Business Cycles: Main Problems and Facts

Week 02

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1. A Word of Caution

What is the Nature of Macroeconomics?
- Macroeconomics is a discipline that studies the behavior of the economy as a whole.
- "The economy as a whole" is a very complex system.
- We need to make *simplifications (theories)* to understand it.
- We need *facts* to confirm our theories.
- We need *data* to test our theories.
- We need *mathematics* to express our theories.
- We need *computers* to do the calculations.
- We need *honesty* to interpret and display the results.

A Remarkable Example of Bad Economics
The President of the US, Donald Trump, has recently said the following about the EU trade balance:

. . .

> *"They don't take our cars, they don't take our farm products, they take almost nothing, and we take everything from them—millions of cars, tremendous amounts of food and farm products."* *Here* , *also here*

. . .

> *"The European Union was formed to screw the United States—that's the purpose of it, and they've done a good job of it. But now I'm president."* *Here*
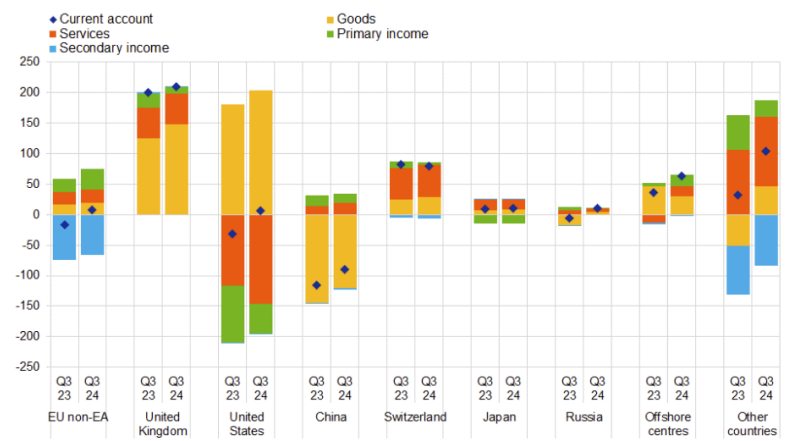
Facts

Unfortunately, the facts do not support the Donald Trumps's statements.

...

Geographical breakdown of the euro area current account balance

(four-quarter moving sums in EUR billions; non-seasonally adjusted)

Source: ECB.

More facts

- No, the UE was not created to *"screw the United States"*
- It was created to screw the ...

...

> *old Soviet Union*

- ... by the impulse of the US with their *Marshall Plan*
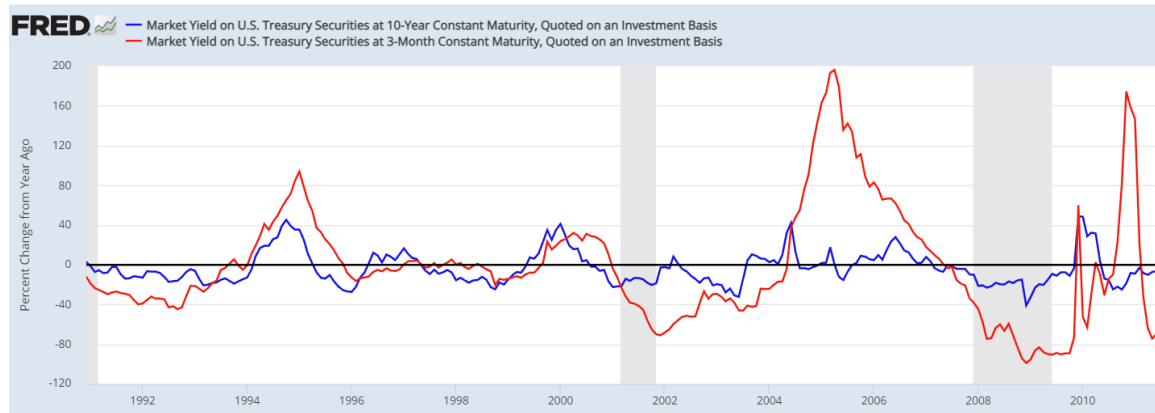- ... and the *adherence* of the destroyed European countries

...

> *... and everybody knows this historical fact!*

2. The Purpose of Macroeconomics

Testing your intuition

- What is more volatile: *short-term* or *long-term* interest rates?
- U.S. Treasury Securities Market Yields:
  - ‣ 10-Year Maturity
  - ‣ 3-Month Maturity

Testing your intuition

The answer is: _____

Main Macroeconomic Variables

- Real GDP (Gross Domestic Product) and its components
- Unemployment, employment, and participation rates
- Inflation rate and interest rates
- Public budgets and public debt

. . .

Excellent sources of macroeconomic data:

