



EUROPEAN CENTRAL BANK

EUROSYSTEM

The ECB, its monetary policy, and macroeconomic modelling

+ *some information on career opportunities*



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Disclaimer:

The views expressed in this presentation are my own and should not be attributed to the European Central Bank

Outline

- Overview of the ECB
- Main tools of monetary policy
- Current challenges and policy stance
- How are macroeconomic models used at the ECB?
- Career opportunities
- Questions

1

An institutional overview of the ECB

History of the European Central Bank

EMU

European Council confirmed the goal of realising an Economic and Monetary Union (EMU). European leaders began to build the **Single Market**.

1988

Maastricht Treaty

Laid out the framework and further steps for achieving **EMU** as well as the criteria that Member States had to meet to adopt the single currency.

1992

ECB

The ECB was founded in **Frankfurt**, replacing the European Monetary Institute.

1998

Euro

The **euro** was launched! Coins and banknotes were only launched in 2002.

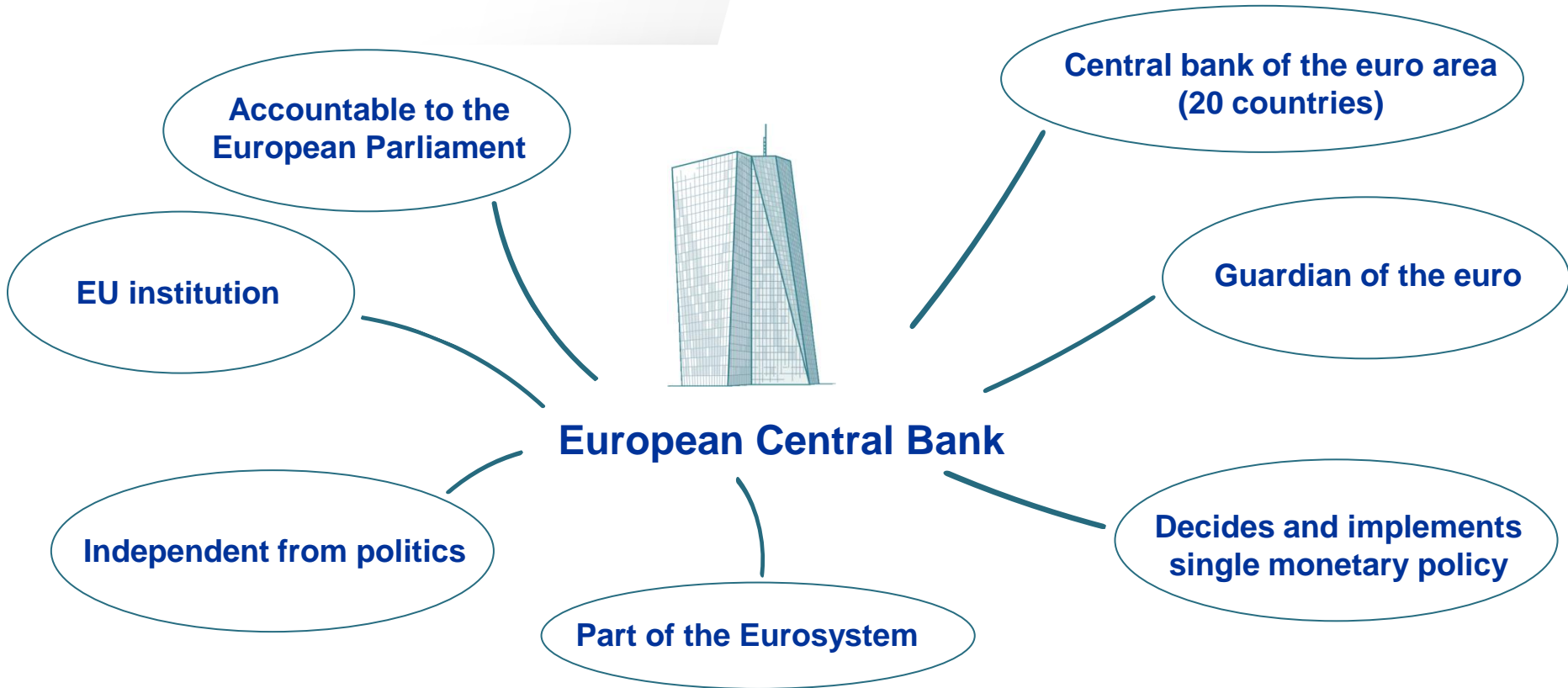
1999

SSM

As a result of the global financial crisis, the **Single Supervisory Mechanism** was created, centralising European banking supervision.

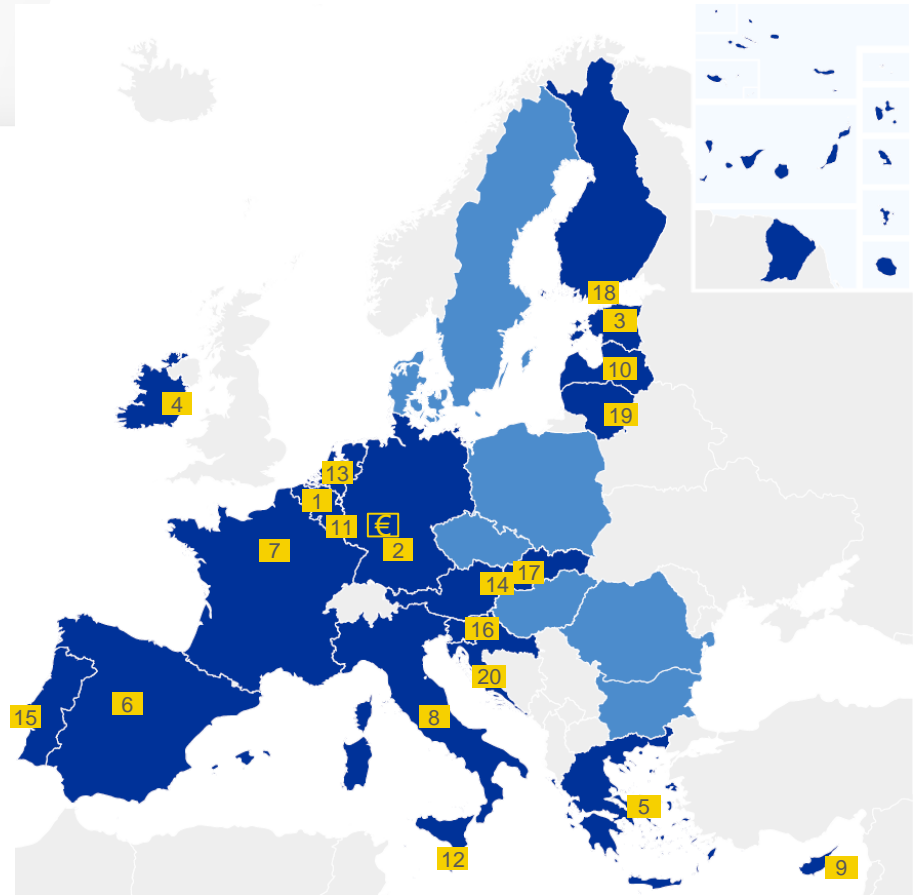
2013

ECB – the bank of banks



The Eurosystem

€	European Central Bank
1	Nationale Bank van België / Banque Nationale de Belgique
2	Deutsche Bundesbank
3	Eesti Pank
4	Central Bank of Ireland
5	Bank of Greece
6	Banco de España
7	Banque de France
8	Banca d'Italia
9	Central Bank of Cyprus
10	Latvijas Banka
11	Banque centrale du Luxembourg
12	Central Bank of Malta
13	De Nederlandsche Bank
14	Oesterreichische Nationalbank
15	Banco de Portugal
16	Banka Slovenije
17	Národná banka Slovenska
18	Suomen Pankki – Finlands Bank
19	Lietuvos bankas
20	Hrvatska narodna banka



ECB Governing Council

- **Six Executive Board members + national central banks governors** of the 20 euro area countries
- **Formulates monetary policy** for the euro area (interest rates and non-standard measures)
- Meets every **2 weeks; monetary discussions every 6 weeks**, followed by **press conference**



