an extraordinary exception with extremely low inflation levels

CPI inflation in advanced economies (YoY % change)

| CFI III (ac | CPI illitation in advanced economies (404 % change) | | | | | | | | | | | |
|-----------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|
| | Monthly Year-on-Year inflation rates (%) – 2022/2023 | | | | | | | | | | | |
| Country | Sep | Oct | Nov | Dec | Jan | Feb | Маг | Арг | May | Jun | Jul | Aug |
| China | 2.8 | 2.1 | 1.6 | 1.8 | 2.1 | 1.0 | 0.7 | 0.1 | 0.2 | 0.0 | (0.3) | 0.1 |
| India | 6.5 | 6.1 | 5.4 | 5.5 | 6.2 | 6.2 | 5.8 | 5.1 | 4.4 | 5.6 | 7.5 | - |
| South Africa | 7.8 | 7.8 | 7.7 | 7.5 | 7.2 | 7.3 | 7.3 | 7.1 | 6.6 | 5.7 | 4.8 | 4.8 |
| Brazil | 7.2 | 6.5 | 5.9 | 5.8 | 5.8 | 5.6 | 4.7 | 4.2 | 3.9 | 3.2 | 4.0 | 4.6 |
| Mexico | 8.7 | 8.4 | 7.8 | 7.8 | 7.9 | 7.6 | 6.8 | 6.3 | 5.8 | 5.1 | 4.8 | 4.6 |
| Indonesia | 6.0 | 5.7 | 5.4 | 5.5 | 5.3 | 5.5 | 5.0 | 4.3 | 4.0 | 3.5 | 3.1 | 3.3 |

CPI Inflation (YoY % change) - since January 2021





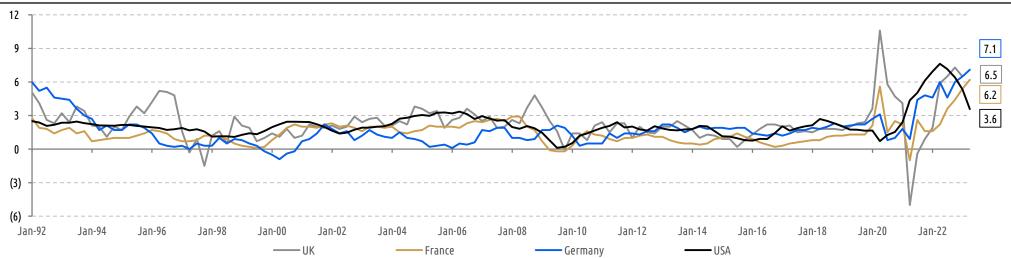
Implied GDP deflators appear to be converging towards headline inflation in G4 countries¹

GDP deflators are at high levels in Europe while it is decreasing in the US.

Quarterly implied GDP deflator - Since Q1-2021

| Implied GDP deflator (YoY % change) – Since Q1-2021 | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|
| Country | Q3-21 | Q4-21 | Q1-22 | Q2-22 | Q3-22 | Q4-22 | Q1-23 | Q2-23 | | | |
| USA | 5.0 | 6.1 | 6.9 | 7.6 | 7.1 | 6.4 | 5.3 | 3.6 | | | |
| Germany | 4.4 | 4.8 | 4.6 | 6.0 | 4.6 | 6.0 | 6.5 | 7.1 | | | |
| France | 2.6 | 1.6 | 1.6 | 2.2 | 3.6 | 4.4 | 5.4 | 6.2 | | | |
| ик | (0.4) | 0.9 | 1.9 | 5.9 | 6.5 | 7.3 | 6.5 | - | | | |

Quarterly implied GDP deflator – Since Q1-1992







II Monetary policy



A In the US



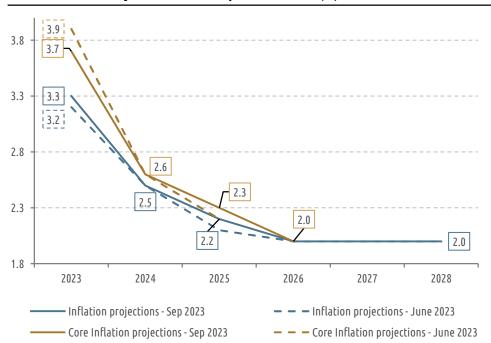
Monetary Policy Decisions from the Fed (1/2)

The Fed decided to pause its hikes in September. However, another 25-bps increase is expected before the end of the year.