- For the US economy go here: *FRED Economic Data*
- For the EU economy go here: *EUROSTAT Data*
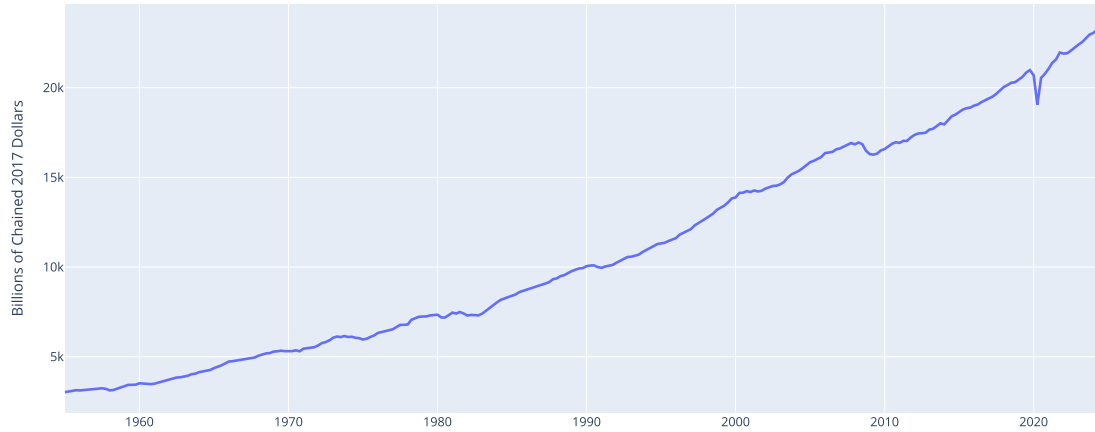- For World economic data: *TED Data*

———————————————————

Real GDP

The next figure shows the evolution of Real GDP for the US economy. How helpful is a figure like this one?

. . .

Real GDP : USA (1955-2024)

Real GDP vs Potential GDP

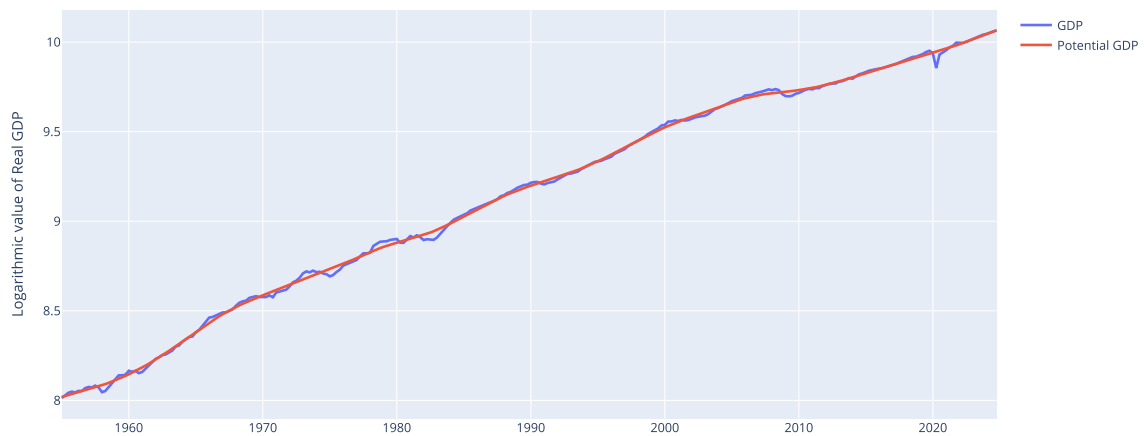The previous figure does not provide much information by itself.

- In which periods GDP grew at higher rates?
- In what periods the US economy was performing above/below its potential GDP level?
- This raises to the surface another crucial aggregate:
  - ‣ **Potential Real GDP**

Real GDP vs Potential GDP: USA (1955-2024)

. . .

Real GDP vs Potential Real GDP: USA (1955-2024)
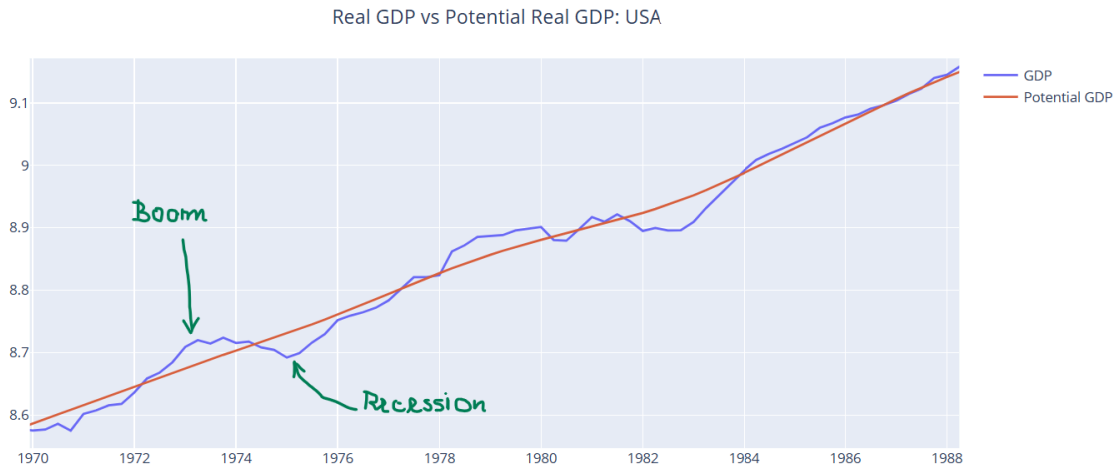
Data source: *FRED Economic Data*

