



European Macroeconomics



Welcome in Würzburg



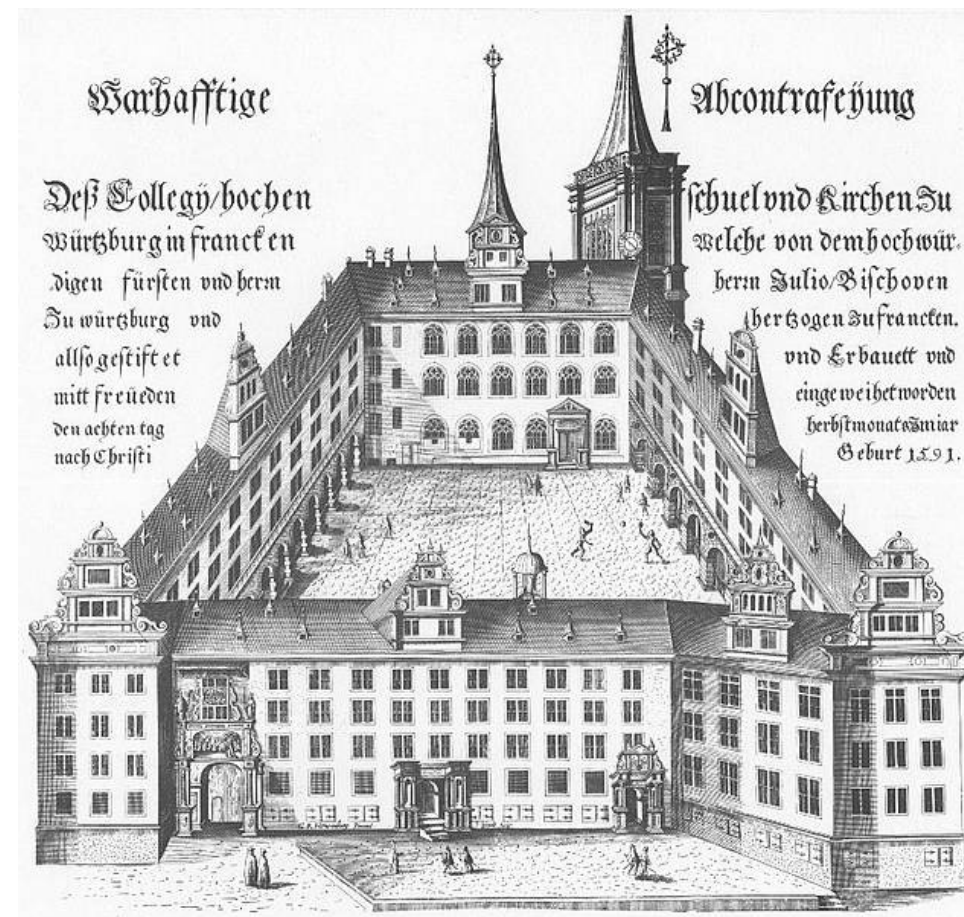


**Welcome at Julius-Maximilians-
Universität Würzburg**



Very short history of the university

- Established in 1402 by Pope Bonifaz IX
- Reestablished in 1582 by Prince Bishop Julius Echter von Mespelbrunn
- X-Rays were detected 1895 in Würzburg by Wilhelm Conrad Röntgen
- Today: 10 faculties and 55 institutes with 450 professors, 4.000 academic staff and more than 28.000 students



Peter Bofinger

- Professor of Economics at Würzburg University since 1992 (since 2020: Seniorprofessor)
- 2004-2019 Member of the German Council of Economic Experts
- Fields of research:
Digitalization of Money, Monetary Macroeconomics, European Integration, Economic Teaching





Lisa Geißendörfer

- Research assistant at Würzburg university since 2018
- Doctoral candidate
- Fields of research:
Finance and Growth,
Bank-led Growth,
Finance and
Economic Inequality
in Asia



Thomas Haas

- Research assistant at Würzburg university since 2018
- Doctoral candidate
- Fields of research:
Digitalization of
Money, Monetary
Macroeconomics,
Finance and Growth,
Bank-led Growth

A photograph of two astronauts in white space suits standing on a dark, rocky surface, likely Mars. The background is a bright, hazy orange sky with soft clouds. The scene is captured from a low angle, emphasizing the vastness of the environment.