ECB Executive Board

Implementation of monetary policy

Preparation of Governing Council meetings

Management of the ECB

Appointed by European Council for 8-year non-renewable term

Executive Board



Christine Lagarde
President
of the ECB



Luis de Guindos
Vice-President
of the ECB



Philip R. Lane



Frank Elderson

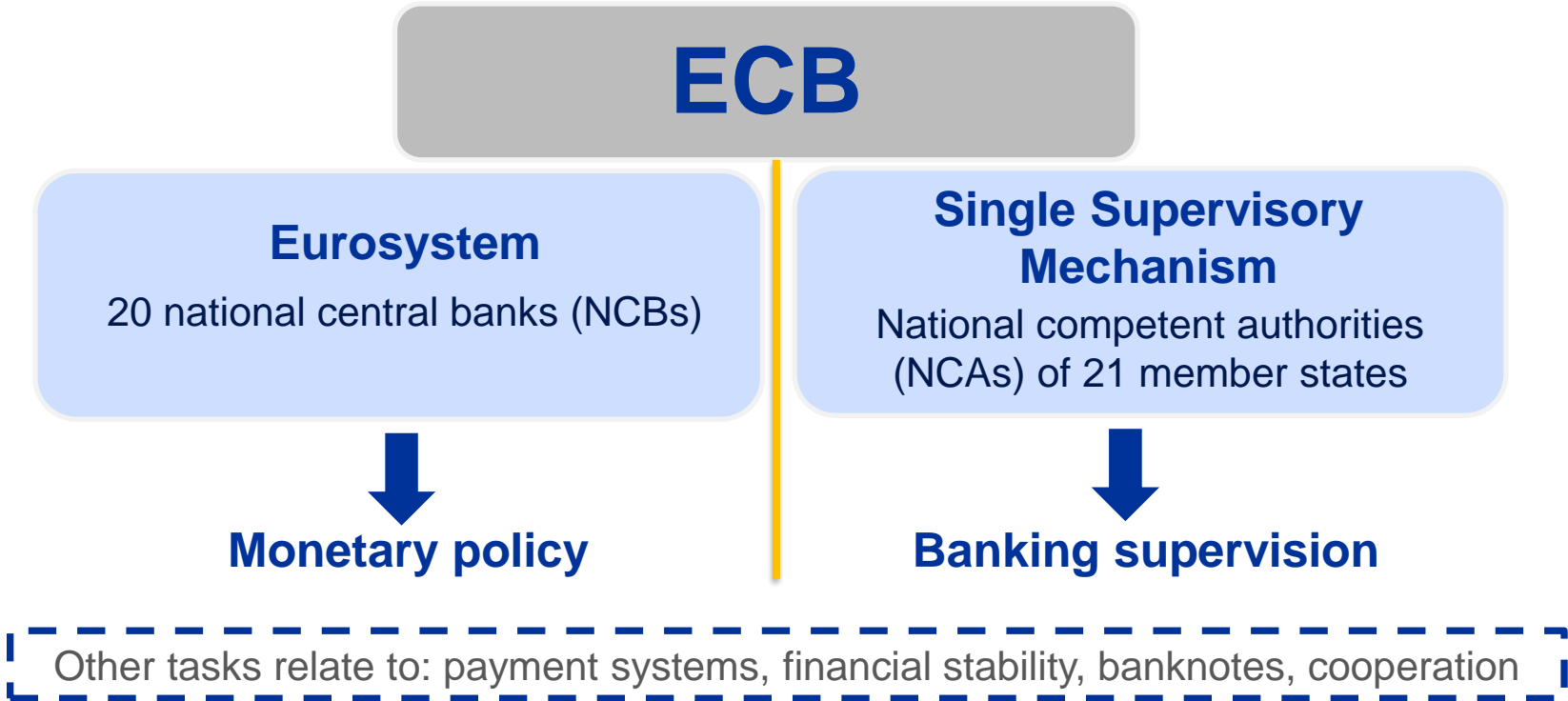


Piero Cipollone



Isabel Schnabel

The ECB's monetary and supervisory functions are separated



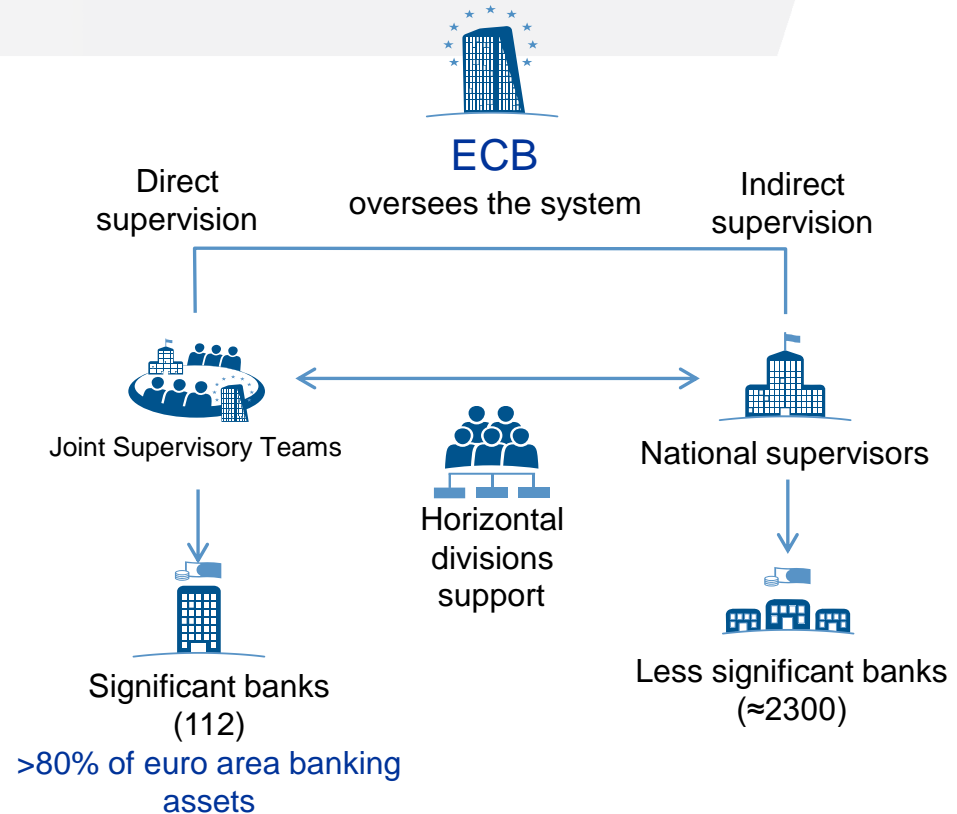
ECB – Europe's top banking supervisor

The **SSM is a key pillar of the banking union**.

It ensures:

- safety and soundness of the banking system
- financial integration and stability
- Consistency of supervision across countries
- The work of the SSM is based on a common rulebook

→ SSM is based on collaboration, consultation, and exchanges of views between the national and European level are vital to the functioning of the SSM.



2

The main goals and tools of the ECB

Monetary policy: basic elements

Monetary policy: decisions taken by central banks to influence the cost and availability of money in an economy

The ECB's most important decision relates to setting the Official interest rates. Any change it makes to these rates affects the interest rates commercial banks charge their customers for borrowing money

In recent years ECB added new “unconventional” instruments to its toolbox in response to big changes in the economy

Any ECB decision is taken following the ESCB Statute and TFEU provisions. The ECB, together with the euro area NCBs, have the exclusive competence to conduct the monetary policy of the Union (Art. 282 TFEU)

About the ECB

Legal basis

Articles 3 and 13 of the Treaty on the EU (TEU)

The main provisions are contained in Articles 3(1)(c), 119, 123, 127-134, 138-144, 219 and 282-284 of the Treaty on the Functioning of the European Union (TFEU)

Objectives and tasks

According to Article 127(1) TFEU, the **primary objective of the ESCB is to maintain price stability**. Without prejudice to this, the ESCB also **supports the Union's general economic policies in order to help achieve the Union's objectives**, which are outlined in Article 3 TEU. The ESCB acts in accordance with the principle of an open market economy with free competition and in compliance with the principles set out in Article 119 TFEU. The basic tasks carried out through the ESCB (Article 127(2) TFEU, Article 3 of the ECB Statute) are: defining and implementing the Union's monetary policy; conducting foreign exchange operations consistent with the provisions of Article 219 TFEU; holding and managing the official foreign reserves of the Member States; and promoting the smooth operation of payment systems.

Commitment to price stability

“The Governing Council considers that price stability is best maintained by aiming for **2% inflation over the medium term**. [...] this target is **symmetric**.”

ECB Governing Council

Monetary policy strategy statement 2021

Why 2%? Why not 0%?



Measurement buffer

To account for the fact that inflation figures can be slightly overstated.

A positive measurement bias in the price index could imply that the true level of inflation is lower than the measured level.



Safety margin

To have a safety margin against the potential risks of deflation.

In deflation, monetary policy may not be able to sufficiently stimulate the economy by using its rates. Therefore, it's more difficult for monetary policy to fight deflation than to fight inflation.

Inflation: the rate at which the prices for goods and services change over time
(Harmonized Index of Consumer Prices, HICP)



Country differences

To leave room for differences in inflation across euro area countries.

Smoother adjustment of macroeconomic imbalances across euro area countries, avoiding inflation in individual countries persistently falling into negative territory.

Comparison with US Fed mandate



Primary Objective

“The primary objective of the Eurosystem shall be to maintain **price stability**. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Community with a view to contributing to the objectives of the Community”
[EU Treaty, Article 127]



Dual Mandate

“Maintain the growth of monetary and credit aggregates commensurate with the economy’s long-run potential to increase production, so as to promote effectively the goals of **maximum employment, stable prices and moderate long-term interest rates**”
[Full Employment and Balanced Growth Act, 1978]