Personal consumption expenditures (PCE) – Monthly (YoY % change)

| Price indexes for Personal Consumption Expenditures | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|--|--|--|
| Indicator | 01-23 | 02-23 | 03-23 | 04-23 | 05-23 | 06-23 | 07-23 | | | |
| PCE inflation | 5.4 | 5.0 | 4.2 | 4.3 | 3.8 | 3.0 | 3.3 | | | |

PCE Inflation Projections as of September 2023 (%)



Sources: Fed as of 20/09/2023, Bureau of Economic Analysis

Key considerations

- The target range of the federal fund rates was maintained at 5.25%-5.50% on September 20th.
- The pause comes after an increase of 25 bps in July. Interest rates are at their highest levels since 2001.
- The Fed revised up GDP growth from 1% to 2.1%. However, it anticipates that labor market will rebalance, cooling down pressures on prices.
- Next meeting will be on October 31st The key issue is whether a new hike will occur.

| Federal Reserve economic projections as of 20th September 2023 | | | | | | | | | | |
|--|------|------|------|------------|--|--|--|--|--|--|
| Indicator | 2023 | 2024 | 2025 | Longer run | | | | | | |
| Change in real GDP | 2.1 | 1.5 | 1.8 | 1.8 | | | | | | |
| Unemployment rate | 3.8 | 4.1 | 4.1 | 4.0 | | | | | | |
| Inflation | 3.3 | 2.5 | 2.2 | 2.0 | | | | | | |
| Federal funds rate | 5.6 | 5.1 | 3.9 | 2.5 | | | | | | |

""We remain committed to bringing inflation back down to our 2 percent goal and to keeping longer-term inflation expectations well anchored. Reducing inflation is likely to require a period of below-trend growth and some softening of labor market conditions."

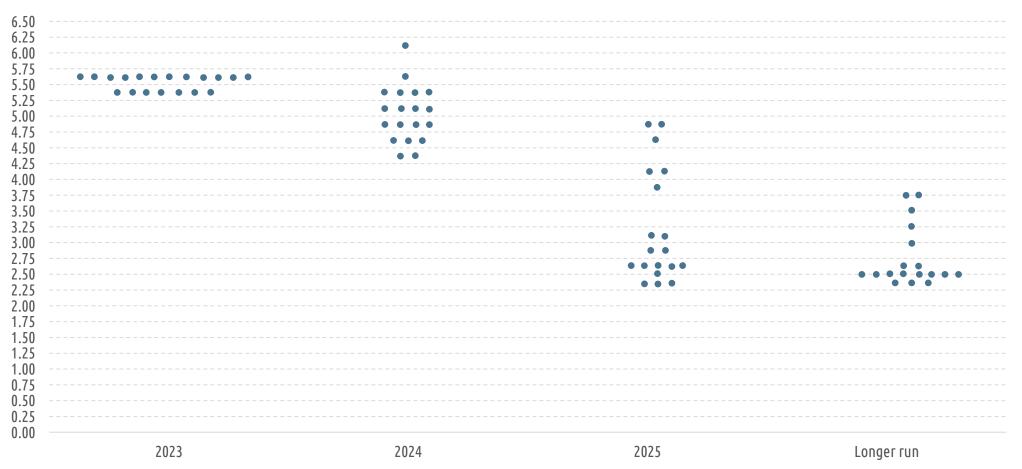
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Monetary Policy Decisions from the Fed (2/2)

The Federal Reserve's so-called dot plot shows the median year-end projection for the federal fund rates. The estimates remain close to the previous ones in June.

FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate as of 20th September



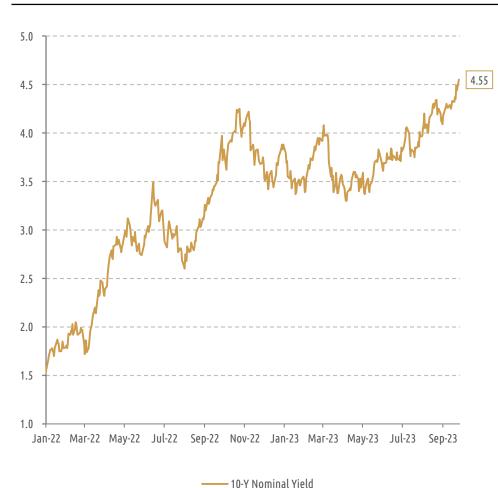


Source: Fed as of 20/09/2023

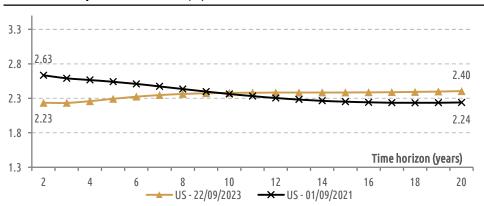
Nominal long-term rates are at their highest level since the Great Recession

Real rate however are expected to stay around 2% in real terms

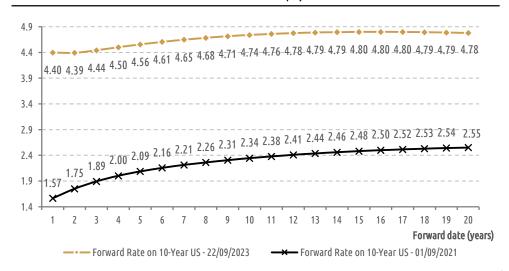
10-Y Nominal yield – US



Inflation Expectations – US (%)