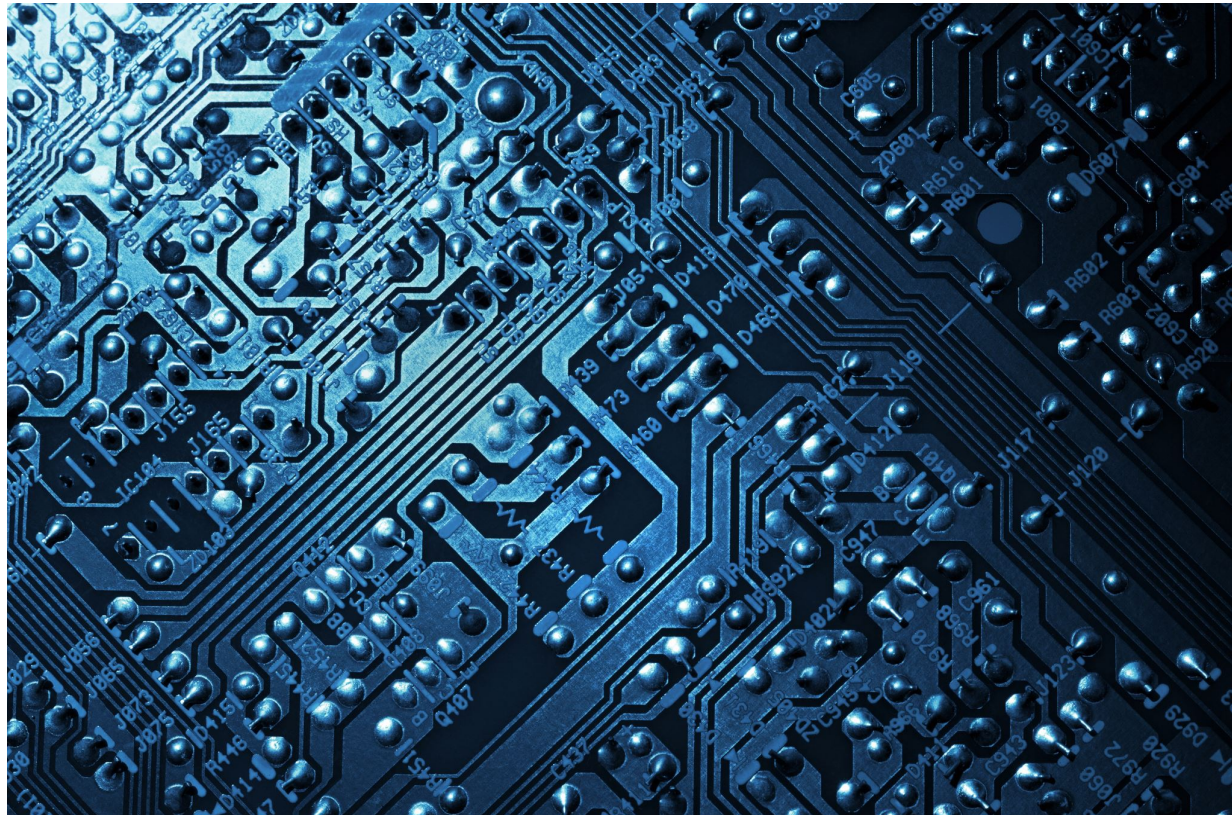
What is the mission of this course?

Understanding the big economic debates



- **Government debt:** A curse or a blessing?
- **Inflation:** Do the huge asset purchases by central banks lead to inflation?
- Is the **NextGenerationEU fund** the solution to the challenges of the European Union in the post-COVID era?
- Is „**Modern Monetary Theory**“ a recipe for disaster?
- What causes **financial crises**?
- Is it a good idea that countries like Italy and Greece have the same **currency** as Germany and the Netherlands?

Understanding the mechanics of the key macroeconomic models



Understanding the specific macroeconomic challenges of a monetary union with one currency and 19 member states



Outline of the course



I. Objectives of Macroeconomic Policy and the Performance of the Euro Area

II. The mechanics of the two core macroeconomic models

III. The diverging policy implications of the two paradigms

IV. A simple formal macro model (IS/PC/MP)

V. The monetary policy of the ECB and its challenges in the COVID pandemic

VI. The difficult task of coordinating 19 independent national fiscal policies in EMU (Role and limitations of the Stability and Growth Pact)

VII. Specific EMU topics ((Euro crises, Theory of Optimum Currency Areas, NextGenerationEU fund)

Usage of Zoom in the lecture and the tutorial

- You can always ask **questions via the F&A tool** on Zoom
- If you want to add something to the lecture or answer a question that was posed to the audience, feel free to use the **Zoom chat**
- Besides, you can also **‘raise your hand’ via the hand symbol on Zoom**, and we will promote you to a discussion participant: you can then switch on your camera and use your microphone

Important

Please note that **lecture and tutorial are recorded**. We reserve the right to use and publish the videos for future purposes. We will **upload the recorded lecture videos, but not the complete tutorial recordings** as we have found that providing a video of the exercise is not useful from a didactical point of view in past semesters. Messages via chat and the F&A tool will be read out and answered without mentioning names.

Material and structure of the course

- The course consists of the lecture and a tutorial. Both are relevant for the final exam
- **Lecture:** every Tuesday, 2.15 – 3.45 pm (MEZ) – recording will be provided on [Youtube](#)
Start: 20th of April, 2021
- **Tutorial:** every Monday, 4.15 – 5.45 pm (MEZ) – recording will not be provided
Start: 26th of April, 2021
- **More detailed organizational information**, i.e. about the exam, will be provided in the first tutorial (Monday, 26th of April, 2021) and in the information documents in the WueCampus course room

All lecture material and additional reading will be provided in the **WueCampus course room**



I. Objectives of Macroeconomic Policy and the Performance of the Euro Area

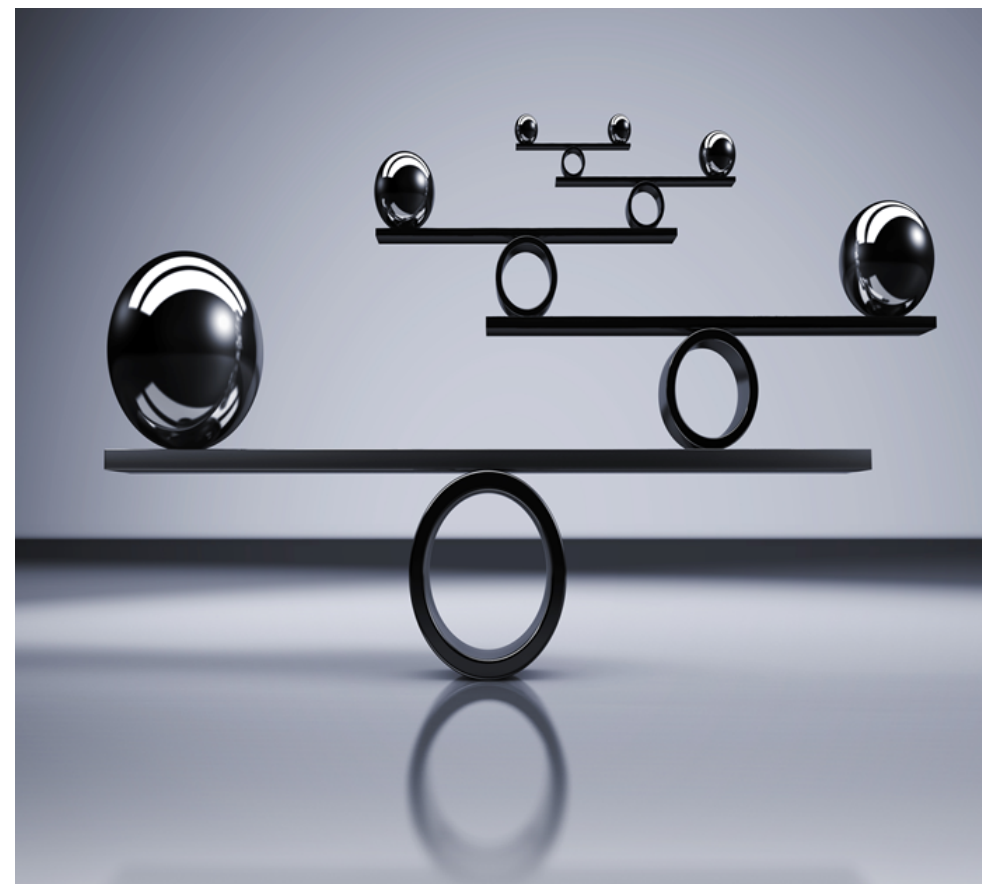
What is macroeconomics about?