Real GDP vs Potential Real GDP: USA

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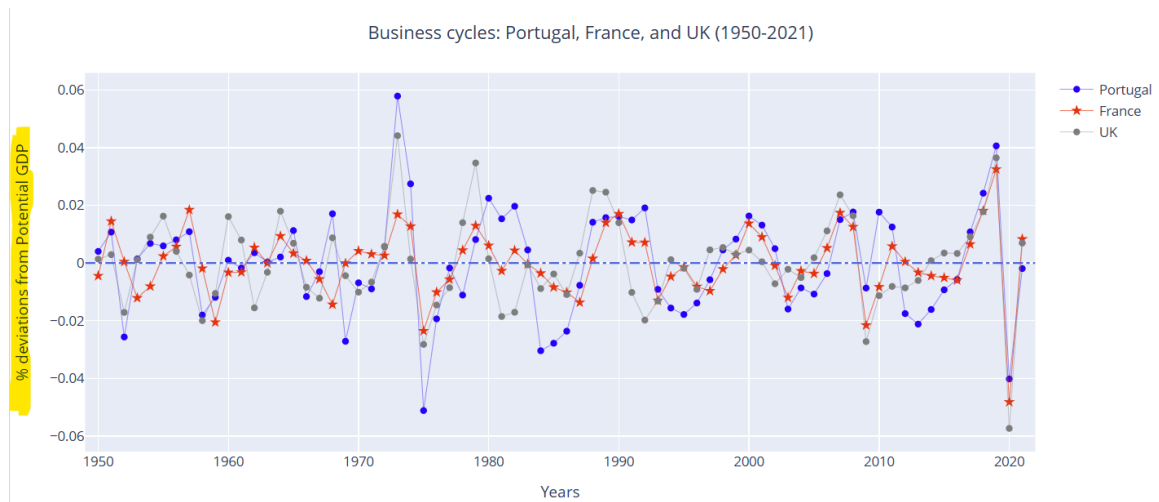
A closer view: we can zoom in *between 1970 and 1988*

. . .

Real GDP vs Potential Real GDP: USA

Business cycles

. . .

Percentage deviations of real GDP from Potential GDP

. . .
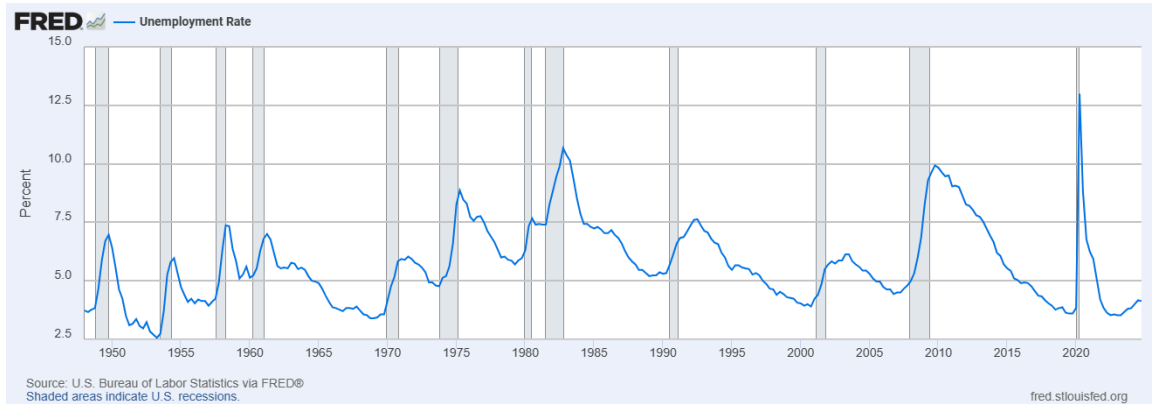
Business cycles: Portugal, France, and UK (1950-2021)

The Unemployment Rate: USA 1947-2024

The % of the labor force that does not have a job … but is looking for one.

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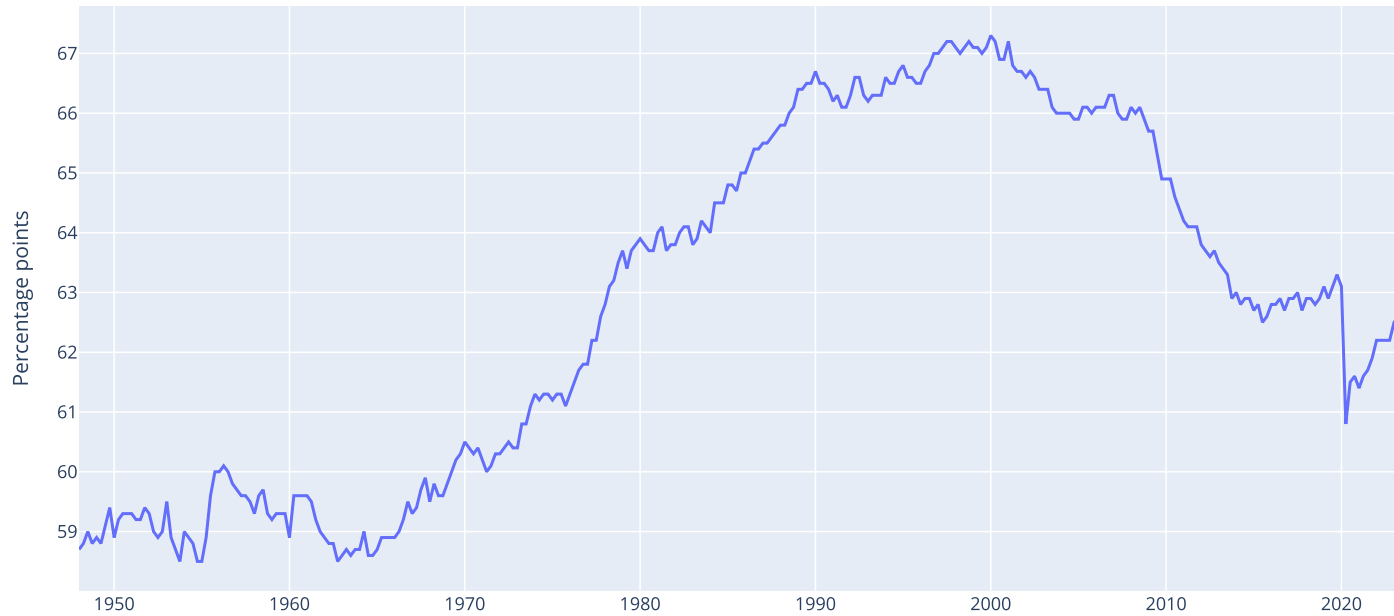
Source: FRED Economic Data

The Participation rate

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Total labour force divided by the total working-age population [15,65].

