



EUROPEAN CENTRAL BANK

EUROSYSTEM

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# Forecasting liquidity and conducting credit operations

ECB Central Banking Seminar  
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# Overview

- 1 Liquidity management concept and main components
- 2 Forecasting liquidity and conducting credit operations
- 3 Recent and future liquidity developments

## Focus on liquidity management and operations

### Liquidity management

- Compilation and publication of liquidity data for Eurosystem: (i) Current accounts; (ii) Standing facilities and (iii) Autonomous factors
- Analysis of liquidity data/distribution

### Money Market Monitoring

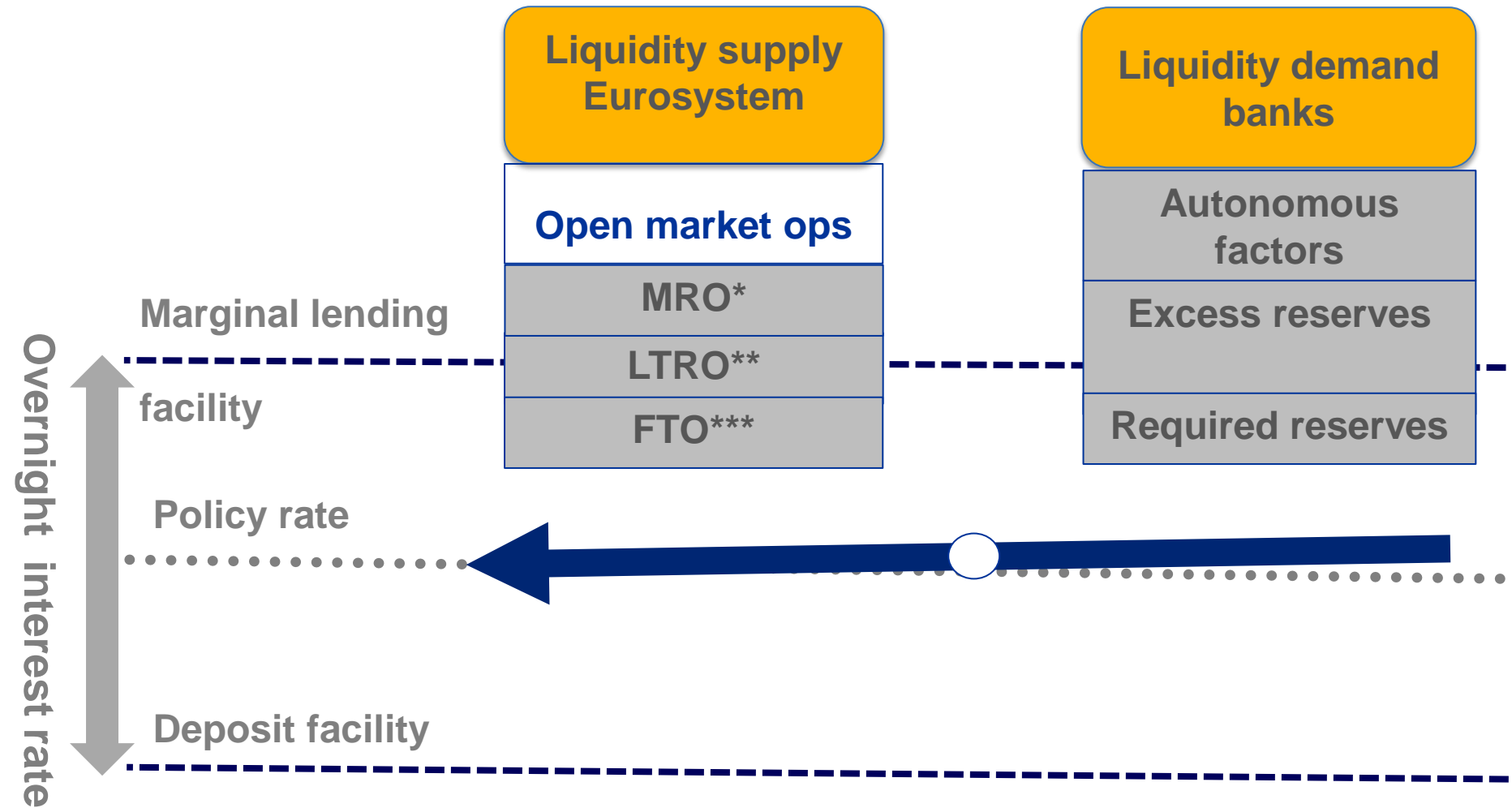
- Market monitoring and analysis
- Market Intelligence
- NCBs & non euro area CBs
- EONIA calculating agent/€STR administrator
- €STR and RFR working group
- Money market survey and MMSR