Microeconomics:

- How can an equilibrium between demand and supply be achieved in the markets for *individual* goods?

Macroeconomics:

- How can an equilibrium be achieved between the *aggregate* supply and *aggregate* demand, i.e. in the whole economy?
 - Insufficient demand causes **unemployment**
 - Excess demand causes **inflation**



The magic quadrangle of economic objectives

Treaty on European Union, Article 3

“The Union shall establish an internal market. It shall work for the sustainable development of Europe based on

- **balanced economic growth** and
- **price stability**,
- a highly competitive social market economy, aiming at **full employment** and **social progress**,
- and a high level of protection and improvement of the **quality of the environment**.”



The objective of „balanced economic growth“

- „Balanced growth“ is difficult to define
- From 1999 to 2020, the Euro area economy grew by an annual average of 0.9 percent; China grew by 8.6 percent; the United States by 1,8 percent
- Is the GDP a good indicator of the quality of life? → see expertise of the German and French Expert Councils
- But GDP matters as indicator for the size of short-term economic shocks (e.g. COVID Pandemic)

→ Expertise of the German and French Expert Councils (2011):

*“The first and arguably most important conclusion of our study is that a **single-indicator approach to measuring human progress is inherently insufficient.**”*

***Complexity of life** and the demands on statistical reporting are too diverse to allow a meaningful condensation of the current state of affairs into a single comprehensive indicator.*

*Instead, we suggest that comprehensive statistical reporting should entail a **dashboard of indicators.**”*

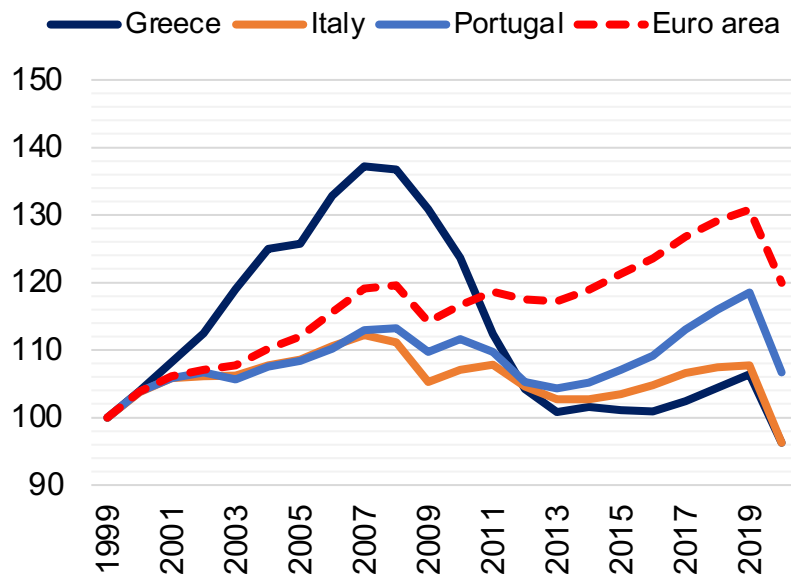
Economic Performance (A)	Quality of Life (B)	Sustainability (C)
GDP per capita	Health: Potential years of life lost	Private sector net fixed capital formation (% of GDP)
GDP per hours worked	Education: Students (ISCED 1-6) aged between 15 and 24 years	R&D investment (% of GDP)
Employment rate (15 - 64 age group)	Personal activities: Employee	Cyclically adjusted fiscal balance

Source: www.sachverstaendigenrat-wirtschaft.de/fileadmin/dateiablage/Expertisen/2010/ex10_en.pdf

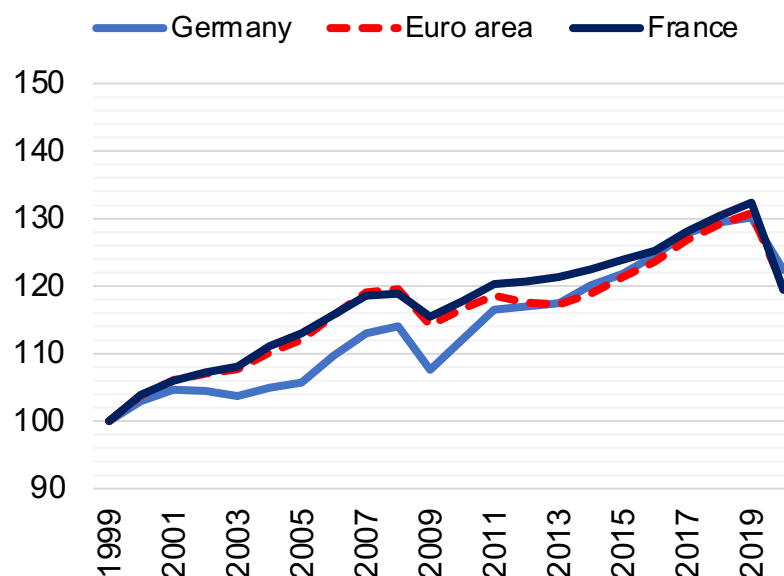
„Balanced Economic Growth“: Real GDP

(1999=100)