Monetary policy: specific tools

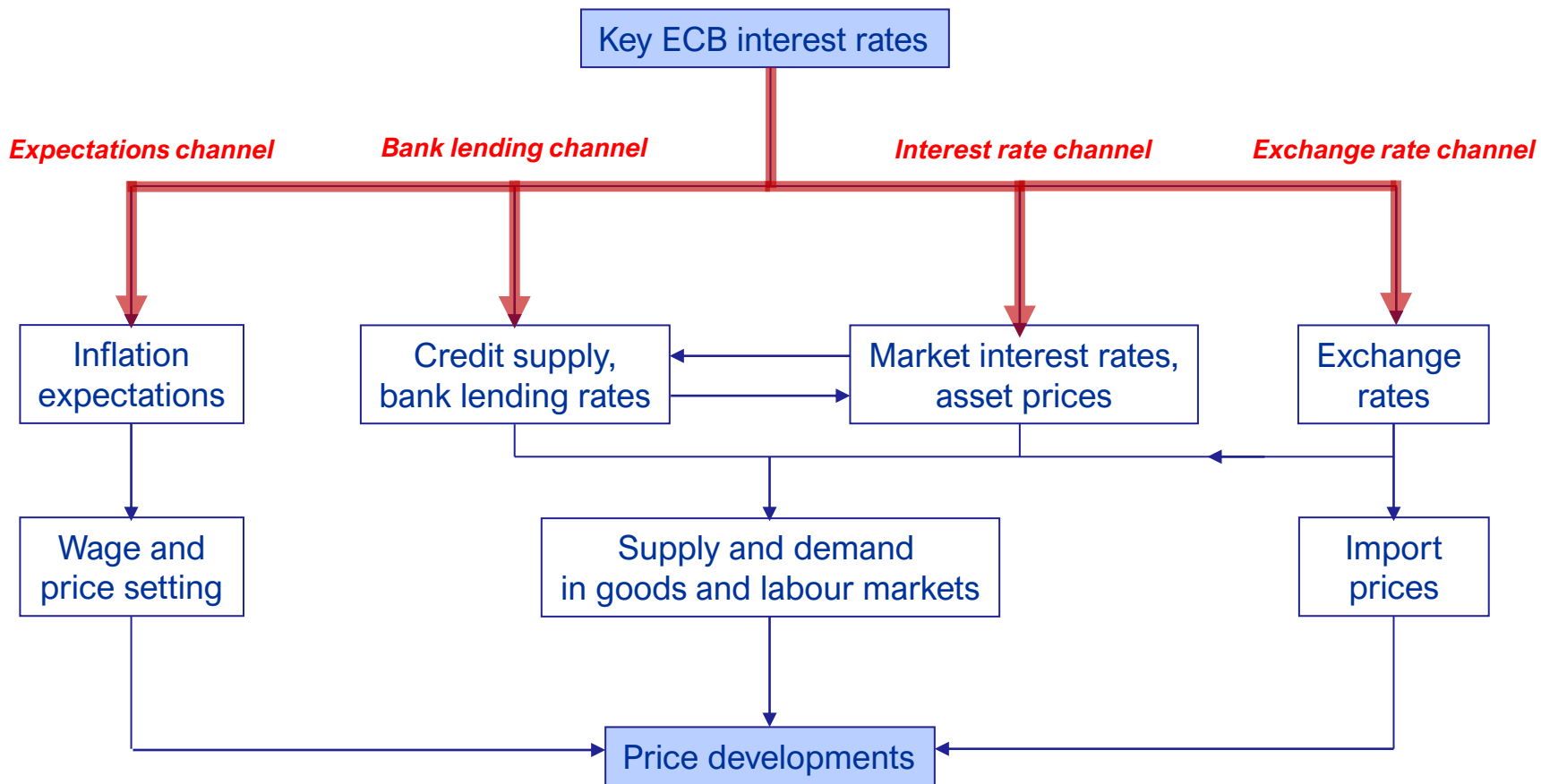


Key interest
rates

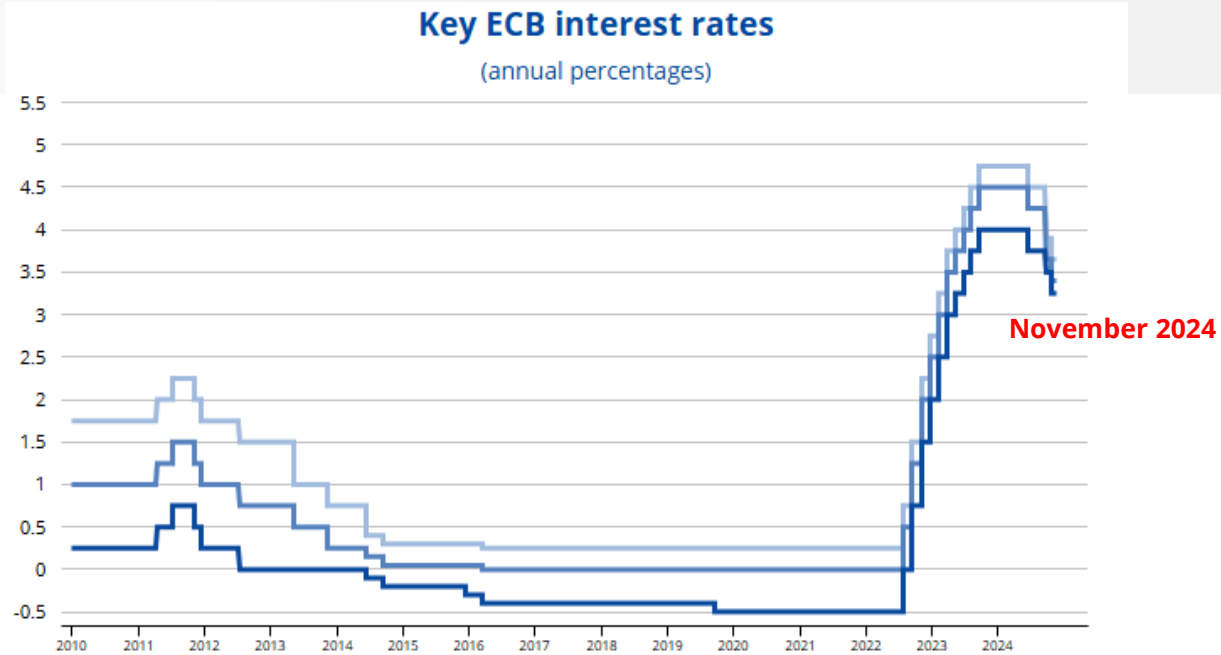
Asset purchases

Targeted longer-term
refinancing operations

Transmission channels of interest rate policy



3 key interest rates



Deposit facility rate: the interest rate banks receive when they deposit money overnight. **3.25%**

Main refinancing operations: the interest rate for banks when borrowing funds (against collateral) from the ECB on a weekly basis **3.40%**

Marginal lending facility: the interest rate for banks when borrowing funds from the ECB overnight. **3.65%**

Monetary policy: specific tools

The ECB also uses non-standard measures

Rationale of non-standard measures:

- Providing further monetary accommodation at the effective lower bound ('quantitative easing')
- Ensuring that key interest rates are appropriately transmitted through the financial sector to the real economy ('credit easing')
- Funding reassurance for the banking system ('lender of last resort')

Main non-standard policy tools:

Asset purchases
(public & private assets)



Open market operations: ECB operates in the financial markets by buying (or selling) marketable securities

Targeted longer-term refinancing operations (TLTROs)



Credit operations: ECB lending to credit institutions based on adequate collateral and specific conditions

APP cumulative net purchases, by programme

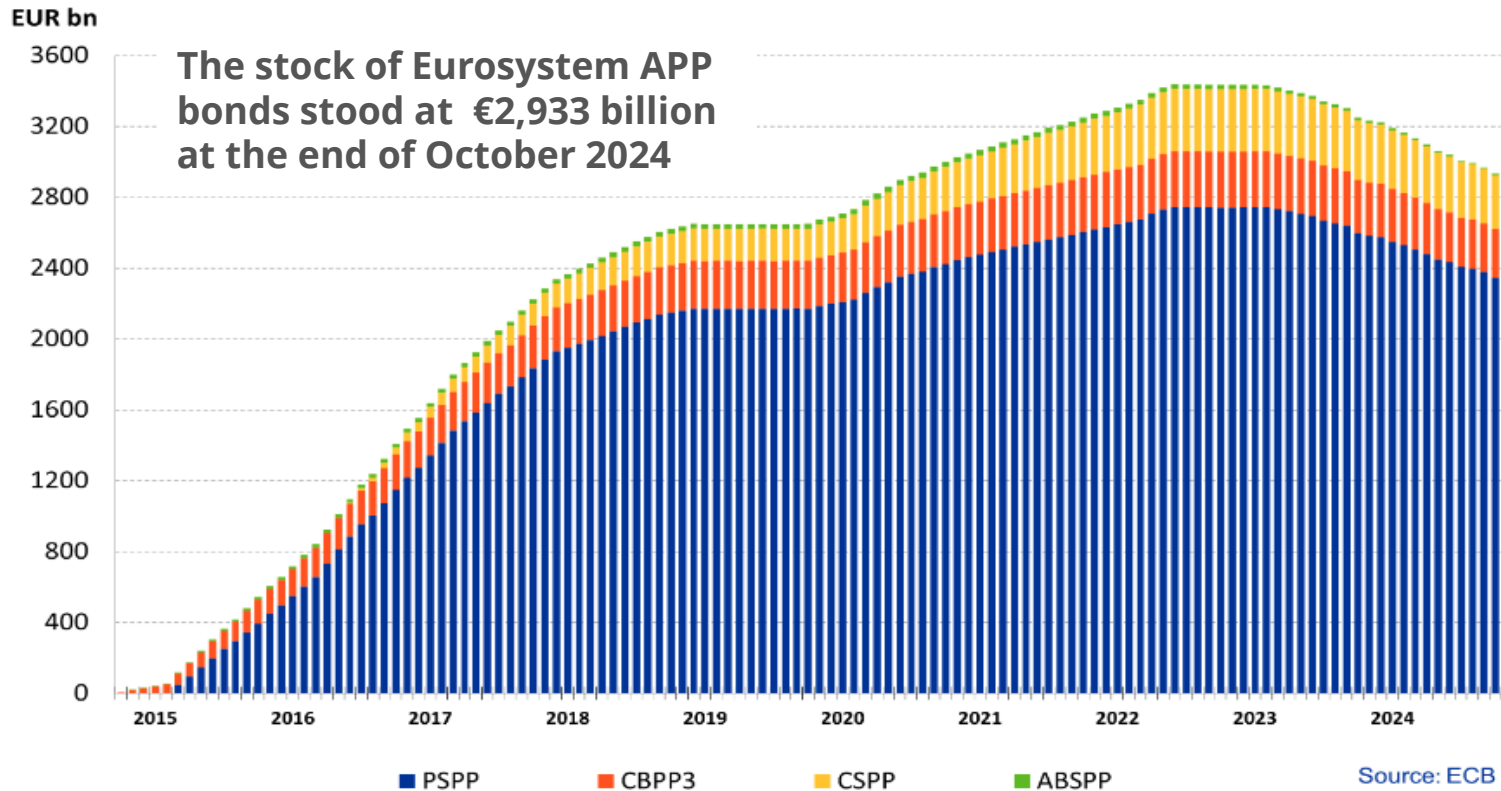
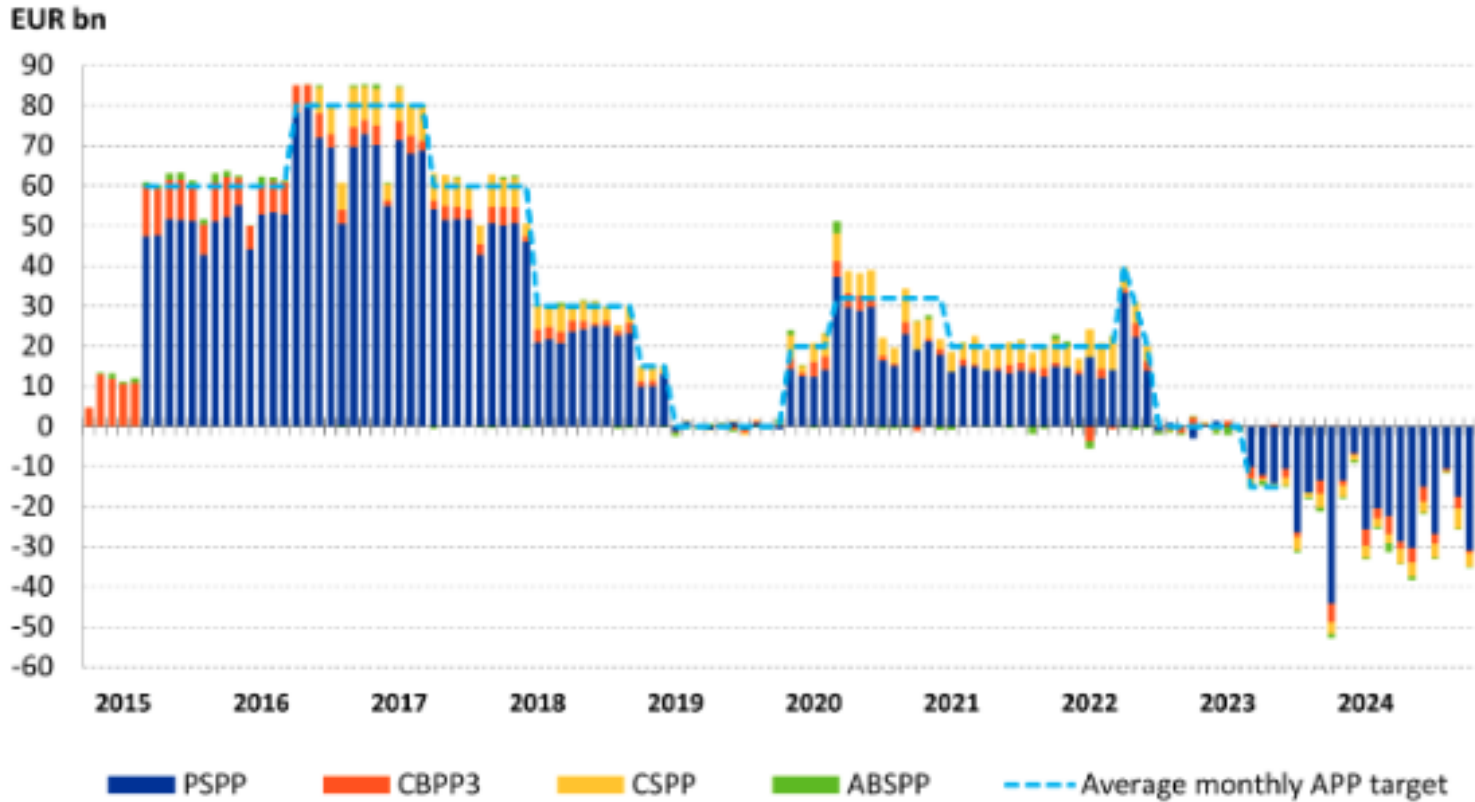