### Operations

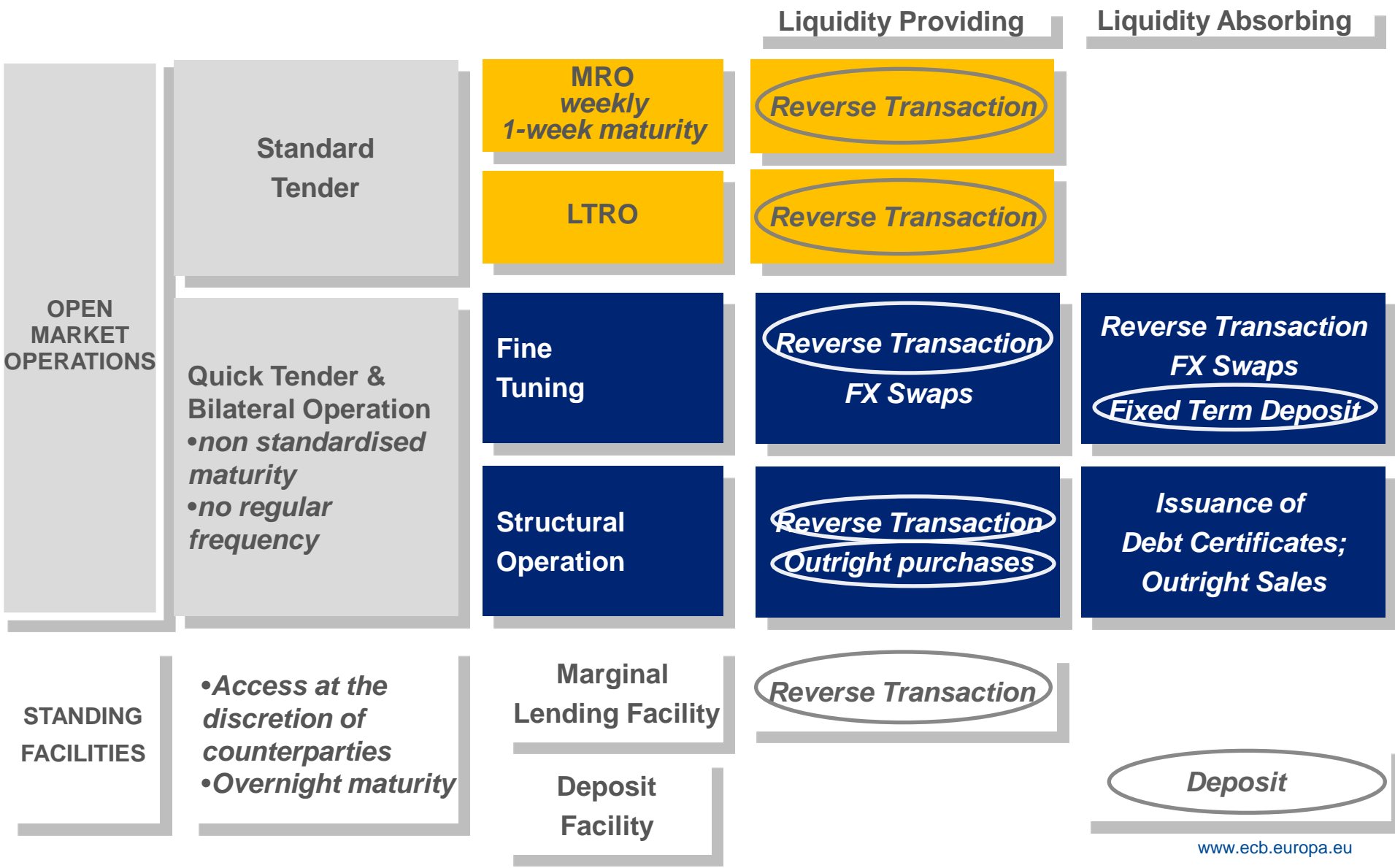
- Standard and non-standard
- Analysis & input for design
- Repayments
- USD liquidity providing operations
- FX swap lines (USD, JPY, CAD, GBP, CHF, CNY...)