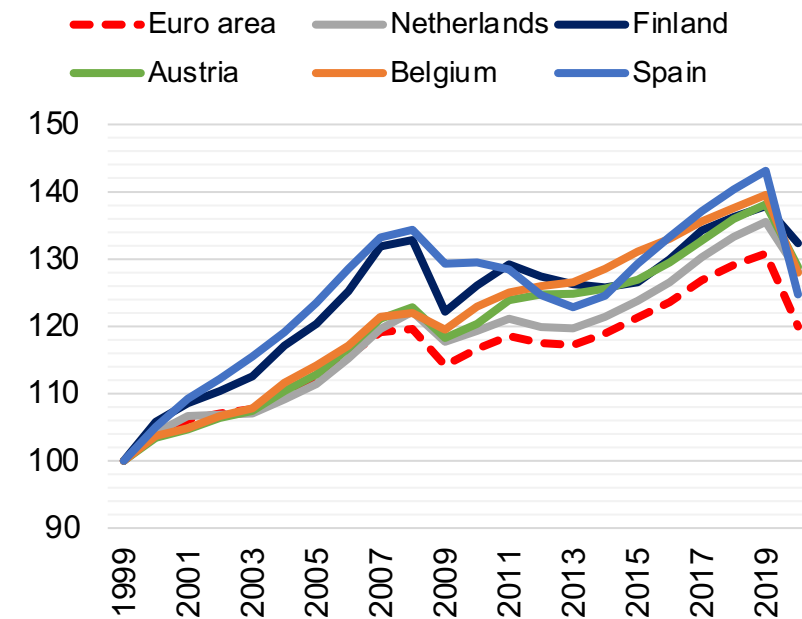
Low Growth Lager Member States



Medium Growth Lager Member States



Higher Growth Lager Member States



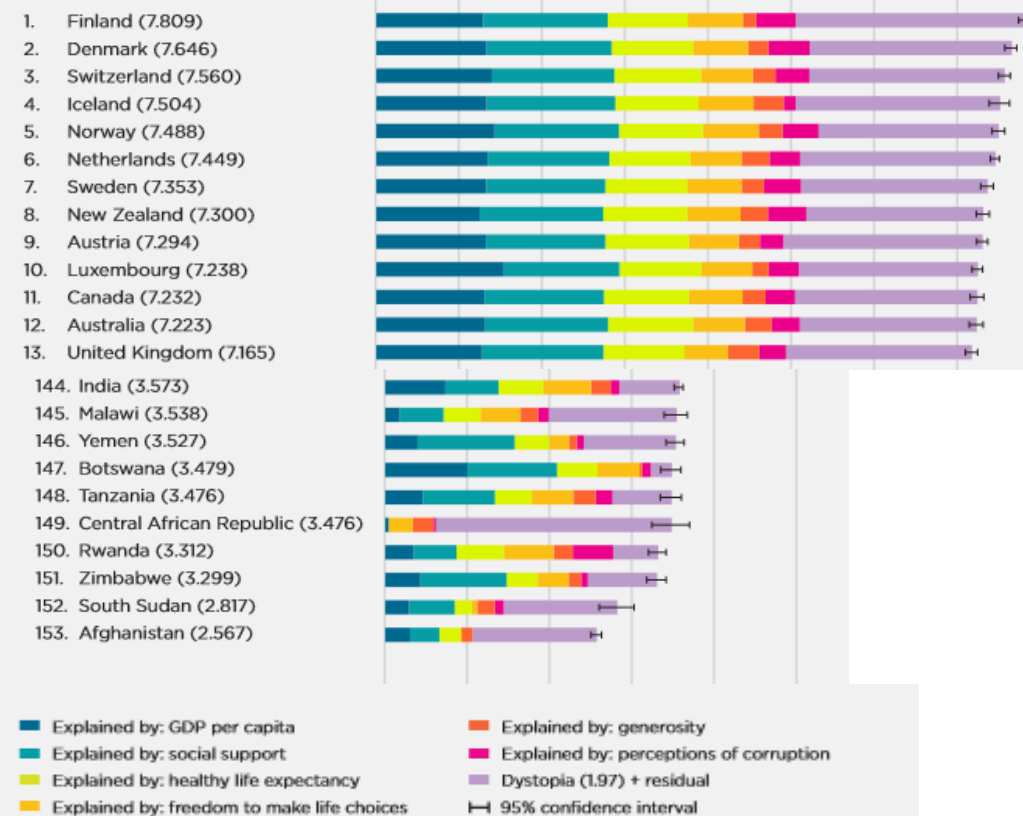
Source: IMF World Economic Outlook Database

Flaws of Gross National Product as Indicator of Welfare

- Environmental damages are only very partially reflected (i.e. low rents for apartments with high pollution)
- Repairs for road accidents are included
- Non-paid work (e.g. home care, agriculture for self-consumption) is not included

World Happiness Report 2020

Figure 2.1: Ranking of Happiness 2017–2019 (Part 1)