. . .

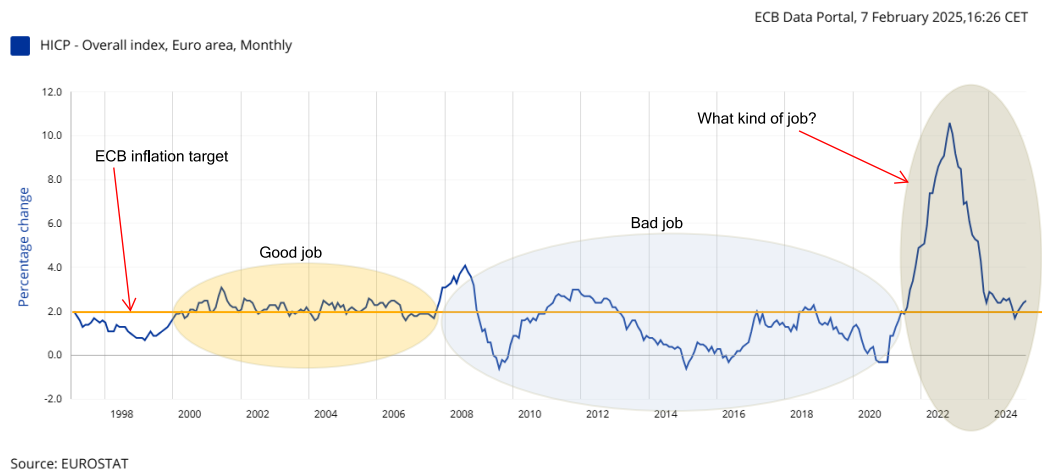Participation Rate in the USA: 1948-2024

Inflation in the Euro Zone (EZ): 1997-2025

. . .

The inflation rate is, normally, taken as the percentage change in the CPI (Consumer Price Index). Central banks have a target level: 2% per year.
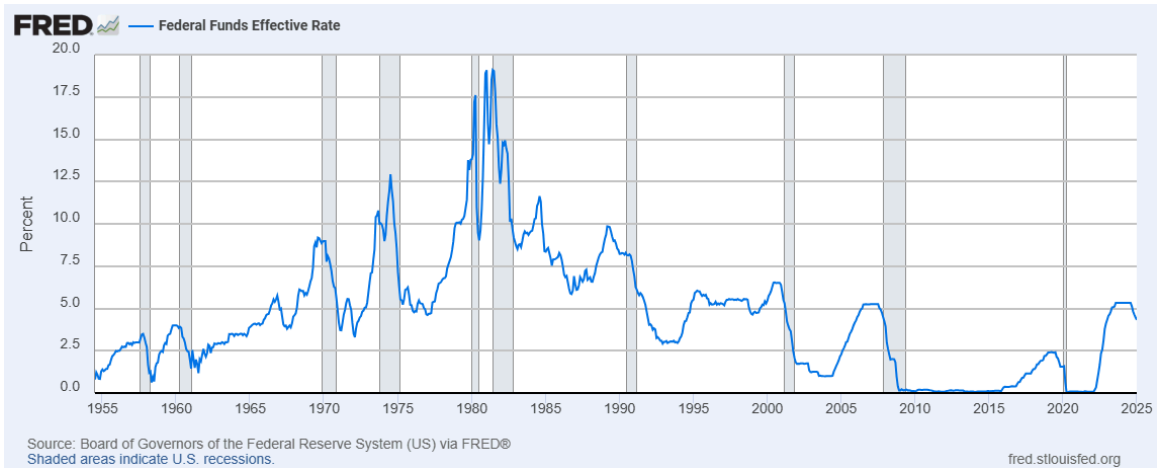
. . .

Source: EUROSTAT

The Interest Rate in the USA (FFR)

. . .

The Federal Funds Rate (FFR) is the most important ***short-term*** interest rate in the US. Source: *FRED Economic Data*

. . .

Source: Board of Governors of the Federal Reserve System (US) via FRED®
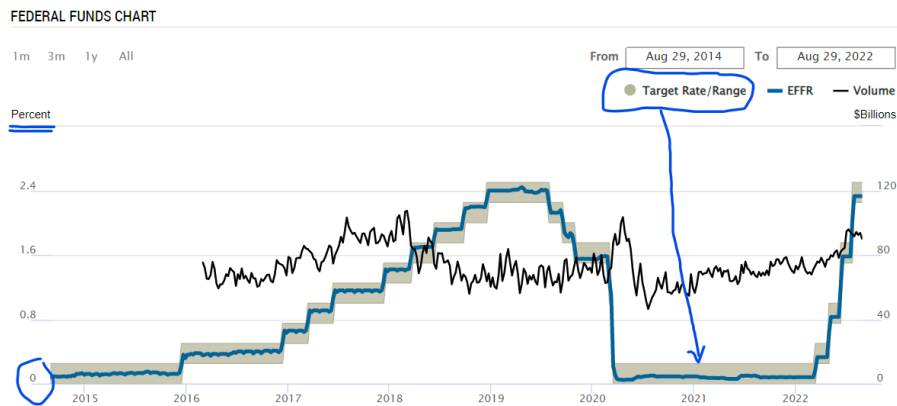Shaded areas indicate U.S. recessions.

fred.stlouisfed.org

Target Interest Rate in the USA

. . .