Liquidity management is closely related to interest rate management

## Managing day-to-day liquidity to steer interest rates



\*Main Refinancing Operation, \*\*Longer-term Refinancing Operation, \*\*\*Fine-tuning Operation



## Eurosystem simplified balance sheet

### Assets

#### Monetary policy operations

Reverse open market operations  
Marginal lending facility  
Securities held for monetary policy purposes

#### Autonomous factors

Net assets denominated in euro  
Net foreign assets

#### Intra-Eurosystem claims

### Liabilities

#### Monetary policy operations

Deposit facility

#### Autonomous factors

Banknotes in circulation  
Government deposits  
Other autonomous factors (net)

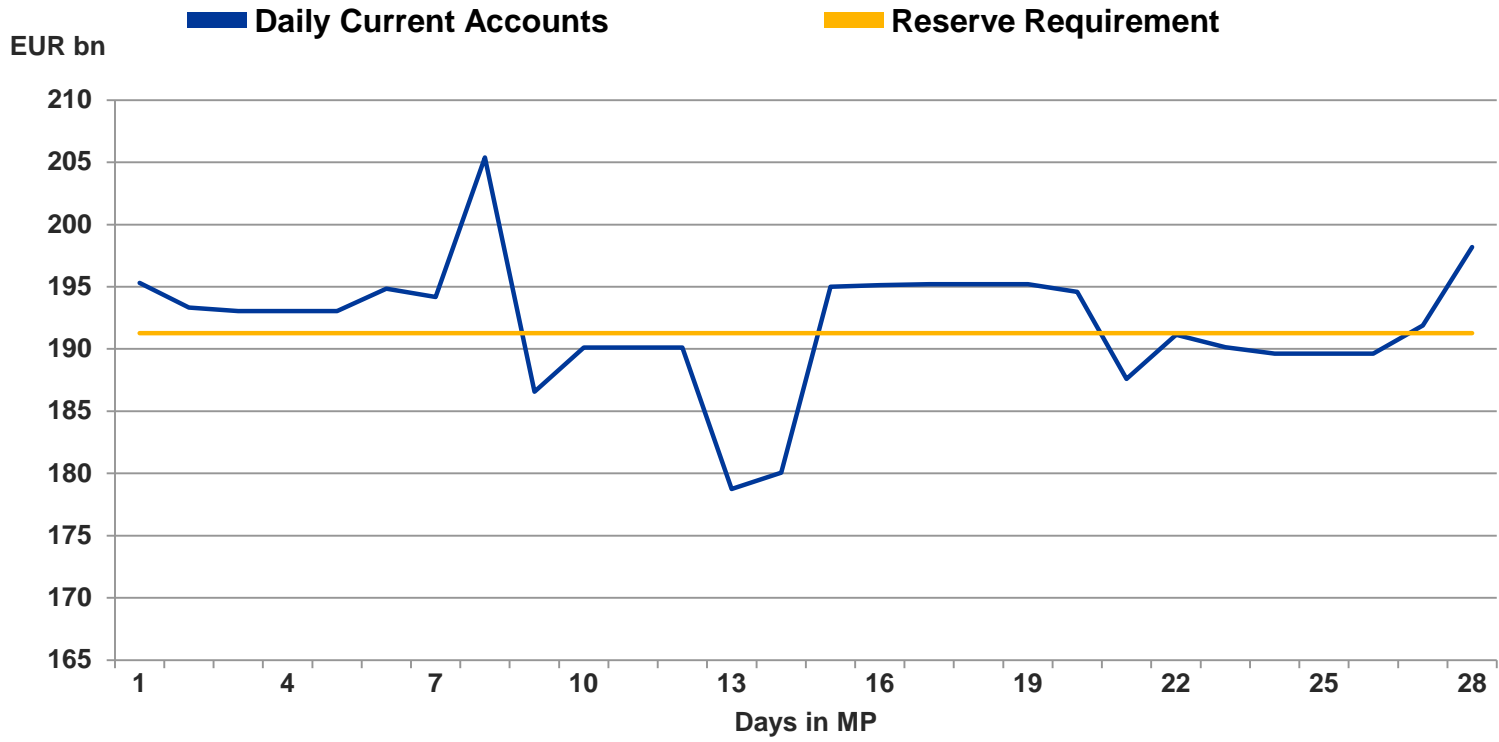
#### Current account holdings

Minimum reserve requirements  
Excess reserves

#### Intra-Eurosystem liabilities

## What are they?

- Create/enlarge structural liquidity deficit (of the banking sector) stabilise money market rates