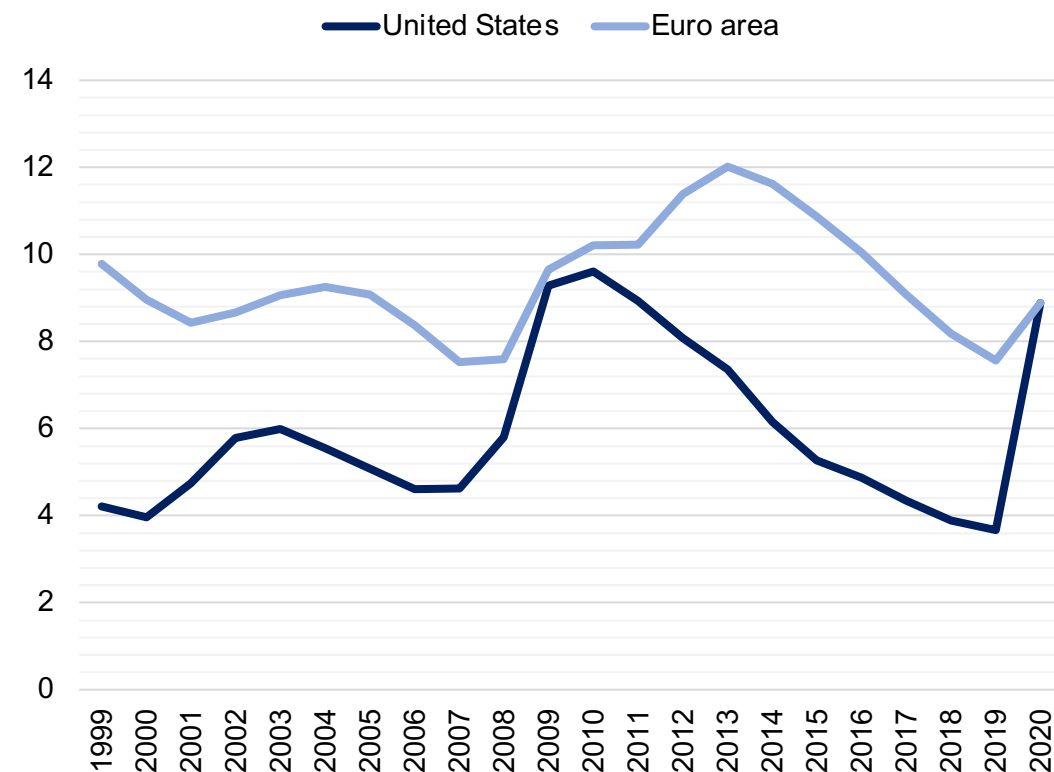


Source: World Happiness Report, URL: <https://happiness-report.s3.amazonaws.com/2020/WHR20.pdf>

The objective of full employment

- There is no generally accepted definition of „full employment“
- The United States were able to reach rates of 4 % before COVID
- Estimates of a „natural rate of unemployment“ vary with the actual unemployment rate
- Reasons for "natural unemployment":
 - Frictional unemployment due to job changes
 - Seasonal unemployment (construction industry)
 - Regional unemployment due to structural change
 - Voluntary unemployment due to benefits from the social security system

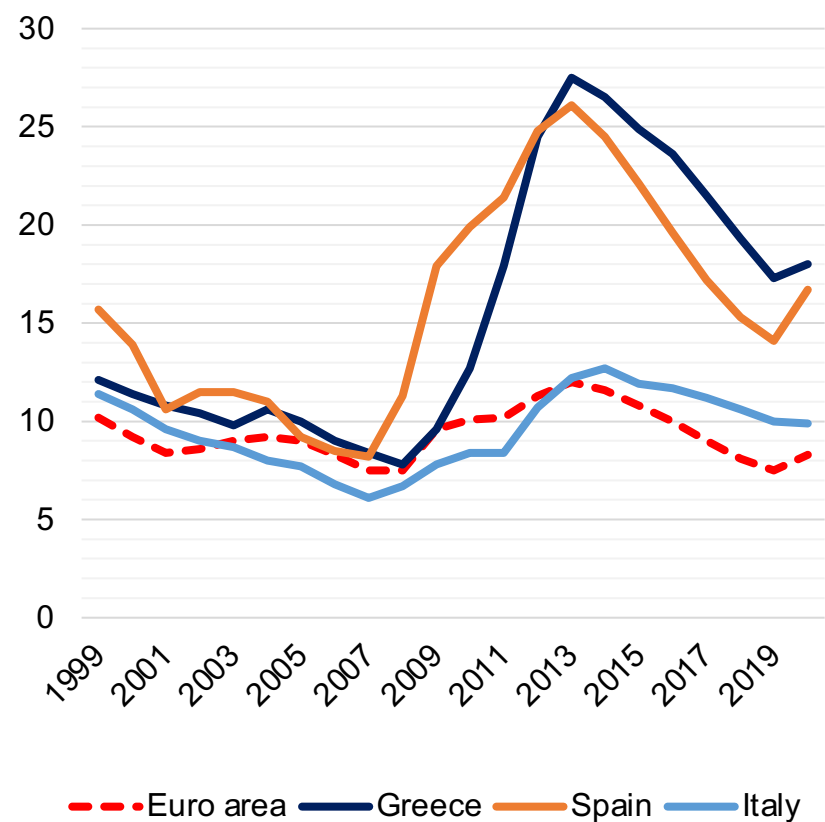
Unemployment rate in the United States and the Euro Area