Forward Rates on 10-Year U.S. Treasuries (%)





The US yield curve is inverted at levels unheard of since 1982

U.S. 10Yr/2Yr Spread - Since Jan. 1978





Source: Fed as of 27/09/2023



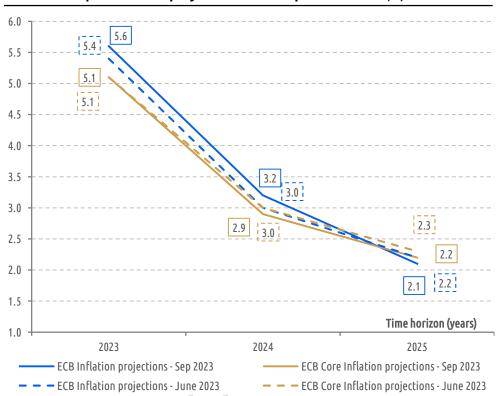
B In the Euro Area



The ECB raised its interest rates by 25 bps in September, surprising investors

President Lagarde signaled that despite a decrease of headline inflation over the last few months, this rise of interest rate was required to ensure a timely return of inflation to the 2% target. The required time to reach that target remains highly uncertain given the open questions regarding wage inflation.

Inflation expectations & projections as of September 2023 (%)



Key considerations

- The Governing Council decided to raise the three key ECB interest rates by 25 basis points, following other 25-bps increase in May, June and July and several previous 50-bps increases.
- Looking ahead, ECB staff have slightly revised their inflation projections up. Headline inflation is now expected to average 5.6% in 2023 while core inflation should reach 5.1%.
- The benchmark deposit rate is now set at 4%, coming from minus 0.5% a year and a half ago. It is the highest level since 2000.
- The next meeting is set on October 26th The ECB hinted at a probable long pause in the hikes.

| ECB economic projections as of 14 September 2023 | | | | | | | | | | |
|--|------|------|------|--|--|--|--|--|--|--|
| Indicator | 2023 | 2024 | 2025 | | | | | | | |
| Change in real GDP | 0.7 | 1.0 | 1.5 | | | | | | | |
| Unemployment rate | 6.5 | 6.7 | 6.7 | | | | | | | |
| Inflation | 5.6 | 3.2 | 2.1 | | | | | | | |

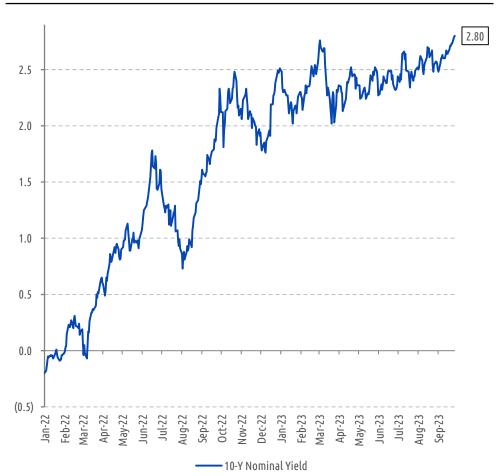
"Based on our current assessment, we consider that the key ECB interest rates have reached levels that, maintained for a sufficiently long duration, will make a substantial contribution to the timely return of inflation to our target."



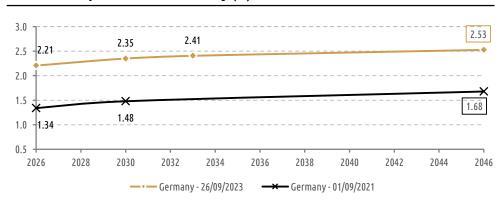
In the Eurozone, the banking crisis had no lasting effect on long-term rates

Expected real rates, however, are near zero in the longer run

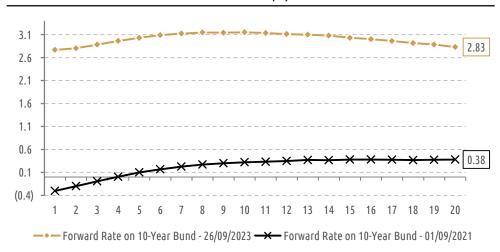
10-Y Nominal yield – German Bund



Inflation Expectations¹ - Germany (%)



Forward Rates on 10-Year German Bund (%)



The German yield curve is inverted for the first time since 2008, reflecting risk of recession/sluggish growth in 2023

Bund 2Yr/10Yr Spread - Since Jan 1998



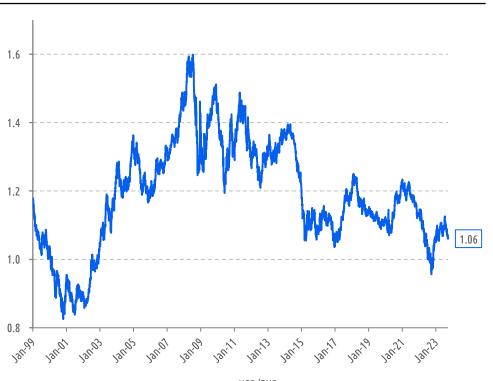


Source: Bundesbank as of 27/09/2023

After 18 months of a weakening euro, the trend has reversed since October 2022

The dollar is however getting stronger since June.