Chart: Net asset purchases by programme under APP



3

ECB current challenges and policy stance

Inflation developments

Euro area headline inflation declined from 2.2% in August to 1.7% in September

Inflation rise in '21-22, driven by

- Energy & food prices
- Supply bottlenecks
- Demand from consumers

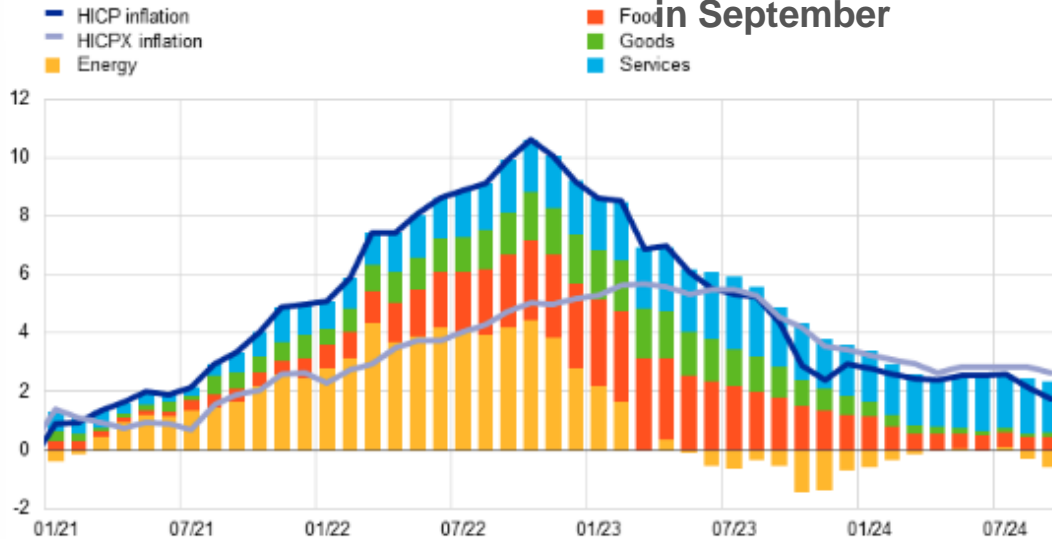
Start decreasing in late 2022

- Drop in energy inflation mainly due to decline in gas price
- Food inflation start decreasing in 2023, driven by slower dynamics in food components.

Expected to continue decreasing, but monitor Geopolitical tensions on energy and wage pressures

Headline inflation and its main components

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: Goods refers to non-energy industrial goods. The latest observations are for September 2024.

Macro projections – Sept. 2024

• **Deposit facility rate: 3.5%**

The **economy** grew by 0.2% in Q2. Growth stemmed mainly from net exports and government spending. Private domestic demand weakened; households consumed less, firms cut down investment and housing investment dropped. Recovery will strengthen from fading effects of restrictive monetary policy

Inflation declined, from 2.6% in July, to 2.2% in August. Wage growth will remain high, given the significant role of one-off payments in some countries. The disinflation process should be supported by receding labour cost pressures and the past monetary policy tightening

Next projection on 12 Dec. 2024

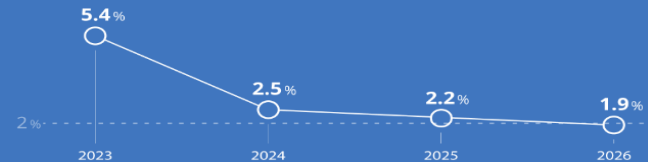
We expect the economy to gradually recover in the coming years

Projections for euro area growth in 2024 and the coming years
(projections from September 2024)



We expect inflation to gradually fall to our 2% target

Projections for euro area inflation in 2024 and the coming years
(projections from September 2024)



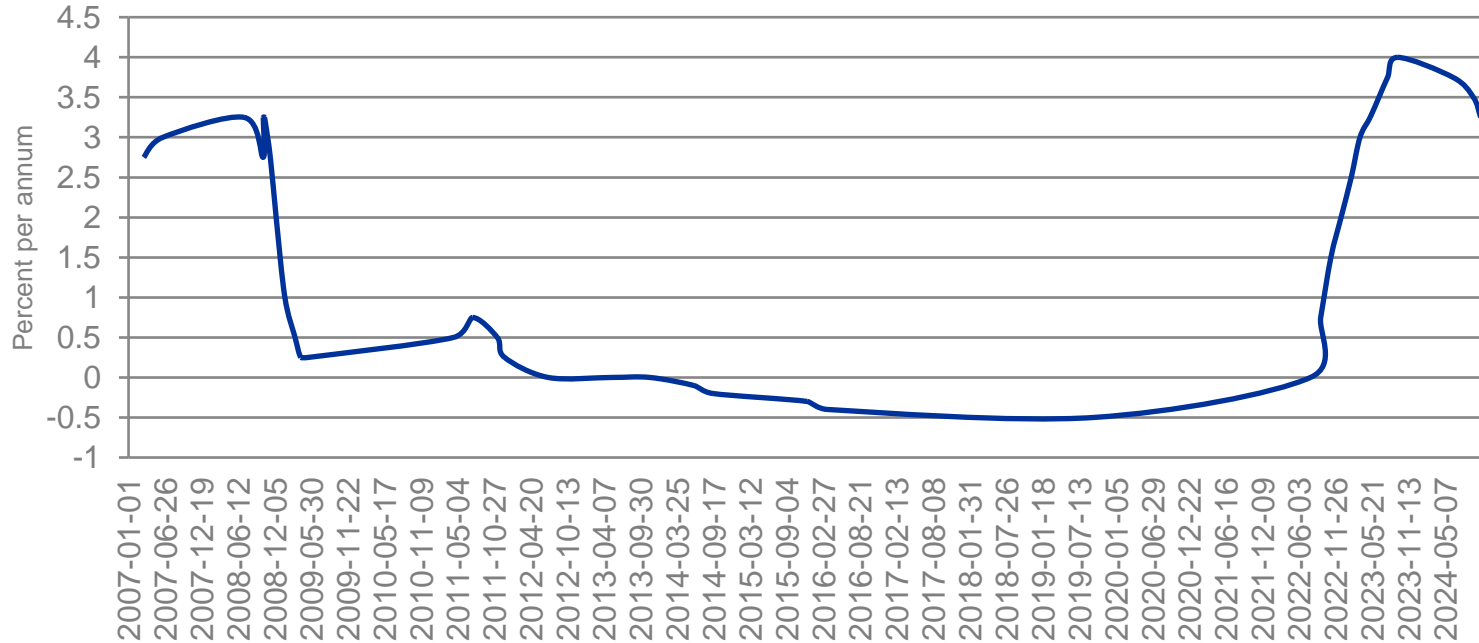
What is happening in our economy? – Oct. 2024

- **The economy is doing worse than expected**
- Manufacturing and exports are weak. Firms are not investing much. But services have been doing a better, thanks to a good summer tourism season
- **People are saving more instead of spending**
- Even more so than before the pandemic
- **Inflation is the lowest it has been in years**
- Energy prices, especially, have come down a lot. Inflation will likely go up in the coming months but is expected to return to the 2% target in 2025
- **Many people are in jobs**
- Unemployment remains the lowest it has been since the start of the euro. But firms are posting fewer job vacancies. Wages are still growing quite strongly
- **Firms and households are demanding more loans**



• **Deposit facility rate: 3.25%**

- Deposit facility - date of changes (raw data) - Level, Euro area, Daily - businessweek