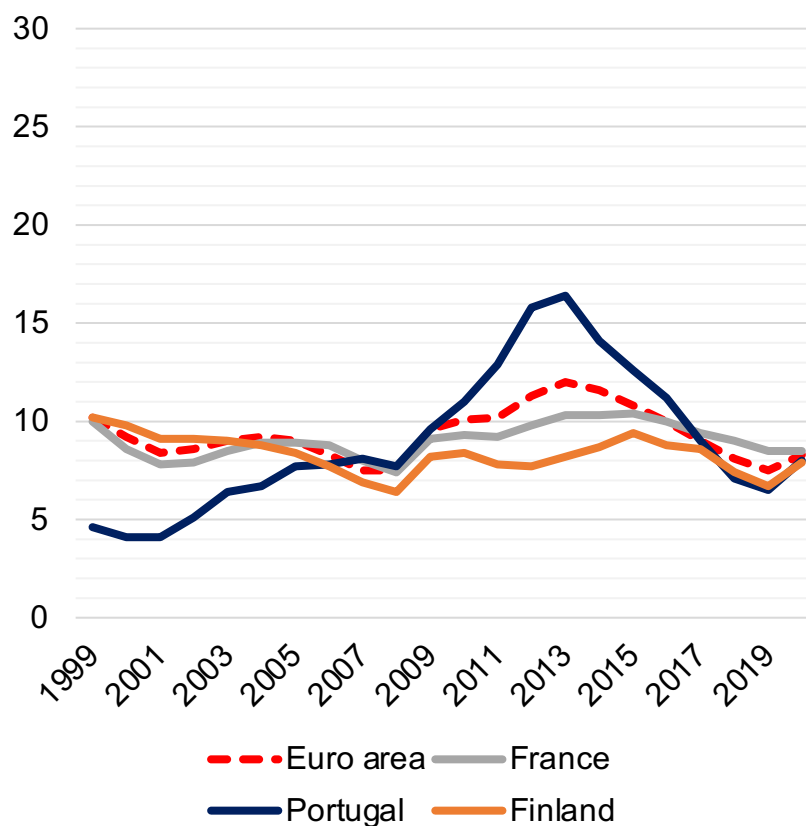
Source: IMF World Economic Outlook Database

„Full employment“

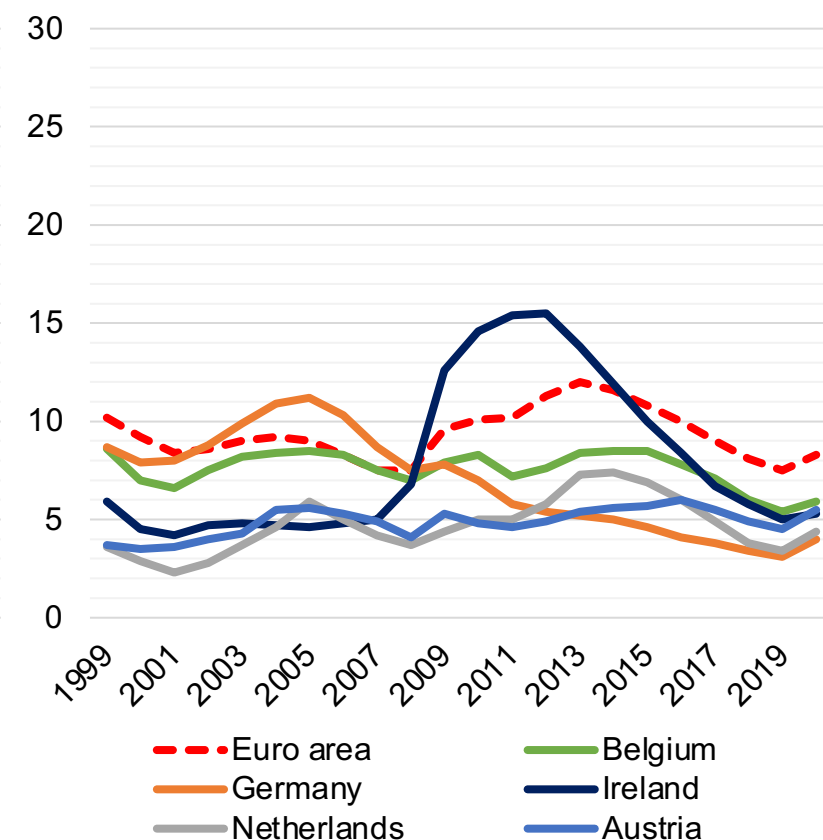
Larger member states with employment problems



Larger member states with average employment situation



Larger member states with relatively positive employment situation



Source: AMECO

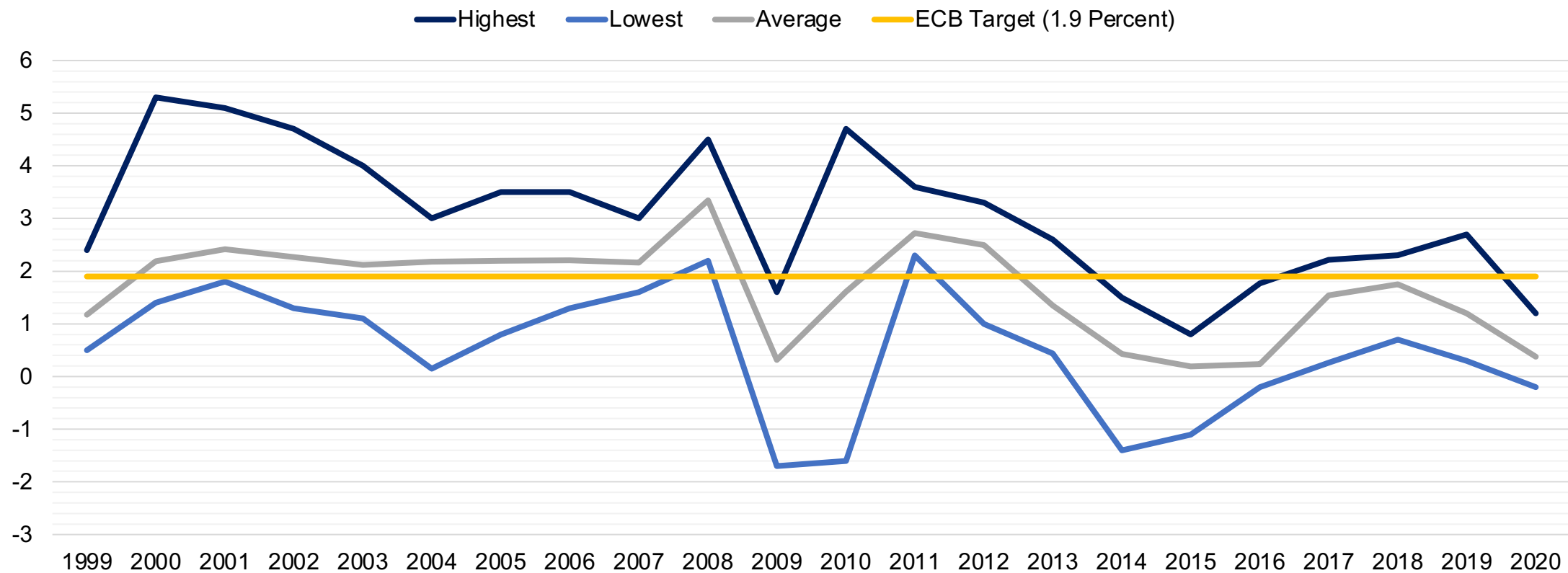
The ECB's interpretation of „price stability“