Nominal Foreign exchange rate in historical perspective – Since Jan. 1999



Nominal Foreign exchange rate in historical perspective — Since Jan. 2020



"The level of the euro matters significantly for imported inflation, [...]. A euro that is too weak would go against our price stability objective"

BANQUE DE FRANCE VILLEROY DE GALHAU, 06 MAY 2022



III Impact on yields and spreads

In Europe, sovereign yields remain at high levels

Italian, Greek and French 10-Y yields – Since Jan. 2021

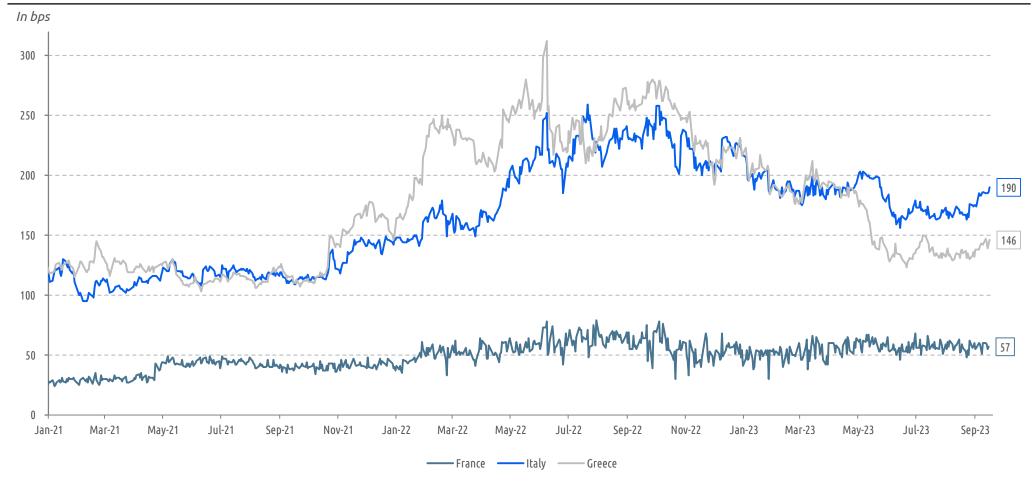




Tensions on spreads have moderately eased off since their peak late 2022

In spite of new financial uncertainties. Greece benefit from a strong revival of investors' confidence, especially compared to Italy. France is slightly up compared to pre-war levels.

Italian, Greek and French spreads over 10Y German bund – Since Jan. 2021





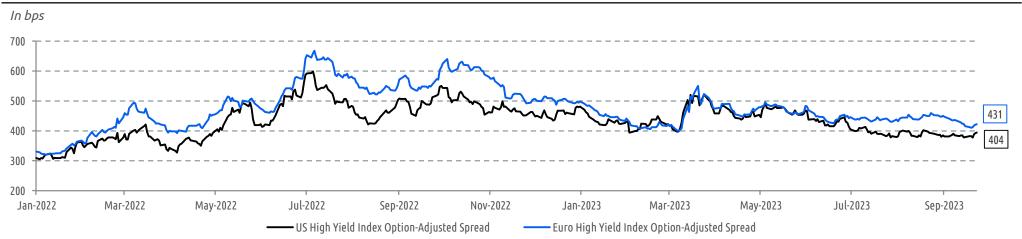
High yield corporate bond spreads rose in the wake of SVB bankruptcy