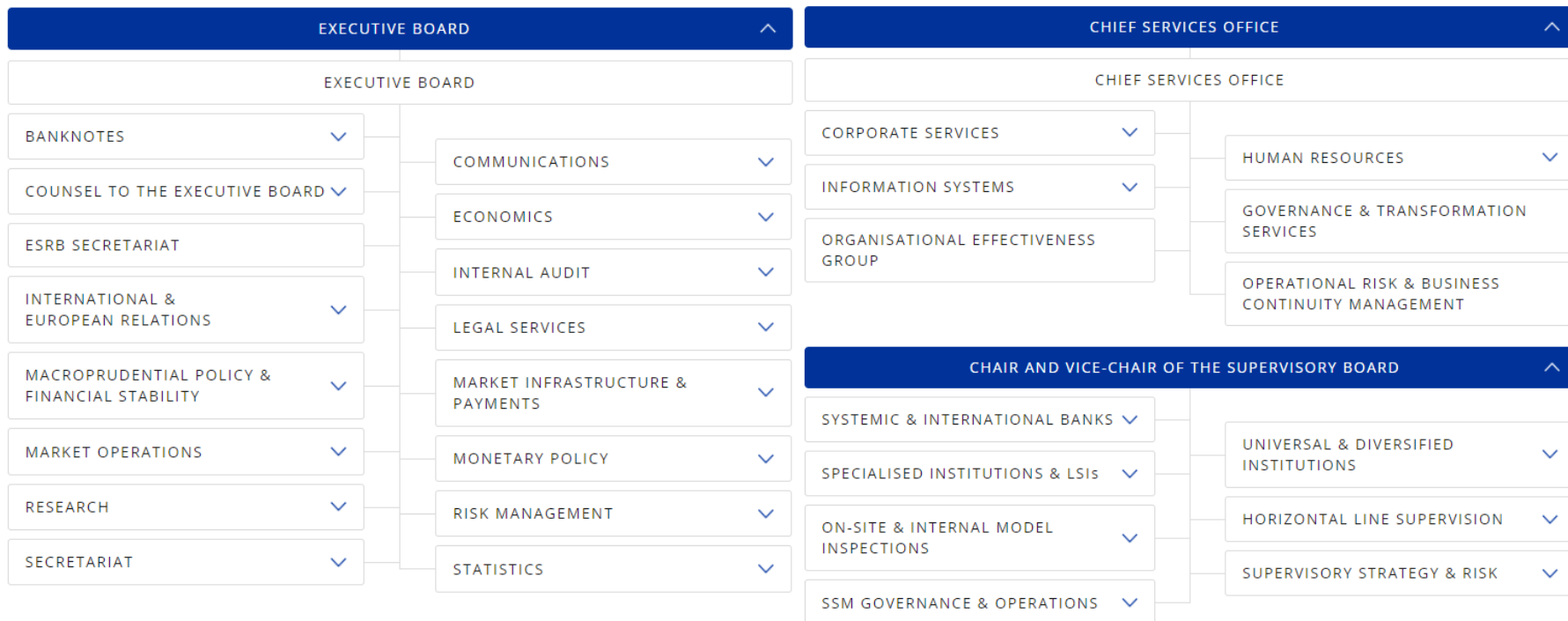
Source: FINANCIAL PROVIDERS

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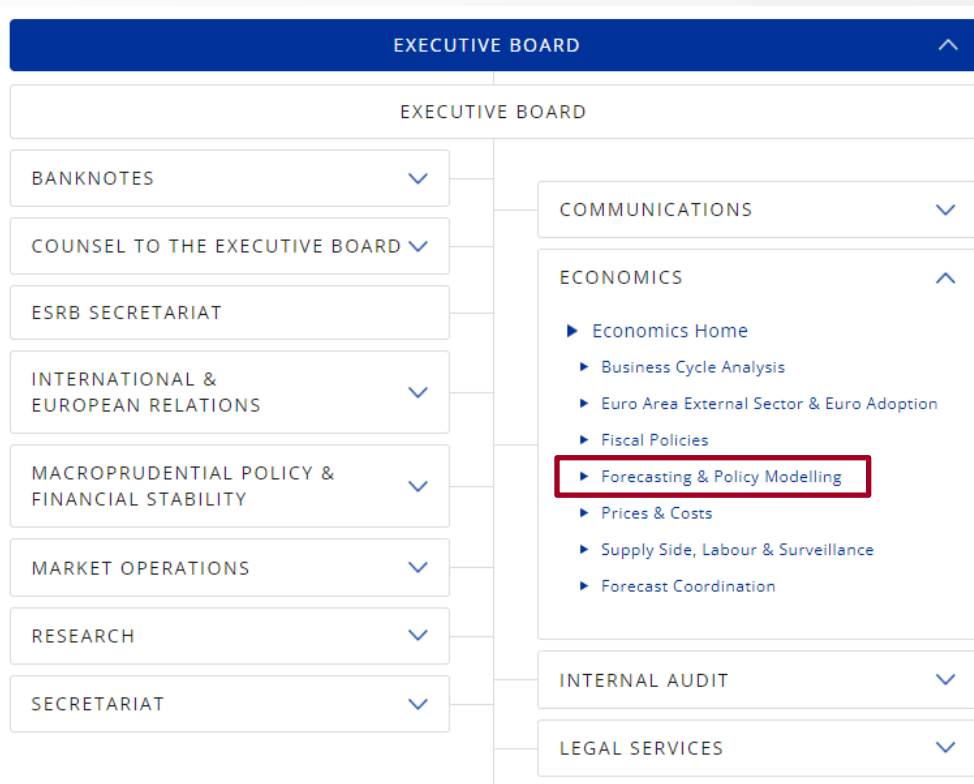
Macroeconomic models at the ECB



Business areas in the ECB



FPM in DG-Economics



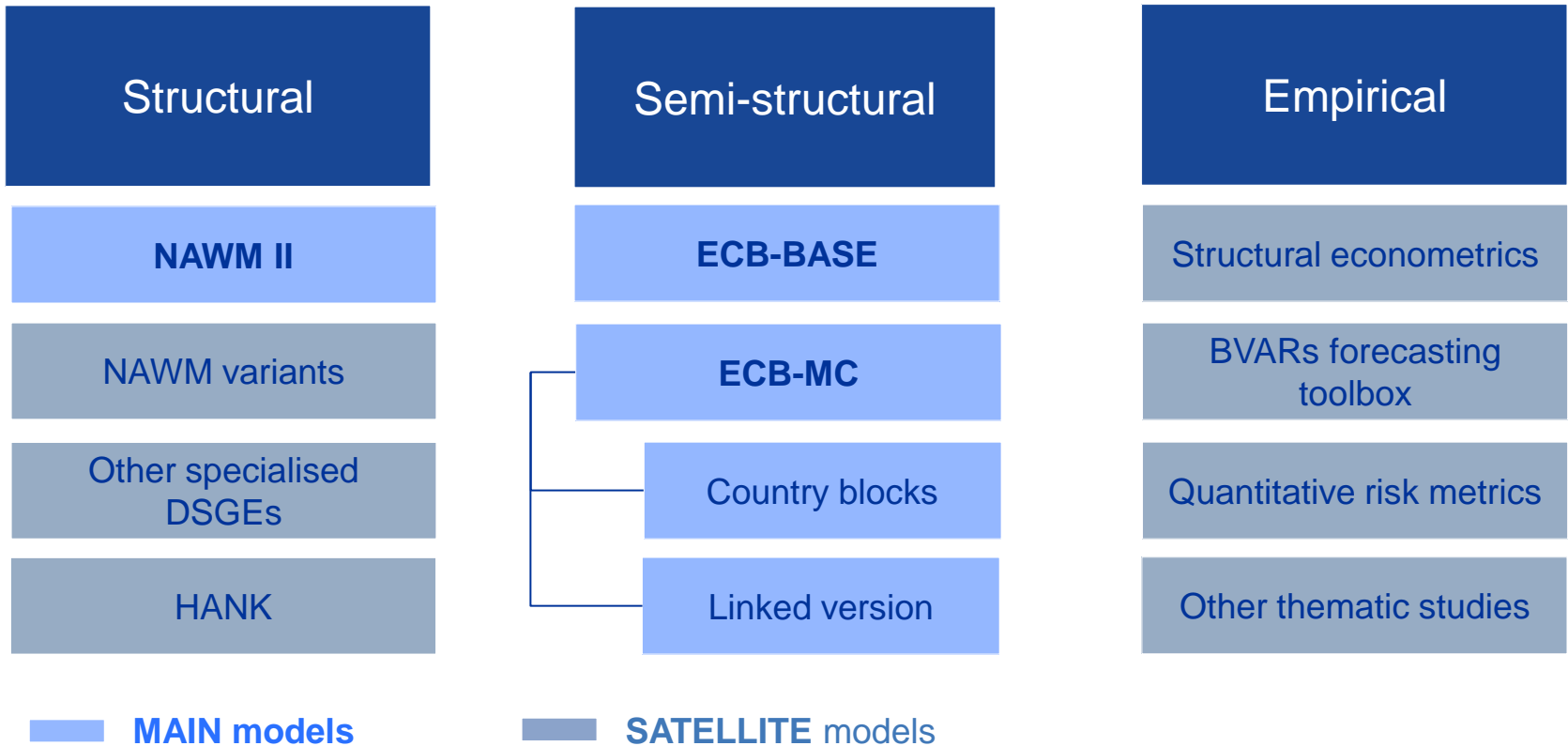
Director General
Óscar Arce

Head of Division
Matteo Ciccarelli

FPM mission

- Our division develops and maintains euro area and large-country models for projections and policy simulations, and the corresponding data and model platforms.
- We make model-based contributions to the ECB projections, the Quarterly Monetary Assessment and monetary policy analysis, in coordination with other business areas.
- We provide model-based analysis for Executive Board member's speeches, strategy review and others
- We aim at being at the frontier of modelling research and to contribute to the intellectual development of the ECB, by being innovative and continuously building new tools and models

Macroeconomic models portfolio for monetary policy preparations



What models are used?

- **New Area Wide Model II** – a large open economy DSGE model used for policy simulations, counterfactuals, risk analysis and cross-check of ECB staff forecasts
- **ECB-BASE** – A large-scale semi-structural model of the euro area, used for forecasting, policy simulations, counterfactuals, risk analysis
- **ECB-MC** – a multi-country version of ECB-BASE (Germany, France, Italy, Spain, and the Netherlands)
- **Time series models** – large factor models, non-linear models, Bayesian VAR models
- **Satellite models** – HANK, climate change, non-linear DSGE, among others

Economic projections

- Forecasting with judgment and model-based projection narratives for the euro area as well as for the largest euro area countries

Risk analysis

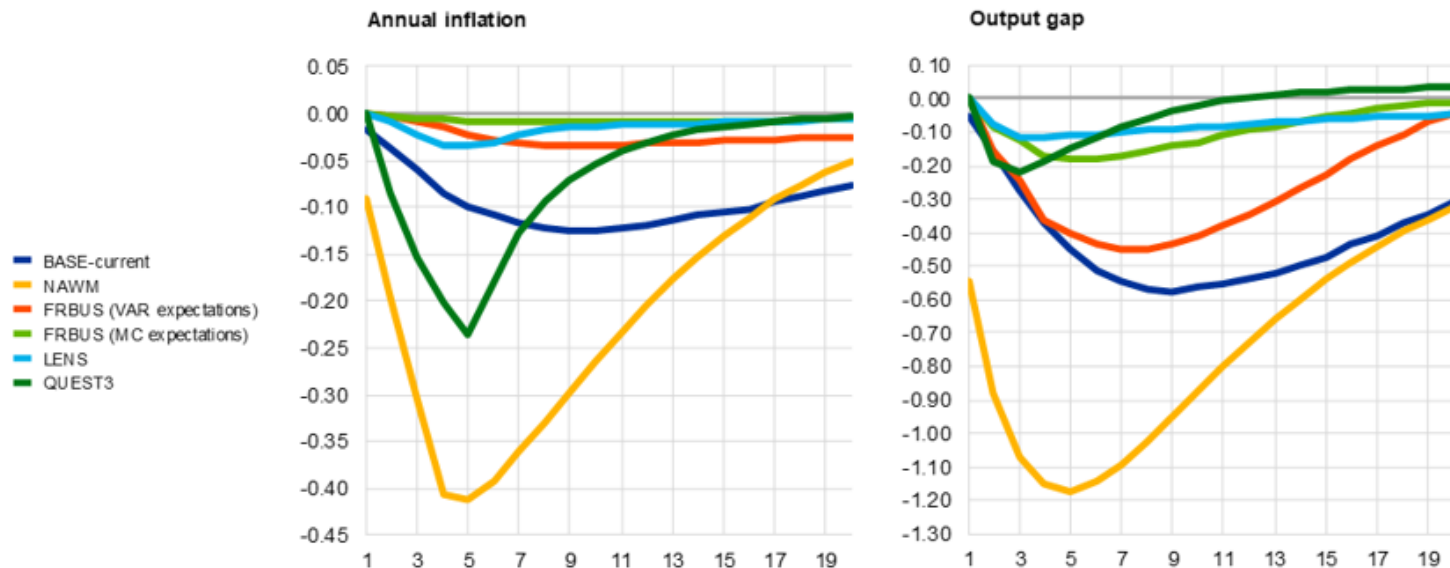
- Combination of predictive densities from forecasting models
- Risk balance indicators
- Scenario analysis of relevant macroeconomic contingencies