The US central bank (The Federal Reserve Board, or simply **Fed**) sets the **target rate range** for trading in the federal funds market.

. . .

Source: *FRB of New York*

Public deficits in the USA

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Systematic deficits and highly volatile. Source *Fred data*

. . .

Federal Budget as a % of GDP : USA (1929-2024)
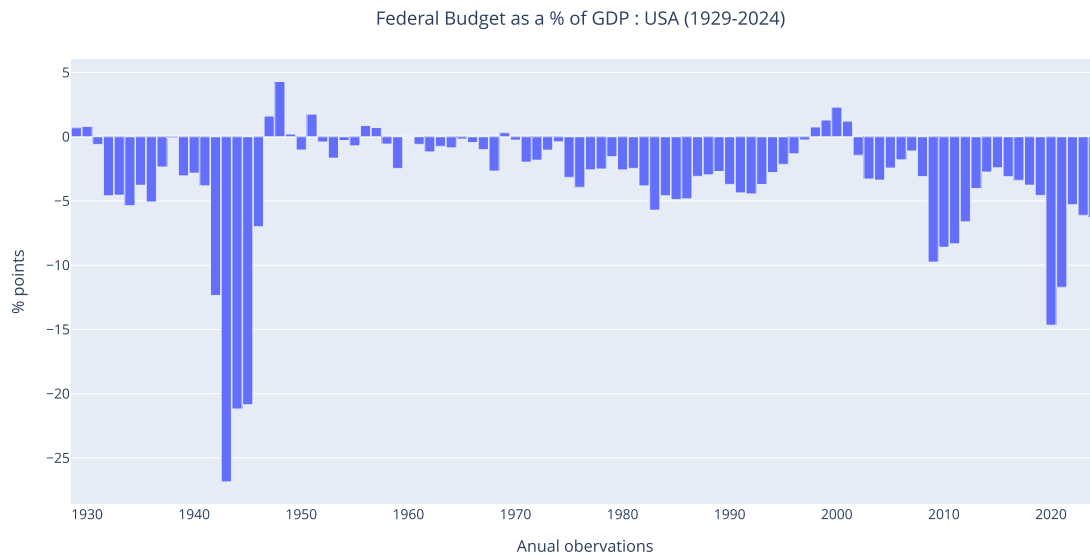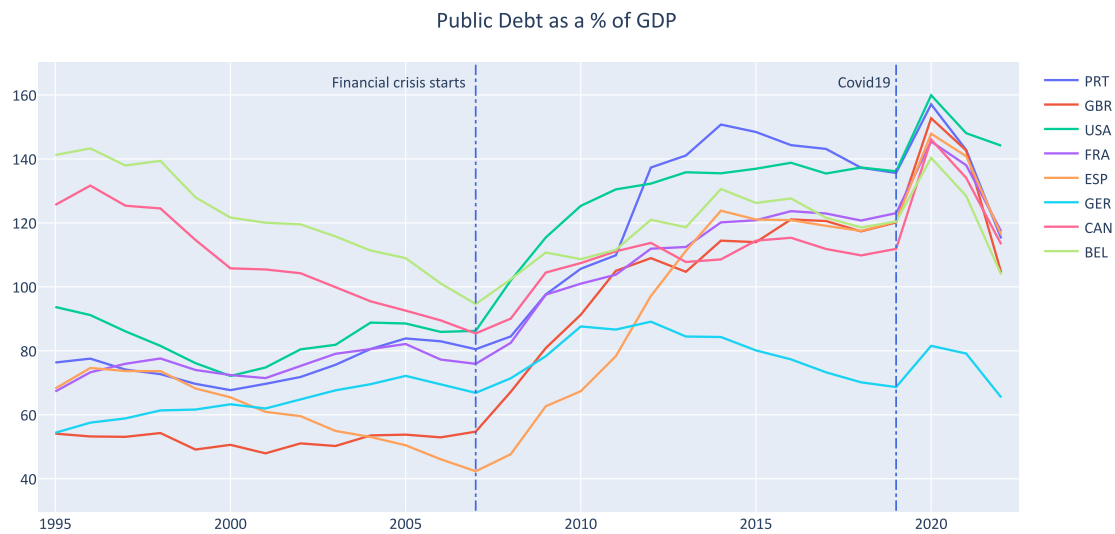

The Size of Public debt

. . .

Shocks and the size of public debt. From *OECD data: government debt*

. . .

Public Debt as a % of GDP

3. The Economy is Very Volatile

What is Macroeconomic Policy?

. . .

- It is the intervention of public institutions (the Government and the Central bank) in the functioning of the economy.

. . .

- Why is it necessary? For several reasons:

. . .

- The economy may be hit by **exogenous shocks** that have dramatic impacts on the entire economy (Covid, war in Ukraine, a large increase in oil prices, etc.)

. . .

- Some sectors have to be regulated because they are prone to **market failures** (natural monopolies, collusion, externalities)

. . .

- Some private agents may **behave dishonestly** (moral hazard) and may led to a dramatic collapse of an entire sector in the economy (e.g., bank runs)

. . .