They are now decreasing in the US, coming slowly back to pre-war levels

High yield corporate bond spreads - Since 2000



High yield corporate bond spreads-Since 2022





Source: ICE BofA Indices as of 27/09/2023

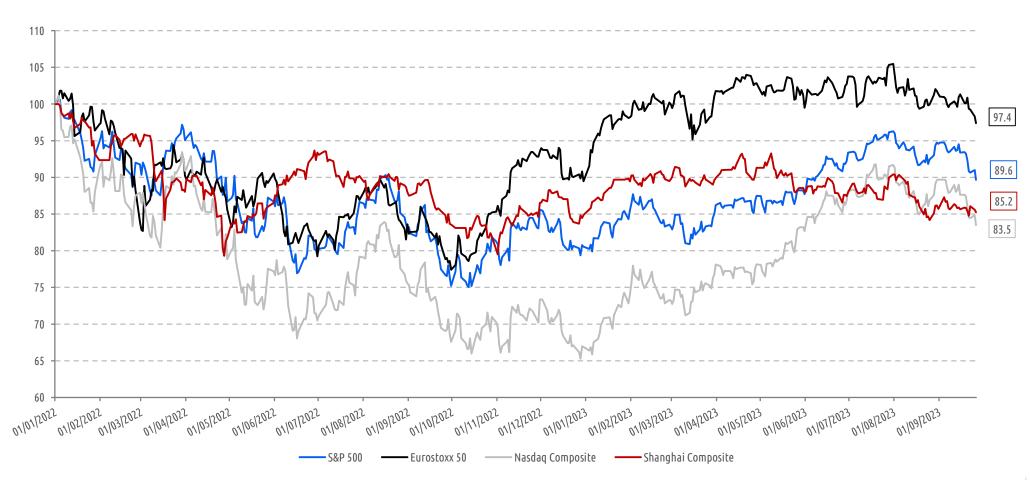


IV Impact on stock markets

Except for Eurostoxx 50, prices remain below pre-war levels

The Nasdaq index is staging an impressive recovery (due to tech-hungry investors) despite relatively low interest rates. Markets reacted negatively to the Fed's decision to pause its increase of interest rates.

Nasdaq Composite, S&P 500, Shanghai Composite and Eurostoxx 50 indices – Jan. 2022 = 100





Volatility on US financial markets has fallen below its historical average level

Ignoring the consequences of the banking crisis.



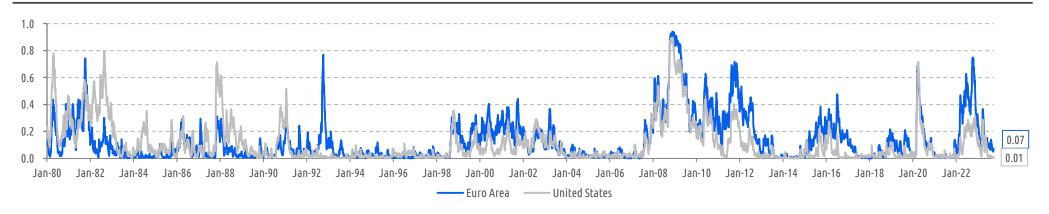




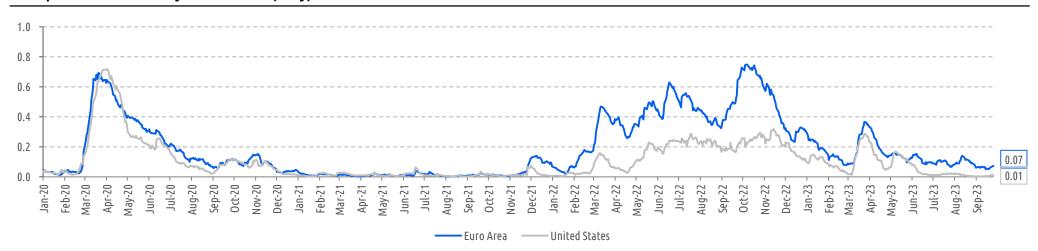
Financial stress indicators returned to pre-war levels

The index, however, is higher in Europe than in the US.

Composite Indicator of Systemic Stress (daily) - Since Jan. 1980



Composite Indicator of Systemic Stress (daily) - Since Jan. 2020



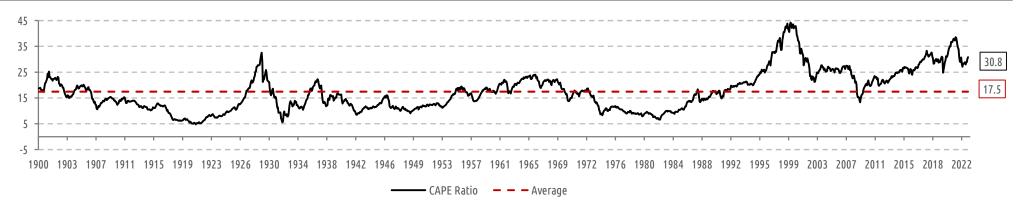


Source: ECB as of 27/09/2023

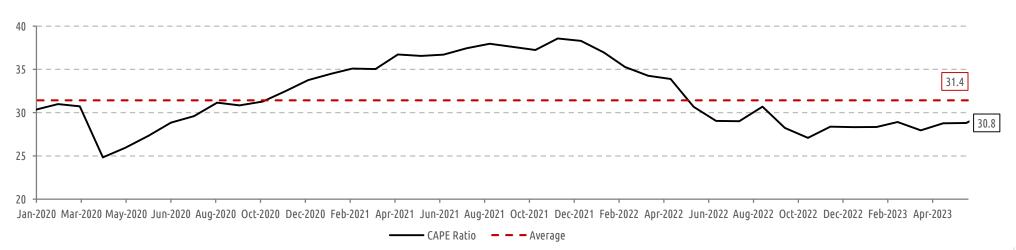
US Shiller Cyclically Adjusted Price to Earnings ratio (CAPE ratio)¹

Shiller CAPE ratio remains at record high level in historical perspective but still below pre-crisis level