- Need to be fulfilled on average over the reserve maintenance period



## What are they?

- Reserve holdings in excess of minimum reserve requirements.
- Remuneration rate = Minimum of 0% or the ECB Deposit Facility rate (currently -0.40%)

## Why are they needed?

- **Payment needs of counterparties not subject to minimum reserve requirements**
  - Banks with an effective reserve requirement of zero
  - Counterparties which are not credit institutions
  - Foreign credit institutions
- **Banks that have already fulfilled their reserve requirements**
  - Individual liquidity shocks after markets close
  - Regulatory motives



## What are they?

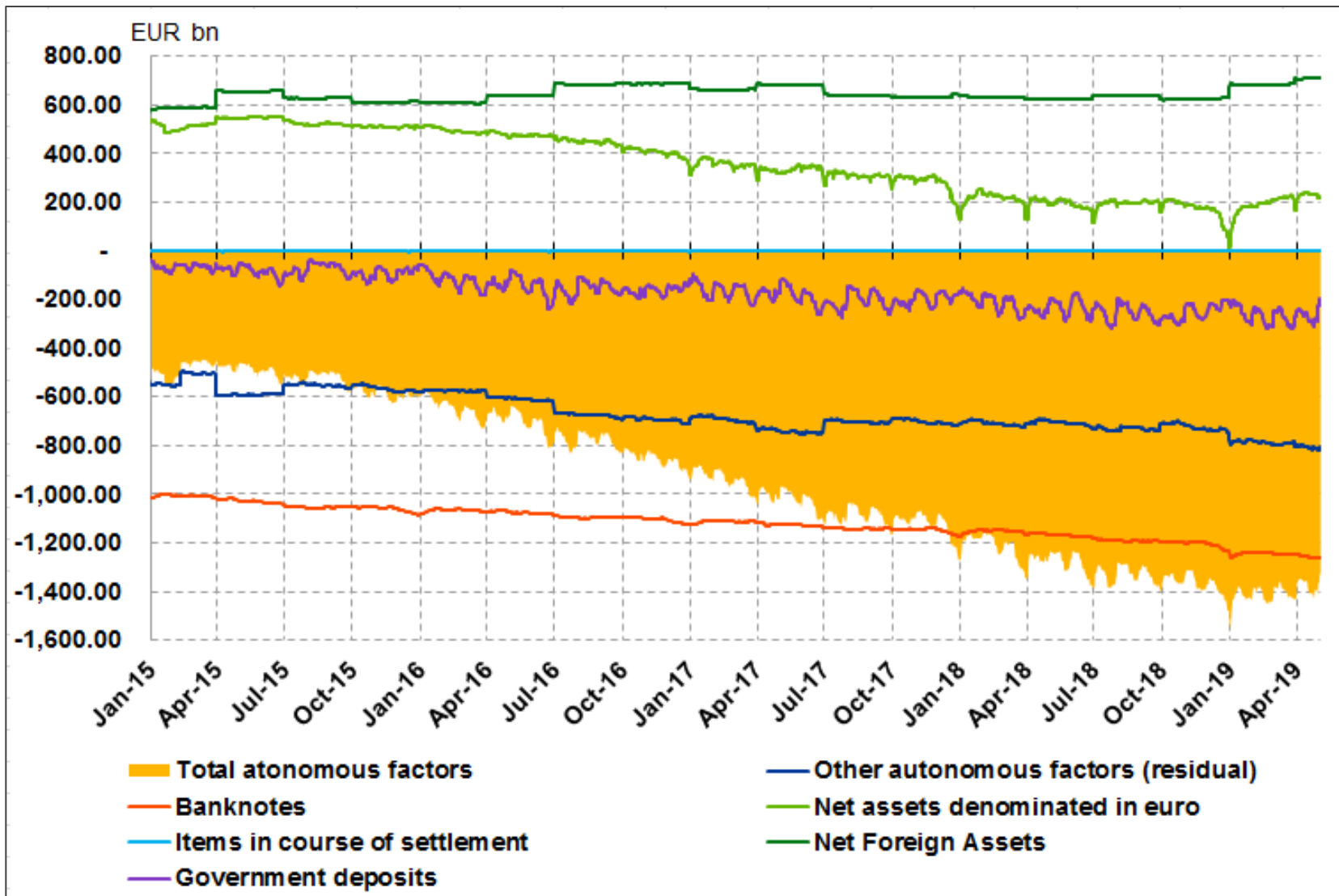
Sum of all items on a central bank's balance sheet that are not related to monetary policy operations or current account holdings of counterparties held with the central bank