- The economy is very volatile … even in the sort term

The Summer 2021's Big Problem: DEFLATION

- Everybody was concerned about deflation (negative inflation rates)
- One FT's editorial applauded the move by the ECB to review its policy strategy in July 2021
- Keep interest rates at 0% or even negative if necessary

ECB's new strategy is a welcome update

Dovish shift marks break with the traditional stance of the Bundesbank

Christine Lagarde said new, unconventional tools such as QE will remain part of the ECB's armoury © Chris Ratcliffe/Bloomberg

The editorial board JULY 8 2021   ▢ 38 🖶
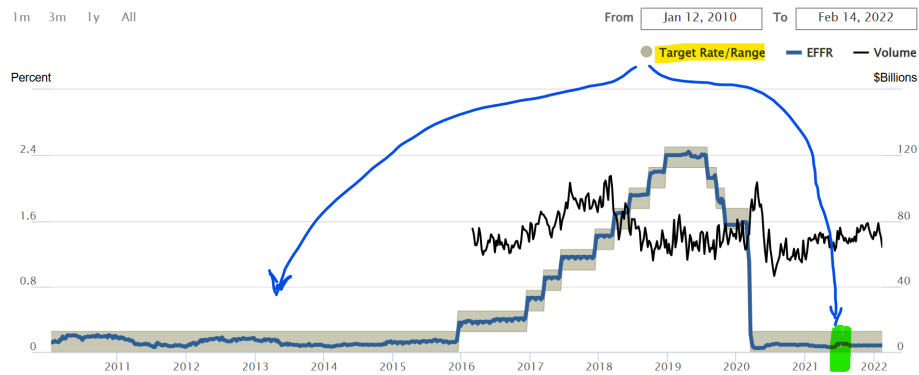

The Zero Lower Bound (ZLB)

. . .

In the US, the fear of deflation was so strong that the Fed kept the interest rate at 0% for a long time.

. . .

FEDERAL FUNDS CHART

In Europe, interest rates were **negative**.

Negative Interest Rates in Europe

The inconceivable become reality in the summer of 2021. *Euribor*

. . .

7/28/2021	
Euribor 1 week	-0.565 %
Euribor 1 month	-0.558 %
Euribor 3 months	-0.547 %
Euribor 6 months	-0.524 %
Euribor 12 months	-0.498 %

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Summer 2022's Big Problem: PACY INFLATION

- Suddenly, in 12 months, inflation increased around 6 or 7 percentage points in most Western economies
- Central banks were forced to increase interest rates very aggressively
- Another FT's editorial applauded the courage of central banks in July 2022

A pivotal moment for central banks

Jackson Hole is a time to reflect on where policymakers made mistakes

THE EDITORIAL BOARD (+ Add to myFT)

Last month US inflation reached 8.5 per cent. Eurozone inflation hit 8.9 per cent. Citigroup now forecasts UK inflation will hit 18.6 per cent in January — nine times the Bank of England's 2 per cent target © FT montage/Getty Images/Reuters/Bloomberg
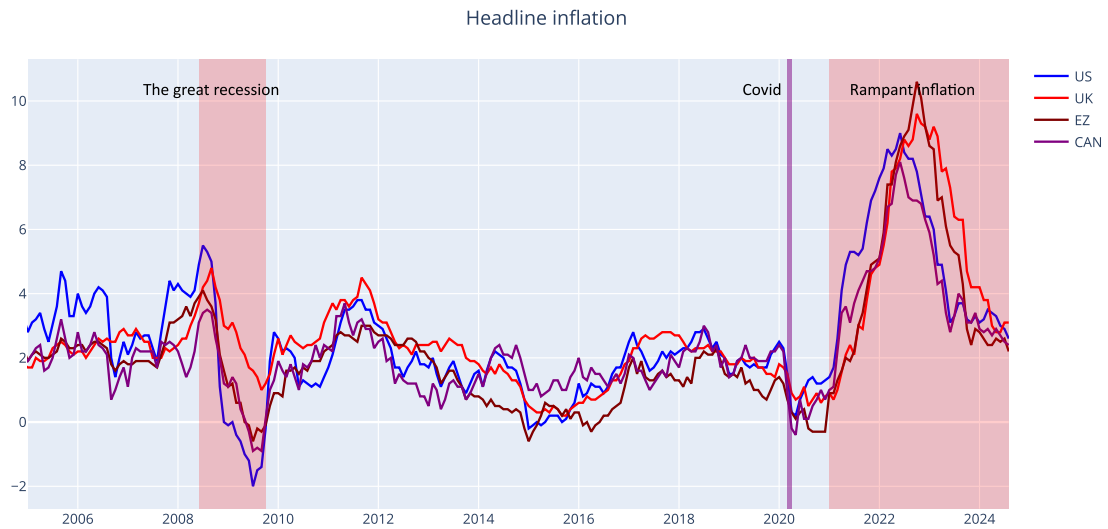
The editorial board AUGUST 22 2022   💬 89 🖨

Galloping Inflation

. . .