Cyclically Adjusted Price Earnings ratio – Since 1900



Cyclically Adjusted Price Earnings ratio – Since 2020





Source: Robert Shiller (last data available – July 23)

Note: CAPE divide current prices to 10Y average of earnings (adjusted for inflation)

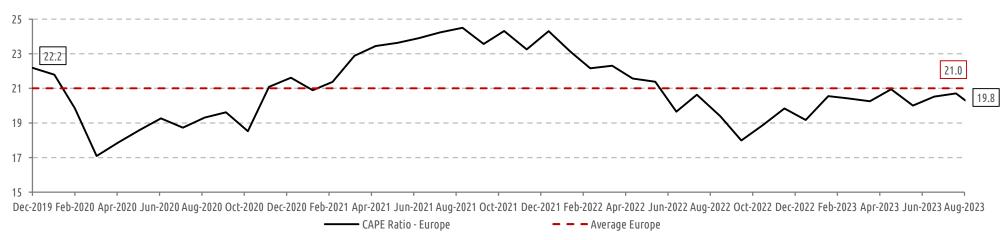
Shiller CAPE ratio in Europe

Shiller CAPE ratio is still close to its pre-Covid level and to its historical average

Cyclically Adjusted Price Earnings ratio – Since 1982



Cyclically Adjusted Price Earnings ratio – Since 2020



Source: Barclays (last data available – August 23)



V Appendix



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| 4 | Quarterly GDP growth (% change over the previous period) – Canada | OECD/KEI/NAEXKP01.CAN.GP.Q |
| 4 | Quarterly GDP growth (% change over the previous period) – Germany | OECD/KEI/NAEXKP01.DEU.GP.Q |
| 4 | Quarterly GDP growth (% change over the previous period) – Eurozone | OECD/KEI/NAEXKP01.EA19.GP.Q |
| 4 | Quarterly GDP growth (% change over the previous period) – France | OECD/KEI/NAEXKP01.FRA.GP.Q |
| 4 | Quarterly GDP growth (% change over the previous period) – UK | OECD/KEI/NAEXKP01.GBR.GP.Q |
| 4 | Quarterly GDP growth (% change over the previous period) – Italy | OECD/KEI/NAEXKP01.ITA.GP.Q |
| 4 | Quarterly GDP growth (% change over the previous period) – Japan | OECD/KEI/NAEXKP01.JPN.GP.Q |
| 4 | Quarterly GDP growth (% change over the previous period) – US | OECD/KEI/NAEXKP01.USA.GP.Q |
| 4 | Yearly GDP growth rate (YoY % change) – Canada | IMF/WEO:2023-04/CAN.NGDP_RPCH.pcent_change |
| 4 | Yearly GDP growth rate (YoY % change) – Germany | IMF/WEO:2023-04/DEU.NGDP_RPCH.pcent_change |
| 4 | Yearly GDP growth rate (YoY % change) – France | IMF/WEO:2023-04/FRA.NGDP_RPCH.pcent_change |
| 4 | Yearly GDP growth rate (YoY % change) – UK | IMF/WEO:2023-04/GBR.NGDP RPCH.pcent change |
| 4 | Yearly GDP growth rate (YoY % change) – Italy | IMF/WEO:2023-04/ITA.NGDP_RPCH.pcent_change |
| 4 | Yearly GDP growth rate (YoY % change) – Japan | IMF/WEO:2023-04/JPN.NGDP RPCH.pcent change |

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| 4 | Yearly GDP growth rate (YoY % change) – US | IMF/WEO:2023-04/USA.NGDP_RPCH.pcent_change |
| 4 | Yearly GDP growth rate (YoY % change) – Eurozone | IMF/WEOAGG:2023-04/163.NGDP RPCH.pcent change |
| 5 | Quarterly GDP growth (% change over the previous period) – China | OECD/DP_LIVE/CHN.QGDP.TOT.PC_CHGPP.Q |
| 5 | Quarterly GDP growth (% change over the previous period) – Brazil | OECD/KEI/NAEXKP01.BRA.GP.Q |
| 5 | Quarterly GDP growth (% change over the previous period) – Mexico | OECD/KEI/NAEXKP01.MEX.GP.Q |
| 5 | Quarterly GDP growth (% change over the previous period) – South Africa | OECD/KEI/NAEXKP01.ZAF.GP.Q |
| 5 | Quarterly GDP growth (% change over the previous period) – Indonesia | OECD/KEI/NAEXKP01.IDN.GP.Q |
| 5 | Quarterly GDP growth (% change over the previous period) – India | OECD/KEI/NAEXKP01.IND.GP.Q |
| 5 | Yearly GDP growth rate (YoY % change) – Brazil | IMF/WEO:2023-04/BRA.NGDP_RPCH.pcent_change |
| 5 | Yearly GDP growth rate (YoY % change) – Mexico | IMF/WEO:2023-04/MEX.NGDP_RPCH.pcent_change |
| 5 | Yearly GDP growth rate (YoY % change) – South Africa | IMF/WEO:2023-04/ZAF.NGDP_RPCH.pcent_change |
| 5 | Yearly GDP growth rate (YoY % change) – Indonesia | IMF/WEO:2023-04/IDN.NGDP RPCH.pcent change |
| 5 | Yearly GDP growth rate (YoY % change) – India | IMF/WEO:2023-04/IND.NGDP_RPCH.pcent_change |
| 5 | Yearly GDP growth rate (YoY % change) – China | IMF/WEO:2023-04/CHN.NGDP RPCH.pcent change |