Policy analysis

- Impact study of monetary policy options
- Strategic issues related to monetary-fiscal-financial policy mix in the euro area, structural policy / recovery plans
- Medium-term scenario

Annual inflation (left) and output gap (right)

(percentage point deviations from baseline: quarters)

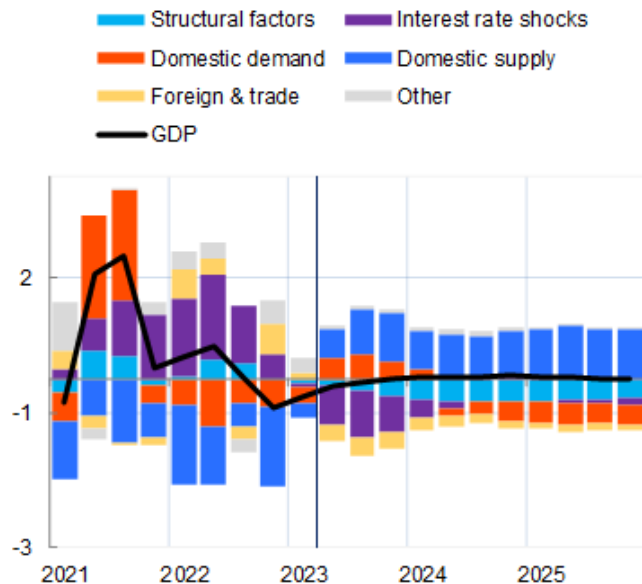


Note: The responses of the models are based on publicly available material and may not reflect the most current version of each model. FRB/US: a large scale general equilibrium model of the US economy with flexible optimisation, developed by the Federal Reserve System; LENS: a large empirical and semi-structural model used by the Bank of Canada for forecasting and policy analysis; NAWM II: the New Area-Wide Model, a structural econometric model used by the ECB within a DSGE framework for the euro area; QUEST III: a macroeconomic model used by the European Commission for policy analysis and research in the EU; ECB-BASE: a semi-structural model used by the ECB for the euro area

NAWM: Structural shock decomposition of the June 2023 MPE baseline

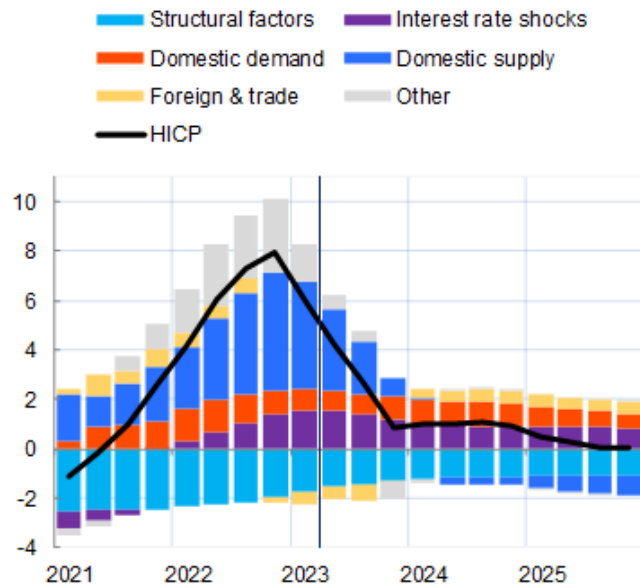
Real GDP

(q-o-q growth rates, in pp, in deviations from steady state)



HICP inflation

(y-o-y growth rates, in pp, in deviations from 2%)



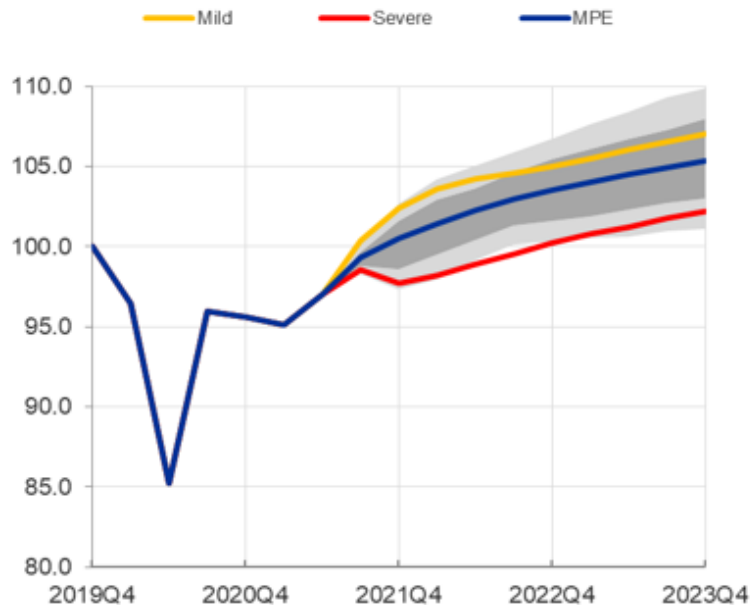
Source: ECB staff calculations using the NAWM II.

The category "Structural factor" includes the contributions of the initial state, the discount rate shock and the persistent component of the permanent technology shock. "Interest rate shocks" comprises the short-term interest rate shock and the shock to the retail bank's markdown. "Domestic demand" includes the domestic risk-premium shocks and shocks to government spending. The category "Domestic supply" captures supply-shocks, namely: the transitory component of the permanent technology shock and the transitory and investment specific technology shocks as well as wage and price mark-ups. The category "Foreign and trade" captures shocks to foreign demand, foreign prices, US 3-month and 10-year interest rates, competitor's export prices, oil prices, import demand, export preferences, mark-up shocks to export prices and import prices and a foreign risk-premium shock whereas "Other" includes measurement errors and residuals from bridge equations.

ECB-BASE: Simulating alternative pandemic developments in 2020Q3

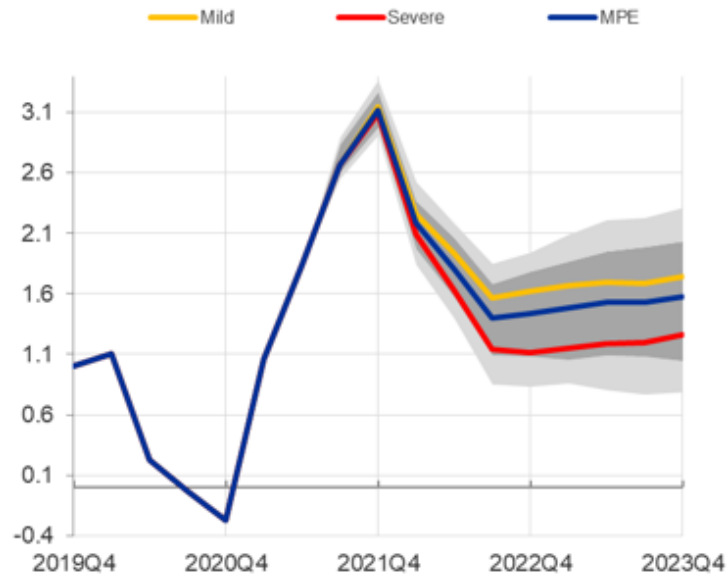
Real GDP

(index = 100 2019q4)



HICP inflation

(y-o-y growth rates, in %)



Sources: ECB projections database and ECB calculations based on ECB-BASE for the scenarios.

Notes: The grey areas represent the 90% and 68% confidence intervals from the ECB-BASIR forecast. They are centred around the September 2021 MPE. The density forecast is computed using a bootstrap method that re-samples the in-sample residuals of the model and considers the uncertainty related to pandemic developments, like vaccination efficiency and virus fundamentals.

Enhance the current modelling capabilities

Alternative **expectations** formation (backward looking, learning, inattention)

Agents **heterogeneity** (uninsured income risk)

Non-linearities (lower bound, non-linear Phillip's curve)

Endogenous **interest rates** (time-varying natural rate)

Acquire new ideas and technology

New **macro-finance-fiscal** models

Heterogeneous models (HANK, agent-based,...)

Structural changes: **climate, digitization**, other secular drivers

Think beyond

Machine learning and AI to handle new or **big data**

Interdisciplinary teams


Borderless organizations for skills, data, and tools

5


Career opportunities



The ECB in numbers


 **4300** staff from all **27** EU member states

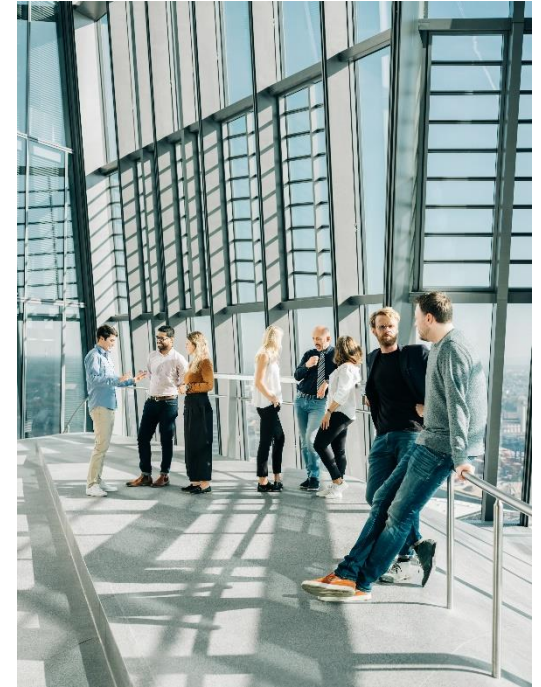
 **30** Business Areas

 **51%** of staff between 18-40 years

 **26** average age of trainees and **31** of graduate programme participants

 **>500** trainees in 2021

 **18** new starters in the Graduate Programme



Traineeship Programme

Traineeship Conditions

Focus: Learning experience, support the work of your business area.

Minimum criteria: Completed first cycle qualification (Bachelor or Master).

Duration: 3-6 months, can be extended to 1 year.

Monthly grant: €1,070 (€1,940 for a PhD traineeship) plus accommodation allowance.