## Which are they?

The main Autonomous Factors are:

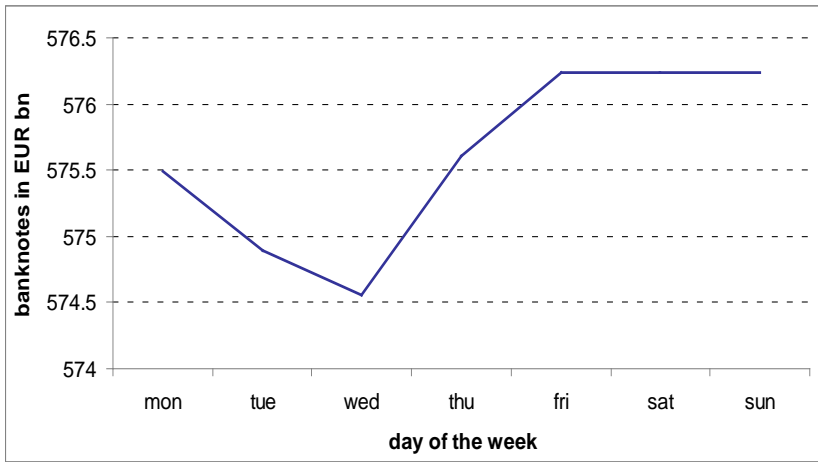
1. Banknotes in circulation
2. Government deposits
3. Net Foreign Assets
4. Net Assets Denominated In Euro
5. Items in course of settlement
6. Other Autonomous Factors