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| 5 | OECD Weekly growth tracker – Brazil | OECD/GDP_GROWTH/W.BRA.tracker_yoy |
| 5 | OECD Weekly growth tracker – Mexico | OECD/GDP GROWTH/W.MEX.tracker yoy |
| 5 | OECD Weekly growth tracker – South Africa | OECD/GDP GROWTH/W.ZAF.tracker yoy |
| 5 | OECD Weekly growth tracker – Indonesia | OECD/GDP_GROWTH/W.IDN.tracker_yoy |
| 5 | OECD Weekly growth tracker – India | OECD/GDP_GROWTH/W.IND.tracker_yoy |
| 6 | General government debt - Germany | Eurostat/gov 10q ggdebt/Q.GD.S13.PC GDP.DE |
| 6 | General government debt – France | Eurostat/gov 10q ggdebt/Q.GD.S13.PC GDP.FR |
| 6 | General government debt – United Kingdom | ONS/EDP1/YEQJ.Q |
| 6 | General government debt – Italy | Eurostat/gov 10dd edpt1/A.PC GDP.S13.GD.IT |
| 6 | General government deficit – Germany | Eurostat/teina205/Q.B9.S13.PC GDP SCA.DE |
| 6 | General government deficit – France | Eurostat/teina205/Q.B9.S13.PC GDP SCA.FR |
| 6 | General government deficit – United Kingdom | ONS/UKEA/CT8O.Q |
| 6 | General government deficit – Italy | OECD/DP LIVE/ITA.GGNLEND.TOT.PC GDP.A |
| 6 | General government deficit – United States | BEA/NIPA-T30100/AD01RC-Q |
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| 7 | Consumer confidence index – United States | OECD/MEI CLI/CSCICP03.USA.M |
| 7 | Consumer confidence index – Germany | OECD/MEI CLI/CSCICP03.DEU.M |
| 7 | Consumer confidence index – France | OECD/MEI_CLI/CSCICP03.FRA.M |
| 7 | Consumer confidence index – United Kingdom | OECD/MEI CLI/CSCICP03.GBR.M |
| 7 | Business confidence index – United States | OECD/MEI_CLI/BSCICP03.USA.M |
| 7 | Business confidence index – Germany | OECD/MEI CLI/BSCICP03.DEU.M |
| 7 | Business confidence index – France | OECD/MEI CLI/BSCICP03.FRA.M |
| 7 | Business confidence index – United Kingdom | OECD/MEI_CLI/BSCICP03.GBR.M |
| 9 | Natural Gas (Dutch TTF) prices in historical perspective (€/MWh) | ICE/DUTCH TTF GAS FUTURES/D.5614690 |
| 10 | % of EU business reporting shortages of materials and equipment in the construction industry as a limiting production factor | EC/CONSTRUCTION/TOT.2.F5S.EU.M |
| 11 | Beveridge curve – Euro Area (Q1-17 – Q2-22), Quarterly | <u>OECD/MEI/EA20.LRHUTTTT.STSA.Q</u> <u>Eurostat/jvs_q_nace2/Q.NSA.B-S.TOTAL.JOBRATE.EA19</u> |
| 11 | Beveridge curve – United States (Q1-17 – Q2-22), Monthly | <u>BLS/ln/LNS14000000</u> <u>BLS/jt/JTS000000000000JOR</u> |
| 11 | Unemployment according to ILO definition - Total – Euro area – Seasonally adjusted, Monthly | Eurostat/ei lmhr_m/M.PC_ACT.SA.LM-UN-T-TOT.EA20 |