- The ECB's Governing Council adopted a quantitative definition of price stability in 1998:
"Price stability is defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area **of below 2% in the medium term.**"
- The ECB Governing Council clarified in 2003 that it aims to maintain inflation rates **below, but close to, 2% over the medium term**
- Symmetric → Mario Draghi on 10 March 2016:
" (...) we'll have to define the medium term in a way that if the inflation rate was for a long time below 2 per cent, it will be above 2 per cent for some time. The key point is that **the Governing Council is symmetric in the definition of the objective of price stability over the medium term.**"



„Stable price level“

Inflation in Euro Area (HICP) and Inflation Dispersion



The concept of a macroeconomic loss function

Three targets of short-term macroeconomic policy

- Avoiding major output fluctuations
- Avoiding major fluctuations of the unemployment rate
- Keeping the inflation rate close to a target of 2 percent

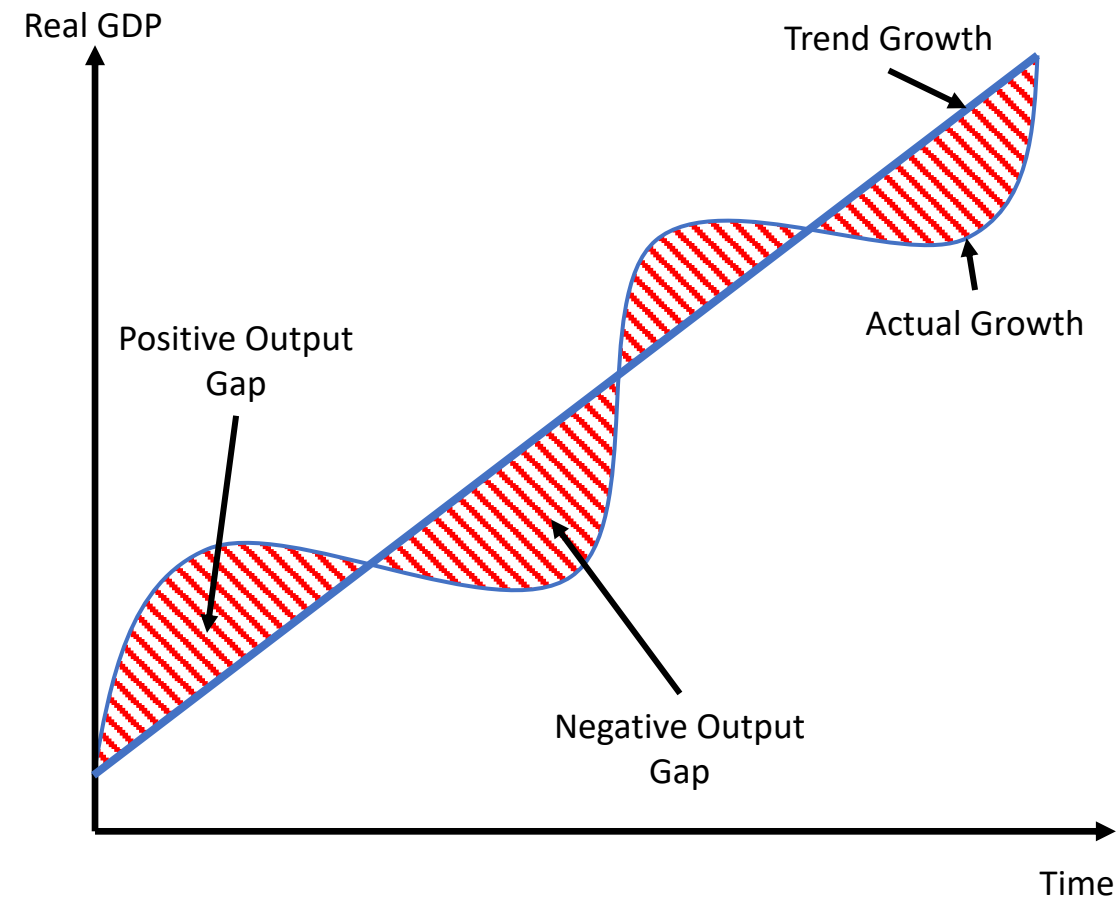
Reducing three targets to **two targets**

- As output fluctuations and fluctuations in the unemployment are correlated, we can focus on output fluctuations
- Output fluctuations can be represented by the concept of the (relative) **output gap**:

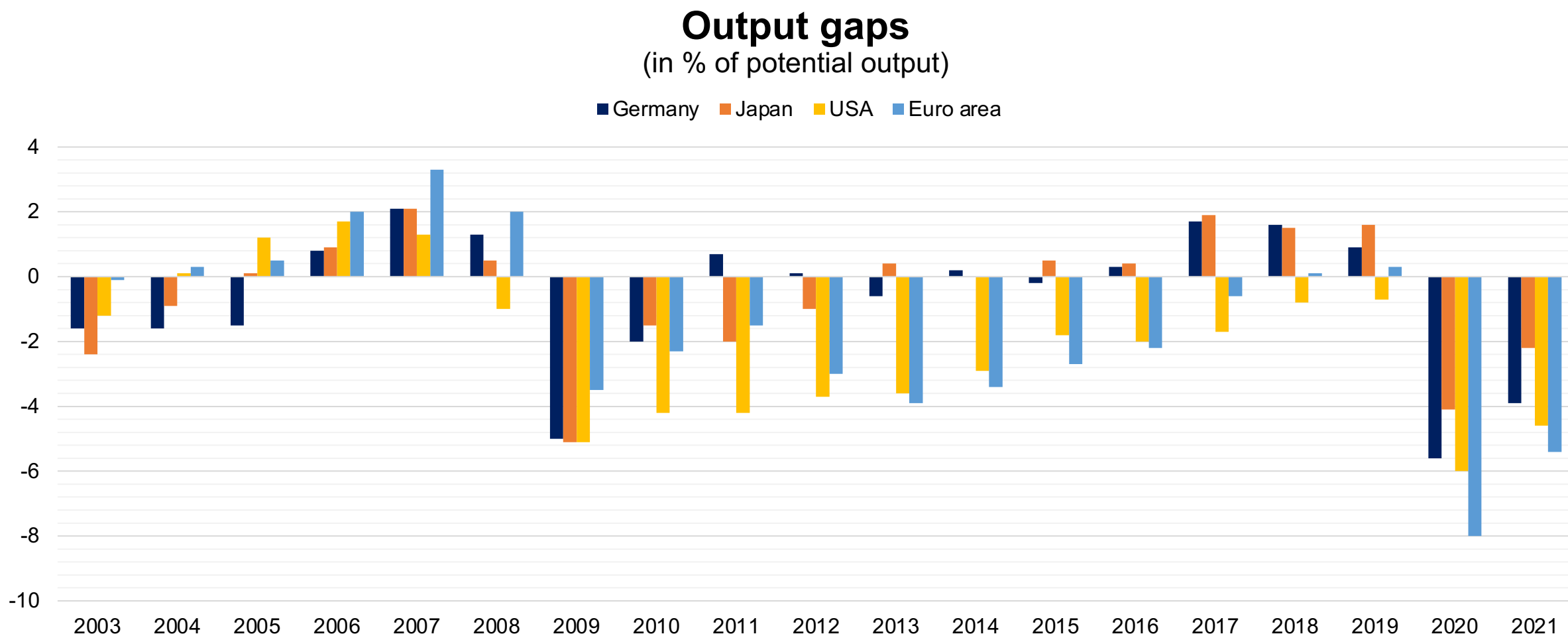
$$y = (Y_t - Y^V) / Y^V$$

→ Y^V = potential output, i.e. real GDP at full capacity utilisation

→ Y_t = actual real GDP



Output gaps in large currency areas



Source: OECD Economic Outlook No. 108

The macroeconomic loss function: Optimizing output gap and inflation gap

Macroeconomic **loss function**:

$$L = \alpha (\pi_t - \pi^*)^2 + \lambda y_t^2$$

Inflation gap:

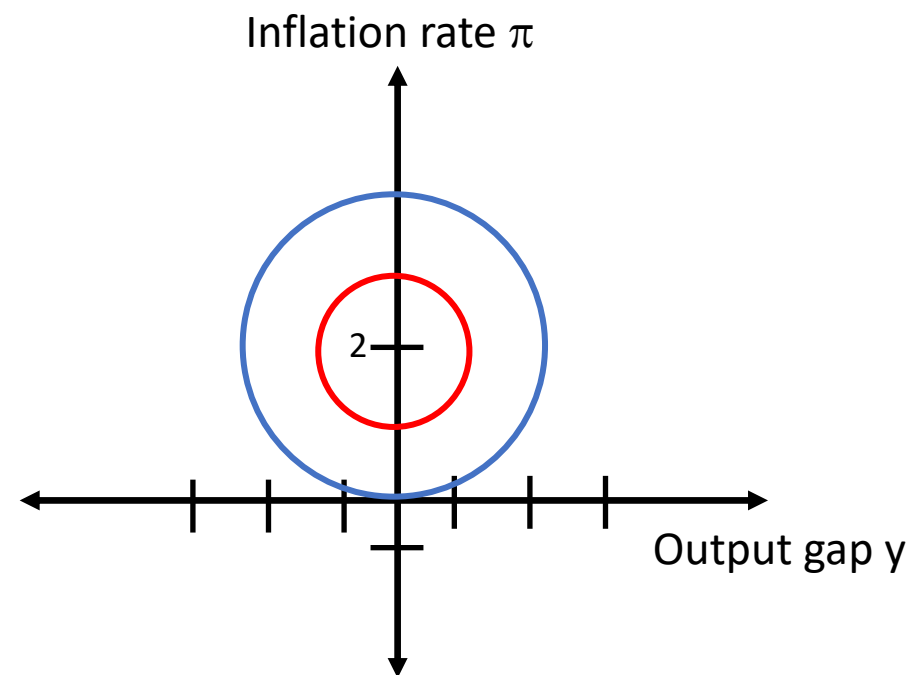
$$\pi_t - \pi^*$$

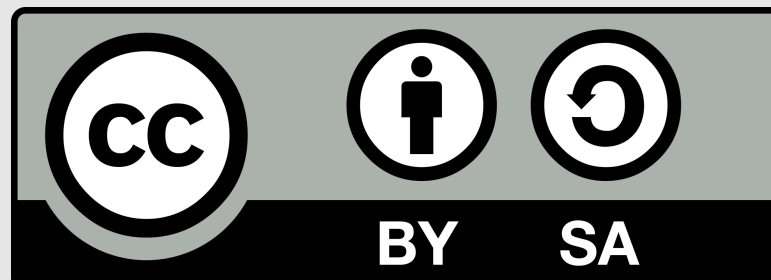
→ π^* : Target inflation rate of the central bank (ECB: "below, but close to 2%")

→ π : Actual inflation rate

- Weighting the two gaps: λ represents the relative importance of the output gap
- Squaring: Positive and negative deviations are equally negative, larger deviations are associated with disproportionate costs

Loss function with $\lambda=1$





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