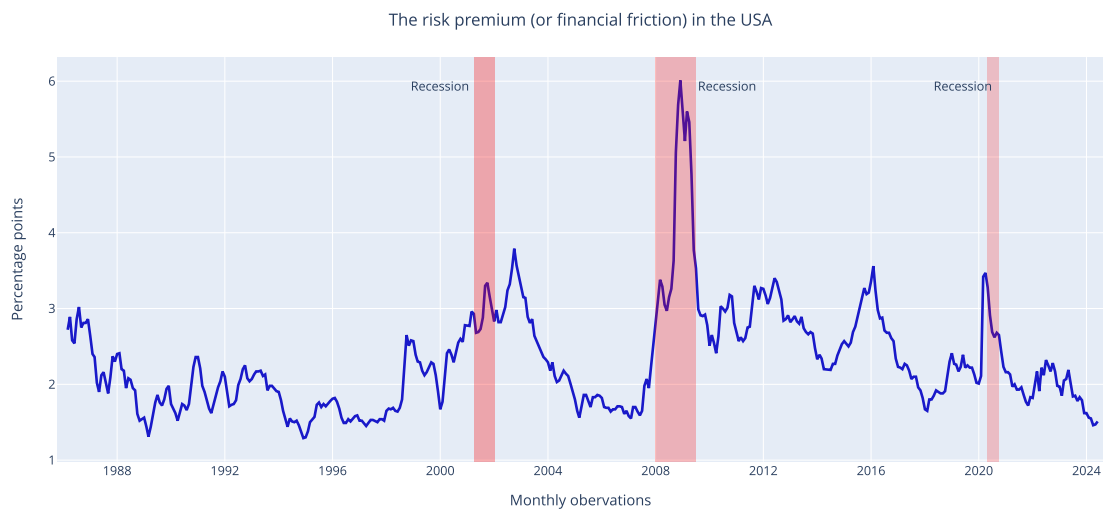In the summer of 2022 inflation seemed to be getting out of control.

. . .

Headline inflation

Financial Crisis and Spread Volatility

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Financial crisis lead to large jumps in spreads in the financial markets.

. . .

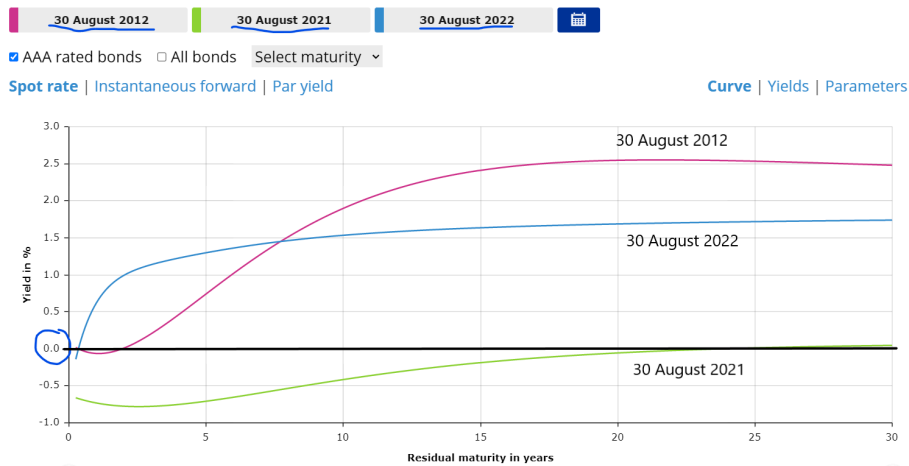The risk premium (or financial friction) in the USA

Source: *FRED Economic Data*

Macroeconomic Instability and Yields

. . .

Instability leads to large and abrupt changes in the yields of financial assets.

. . .

Source: *European Central Bank*

4. Types of Variables

Business Cycle Variables

From the business cycles, we can obtain information about the relationships among different variables using the following statistical concepts:
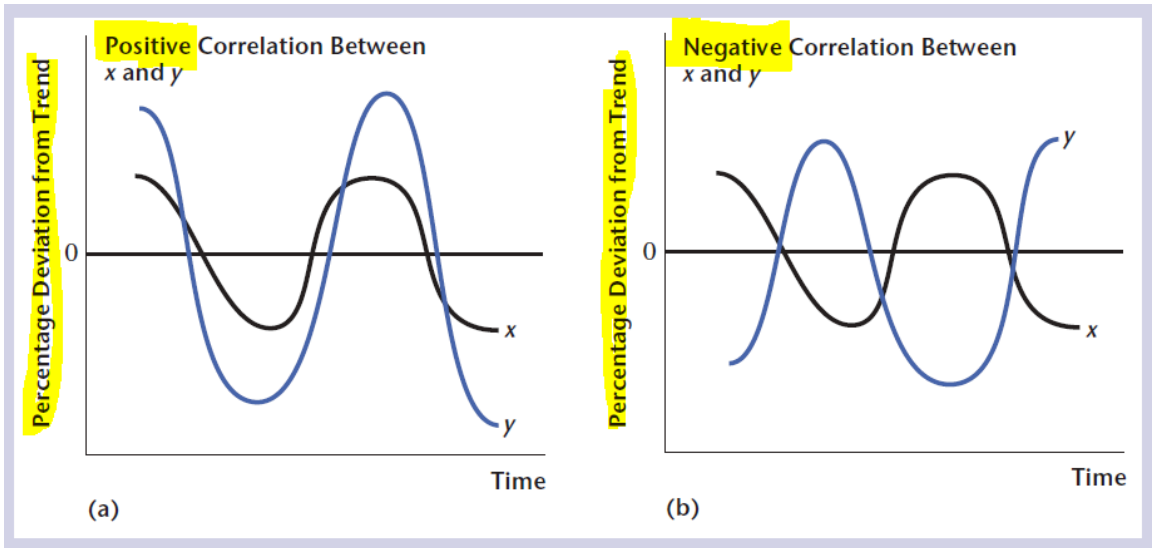
- Cross-correlation
  - ‣ Pro-cyclical variables
  - ‣ Counter-cyclical variables
  - ‣ Acyclical variables
- Turning points
  - ‣ Leading variables
  - ‣ Lagging variables
  - ‣ Coincident variables
- Standard deviation: Volatity
- Auto-correlation: Persistence

Pro-cyclical and counter-cyclical variables

. . .