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| 12 | Beveridge curve - France, Quarterly | Eurostat/jvs_q_nace2/Q.NSA.B-S.GE10.JOBRATE.FR INSEE/CHOMAGE-TRIM-NATIONAL/T.CTTXC.TAUX.FR-D976.0.00- .POURCENT.CVS.FALSE |
| 12 | Beveridge curve - Germany, Quarterly | Eurostat/jvs q nace2/Q.NSA.B-S.GE10.JOBRATE.DE DESTATIS/81000BV001/DG.BV4SB.ERW089 |
| 12 | Unemployment according to ILO definition - Total – France – Seasonally adjusted, Monthly | Eurostat/une rt m/M.SA.TOTAL.PC ACT.T.FR |
| 12 | Unemployment according to ILO definition - Total – Germany – Seasonally adjusted, Monthly | Eurostat/une rt m/M.SA.TOTAL.PC ACT.T.DE |
| 13 | Wage growth tracker – France (Quarterly) | INSEE/ICT-2016/T.BDM EUR.ICT.A21-BTN.INDICE.SSE.FE.SO.CVS-CJO.2016 |
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| 15 | CPI Inflation (YoY % change) – Eurozone | <u>Eurostat/prc_hicp_manr/M.RCH_A.CP00.EA</u> <u>Eurostat/prc_hicp_manr/M.RCH_A.TOT_X_NRG_FOOD.EA</u> |
| 15 | CPI Inflation (YoY % change) – France | <u>Eurostat/prc_hicp_manr/M.RCH_A.CP00.FR</u> <u>Eurostat/prc_hicp_manr/M.RCH_A.TOT_X_NRG_FOOD.FR</u> |
| 15 | CPI Inflation (YoY % change) – France INSEE | INSEE/IPC- 2015/M.IPC.SO.SO.4035.GLISSEMENT_ANNUEL.ENSEMBLE.FE.POURCENT.BRUT.SO.FALSE INSEE/IPC-2015/M.ISJ.SO.SO.4035.GLISSEMENT_ANNUEL.ENSEMBLE.FM.POURCENT.CVS- FISC.SO.FALSE |
| 15 | CPI Inflation (YoY % change) – Germany | <u>Eurostat/prc_hicp_manr/M.RCH_A.CP00.DE</u> <u>Eurostat/prc_hicp_manr/M.RCH_A.TOT_X_NRG_FOOD.DE</u> |
| 15 | CPI Inflation (YoY % change) – Italy | <u>Eurostat/prc hicp manr/M.RCH A.CP00.IT</u> <u>Eurostat/prc hicp manr/M.RCH A.TOT X NRG FOOD.IT</u> |
| 15 | CPI Inflation (YoY % change) – United Kingdom | ONS/MM23/D7G7.M ONS/MM23/DK08.M |
| 15 | CPI Inflation (YoY % change) – Japan | STATJP/CPIm/001 STATJP/CPIm/740 |
| | | |



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| 16 | CPI Inflation (YoY % change) – South Africa | OECD/KEI/CPALTT01.ZAF.GY.M |
| 16 | CPI Inflation (YoY % change) - Brazil | OECD/KEI/CPALTT01.BRA.GY.M |
| 16 | CPI Inflation (YoY % change) – China | OECD/KEI/CPALTT01.CHN.GY.M |
| 16 | CPI Inflation (YoY % change) – Indonesia | OECD/KEI/CPALTT01.IDN.GY.M |
| 16 | CPI Inflation (YoY % change) – India | OECD/KEI/CPALTT01.IND.GY.M |
| 16 | CPI Inflation (YoY % change) – Mexico | OECD/KEI/CPALTT01.MEX.GY.M |
| 17 | Quarterly implied GDP deflator – France | Eurostat/namq 10 gdp/Q.PD PCH SM NAC.SCA.B1GQ.FR |
| 17 | Quarterly implied GDP deflator - United Kingdom | ONS/QNA/IHYU.Q |
| 17 | Quarterly implied GDP deflator - United States | BEA/NIPA-T10109/A191RD-Q |
| 20 | Personal consumption expenditures (PCE) | BEA/NIPA-T20804/DPCERG-M |
| 23 | 10-Y Nominal yield – US | FED/H15/RIFLGFCY10_N.B |
| 24 | Yield curve – US | FED/H15/RIFLGFCM03_N.B |



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| 27 | 10-Y Nominal yield – German Bund | BUBA/BBK01/WT1010 |
| 27 | Inflation Expectations - Germany | BUBA/BBSSY/D.KCP.EUR.A607.DE0001102523.A |
| 27 | Forward Rates on 10-Year German Bund | BUBA/BBSIS/D.I.ZAR.ZI.EUR.S1311.B.A604.R10XX.R.A.A. Z. Z.A |
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| 28 | Nominal Foreign exchange rate in historical perspective | BUBA/BBEX3/D.USD.EUR.BB.AC.000 |
| 30 | Italian10-Y yield | Eurostat/irt lt mcby d/D.MCBY.IT |
| 30 | Greek 10-Y yield | Eurostat/irt lt mcby d/D.MCBY.EL |
| 30 | French 10-Y yield | Eurostat/irt_lt_mcby_d/D.MCBY.FR |
| 30 | German 10-Y yield | Eurostat/irt_lt_mcby_d/D.MCBY.DE |
| 36 | Composite Indicator of Systemic Stress (daily) – Euro Area | ECB/CISS/D.U2.Z0Z.4F.EC.SS CIN.IDX |
| 36 | Composite Indicator of Systemic Stress (daily) – United States | ECB/CISS/D.US.Z0Z.4F.EC.SS_CIN.IDX |