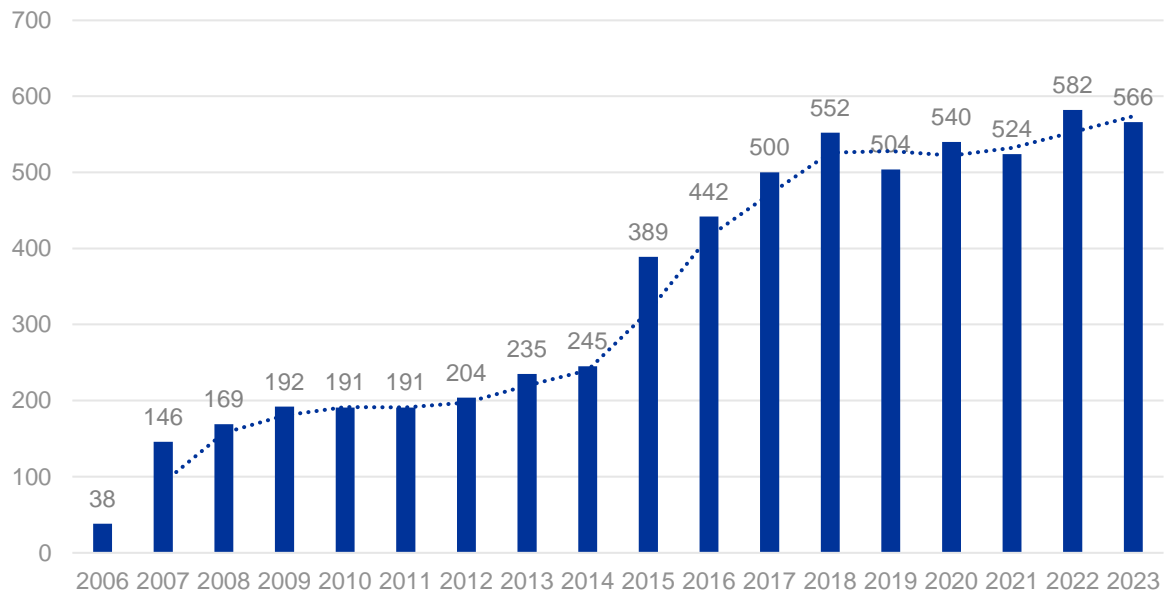
Eligibility: Following their most recent qualification candidates should:

- have a maximum of 12 months' professional experience;
- have been a trainee for no more than six months;
- not have been an ECB trainee or have worked for the ECB previously.

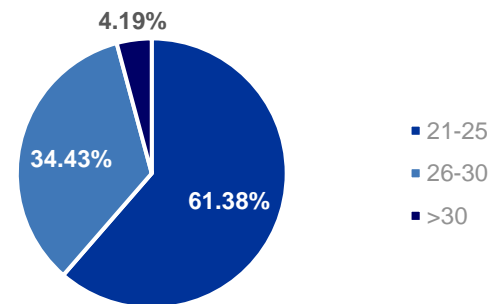


Traineeships in numbers

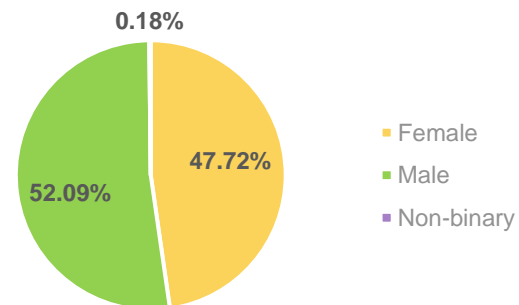
Total number of trainees per year



Age distribution



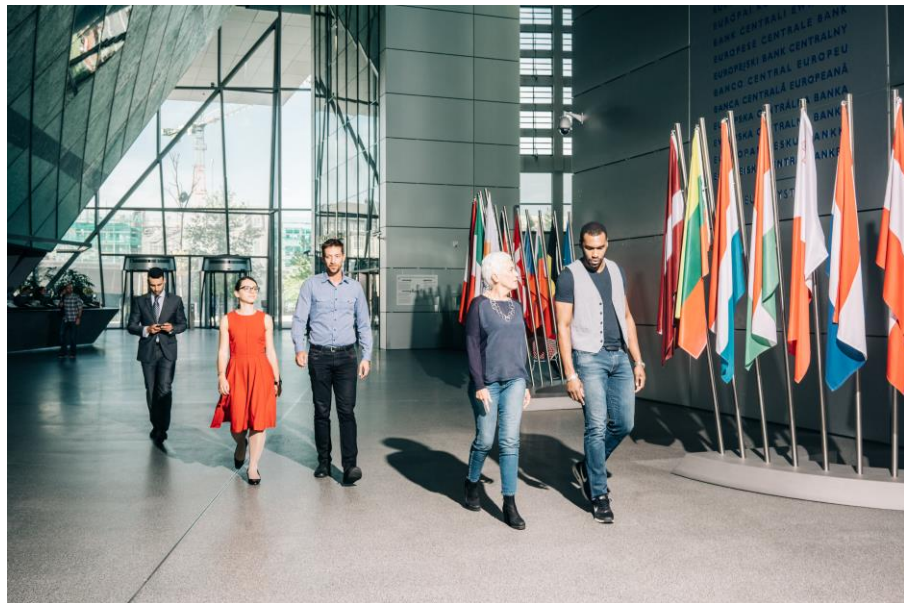
Gender distribution



Data retrieved: 28/02/24

After the traineeship

- You will have gained unique and valuable experience within a **European institution**
- Possibility to be offered extension via **short-term contract** of up to 1 year
- Consider applying for **entry-level positions** at the ECB (e.g. Assistant, Analyst)



Graduate Programme

Graduate Programme Conditions

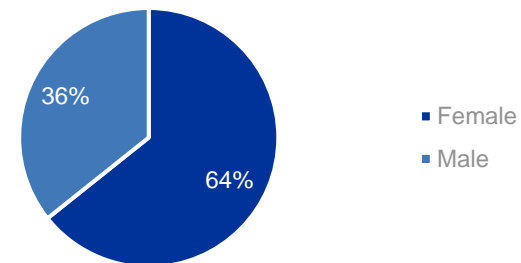
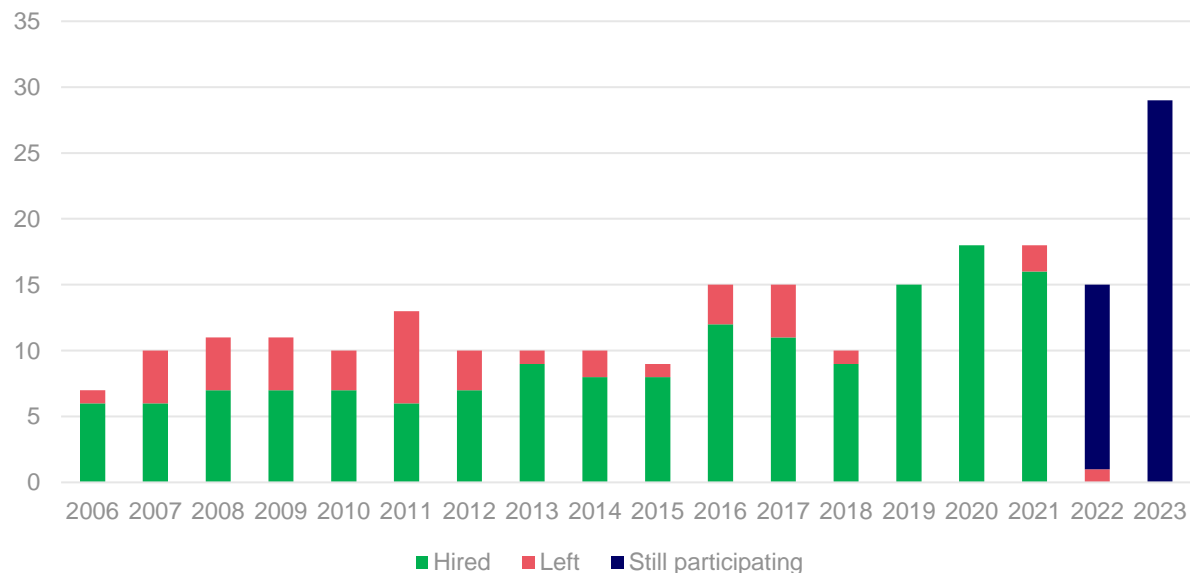
Focus:	Working experience in 2 business areas and a project paper
Minimum criteria:	Postgraduate degree (preferably PhD)
Duration:	2 years, can be extended to 3 years
Monthly grant:	€4,600
What happens afterwards:	Once you have successfully completed the probationary period, you can apply for internal positions. You can request to stay for a 3rd year and continue to apply for positions at the ECB, or you can use your new skills, experience and knowledge on the external job market.



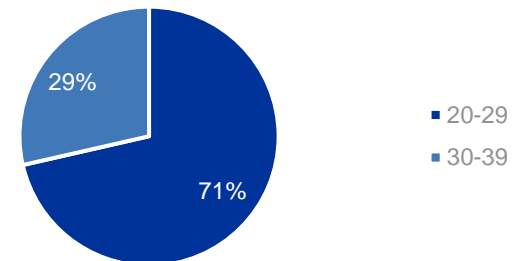
Graduate Programme in numbers

Gender distribution

Graduate Programme - recruited vs. exit



Age of current GP participants



Interested in joining the ECB?

Follow us on
  

Learn more about the ECB:



<https://www.ecb.europa.eu/explainers/html/index.en.html>

Have a look at our career page and ask your questions to our new Chatbot:



<https://www.ecb.europa.eu/careers/html/index.en.html>

Visit us at career fairs:



Testimonials from current trainees:



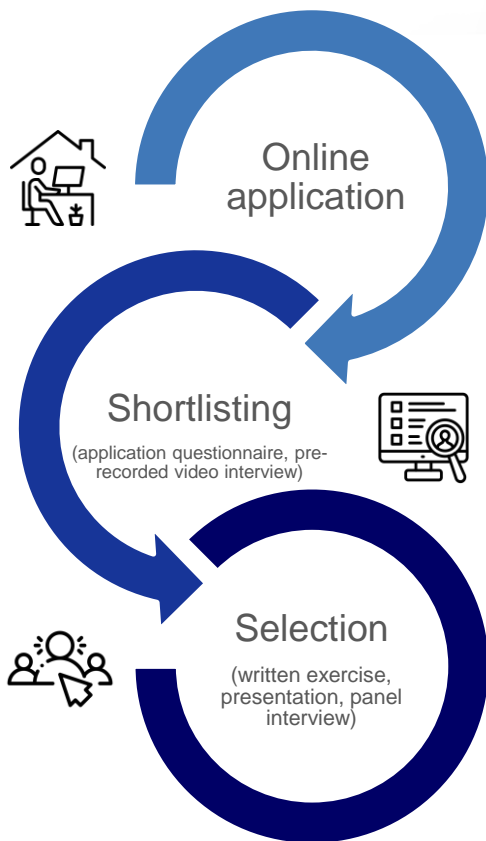
Explore our vacancies and set up a job alert:



<https://talent.ecb.europa.eu/careers>

Background

Recruitment process



<https://talent.ecb.europa.eu/careers>



Outcome
(feedback report for interviewed candidates, possibility to be placed on reserve list)



Eligibility criteria:

- ✓ EU nationality
- ✓ Fluency in English & in another EU official language (your native language counts!)