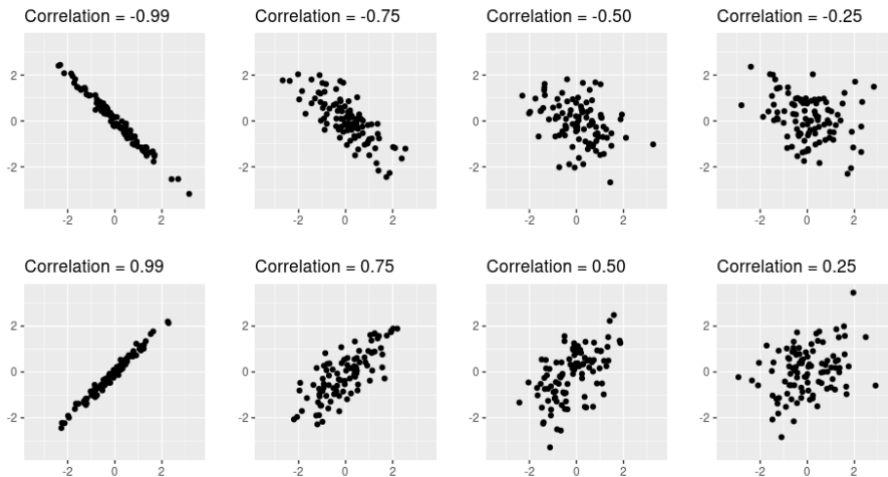A variable is pro-cyclical if it moves in the same direction as the business cycle.

. . .

- GDP is the reference variable in the business cycle.

Recall: Cross-Correlation Plots

. . .

Time series plots are very bad for detecting the type of correlation. Use the cross-correlation plots.
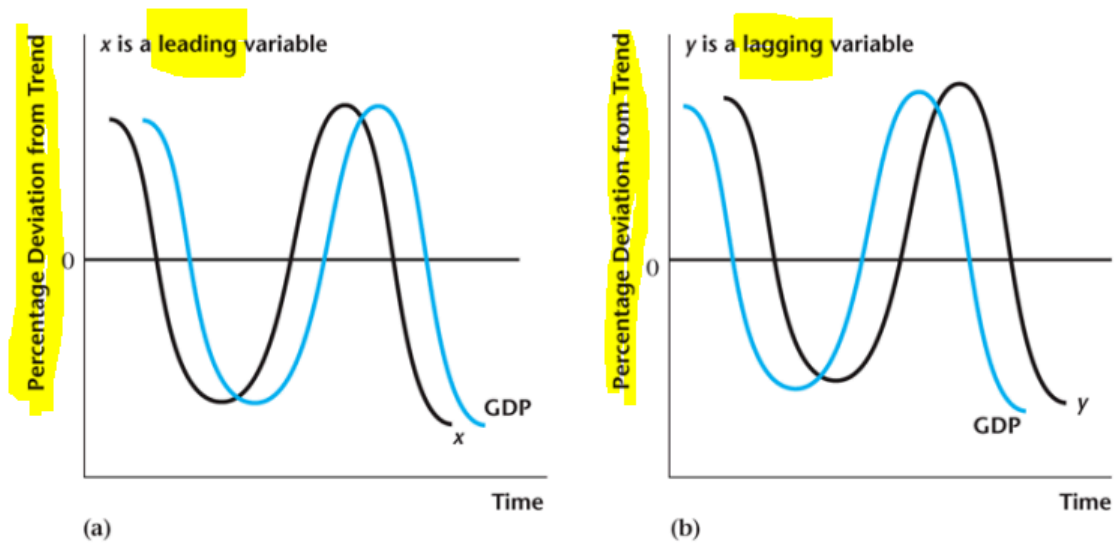
. . .

Leading and Lagging Variables

. . .

A variable is leading if it changes before the change of the business cycle.

. . .

(a) (b)

- GDP is the reference variable in the business cycle.

Summary 1

Table related to cyclicality and volatility

Table 3.1 Correlation Coefficients and Variability of Percentage Deviations from Trend

	Correlation Coefficient	Standard Deviation (% of S.D. of GDP)
Consumption	0.77	77
Investment	0.80	301
Employment	0.78	65
Average Labor Productivity	0.77	63

Stephen D. Williamson, *Macroeconomics*, 6th Edition, 2018, Pearson. In *"Chapter3: Business Cycle Measurement"*

Summary 2

Table related to leading/lagging variables

Table 3.2 Summary of Business Cycle Facts

	Cyclicality	Lead/Lag	Variation Relative to GDP
Consumption	Procyclical	Coincident	Smaller
Investment	Procyclical	Coincident	Larger
Employment	Procyclical	Lagging	Smaller
Real Wage	Procyclical	?	?
Average Labor Productivity	Procyclical	Coincident	Smaller

Stephen D. Williamson, *Macroeconomics*, 6th Edition, 2018, Pearson. In *"Chapter3: Business Cycle Measurement"*

5. Readings

Readings

- This is an introduction to business cycles. ***There is no compulsory readings*** .

- However, if you want to get some further information about **business cycles**, a good bibliographical reference is *"Chapter3: Business Cycle Measurement"* in the textbook:

  ‣ Stephen D. Williamson (2018). *Macroeconomics*, 6th Edition, Pearson.

- If you need more information about **macroeconomics in general**, you can check the materials available here: modernmacro.org

Bibliography