Campaign-specific **essential & desired** requirements



Recruitment Process



1. Online Application



2. Shortlisting

- Candidate profile
- Application questionnaire
- Pre-recorded video interviews
- WebEx interviews



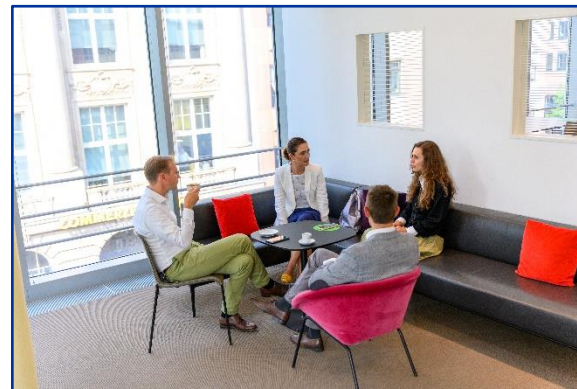
3. Selection

- Competency based panel interview
- Presentation
- Written exercise



4. Outcome

- Feedback report for interviewed candidates
- Possibility to be placed on reserve list



Keep in mind

- **Eligibility criteria** including
 - EU nationality
 - fluency in English & in another EU official language (your native language counts!)
- Campaign-specific **essential** requirements
- Campaign-specific **desired** requirements

Hands-on tips from ECB recruiters



Application

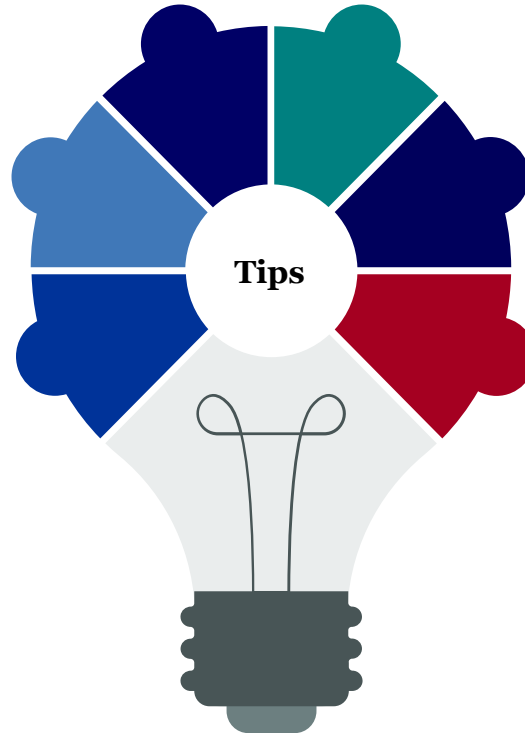
Motivation ●

Demonstrate why you are motivated for the position and why the ECB

Experience ●

Highlight and explain previous relevant experience

Customized application ●



Interview



● Preparation

Familiarise yourself with the vacancy notice and the tips on our career page;
Be yourself (authentic and honest)

● Expectations

Be clear on your motivation, expectations and interests

● Focused answers

Reflect on successes in terms of S-T-A-R (Situation, Task, Action, Result)

ECB as an attractive employer



Competitive remuneration package



Subsidised, private health insurance



Subsidised public transport



Subsidised canteen



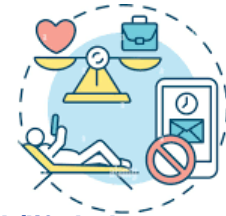
Employee networks



Vibrant city



Fitness facility, Sports and Cultural club



Work/life balance, annual leave entitlement



Subsidised apartments



Flexible teleworking



Access to trainings & conferences

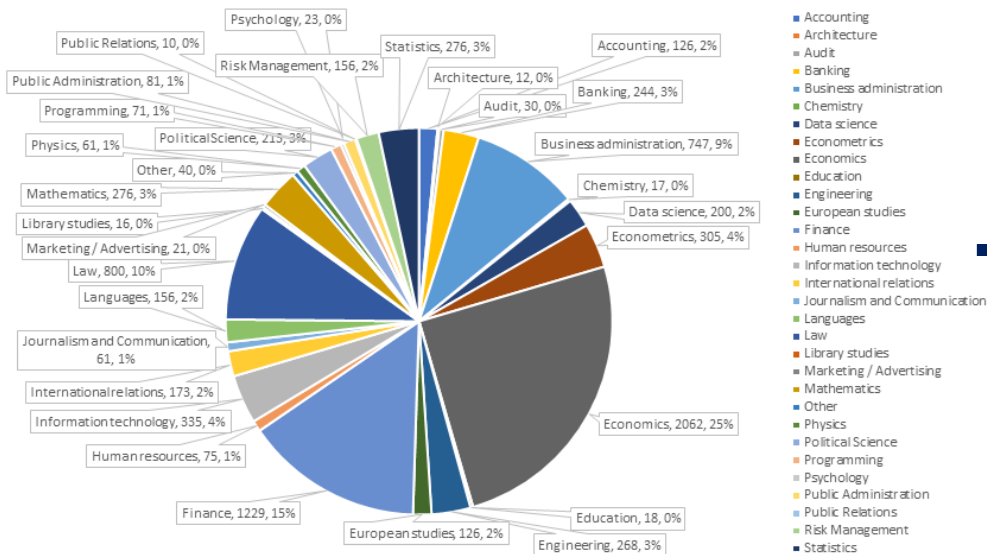
Examples of available trainings at the ECB:

- Digital skills: Excel, Tableau, PPM, R, Stata etc.
- Climate-related and environmental risks
- Lean management
- Interpersonal skills (e.g. emotional intelligence)



Educational background

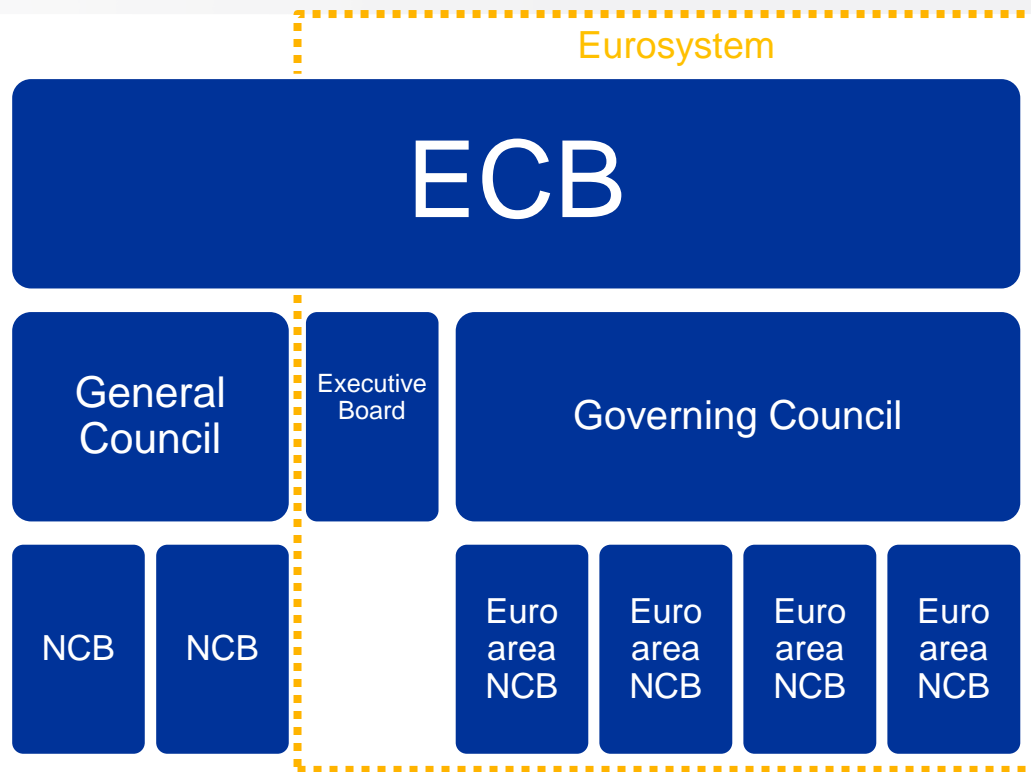
Overview of fields of study at the ECB



Diversity of jobs offered within core business across three clusters :

- **core policy functions:** economics, international and European relations, macroprudential policy and financial stability, market infrastructure and payments, market operations, monetary policy, research, risk management
- **corporate functions:** audit, communications, finance, HR, IT, legal, statistics
- **banking supervision**

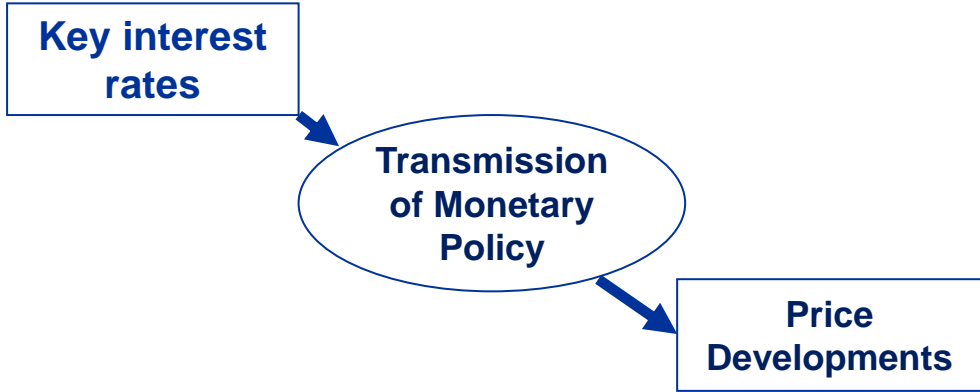
The ECB is part of the European System of Central Banks



Monetary policy: specific tools

Standard tools: interest rates

Key interest rates are set at levels consistent with the ECB's price stability objective



Interest rates influence **financing conditions** for households, corporates, governments (transmitted via banking sector, financial markets, expectations)...
 ... and thereby impact aggregate demand and ultimately **inflation**.