## Developments in main Autonomous Factors since 2015

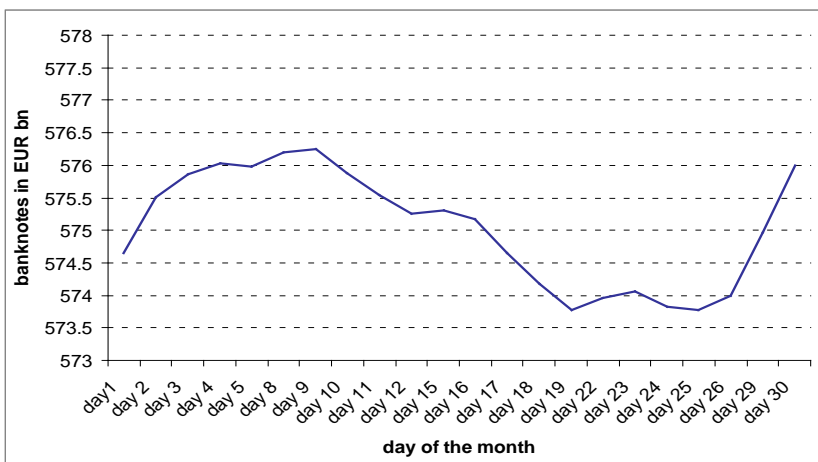


## Banknotes forecasts can be impacted by seasonal volatility

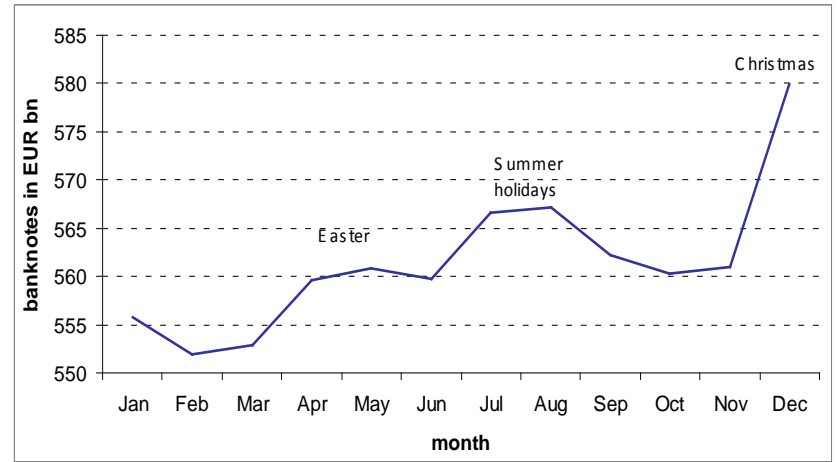
### Intra-week



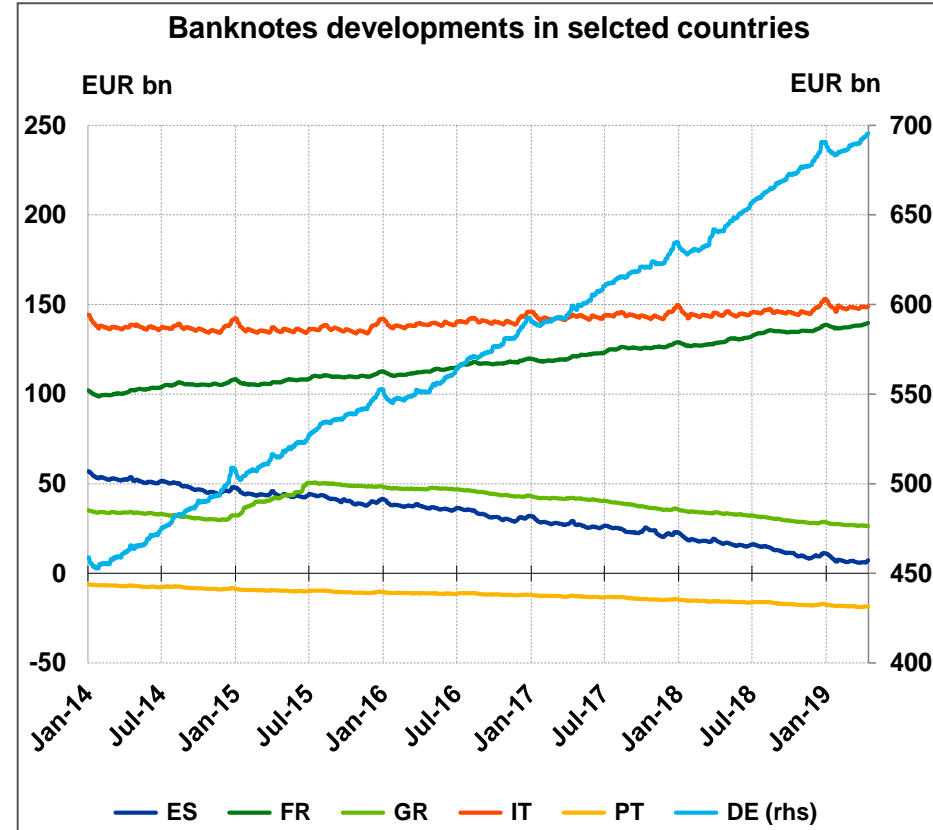
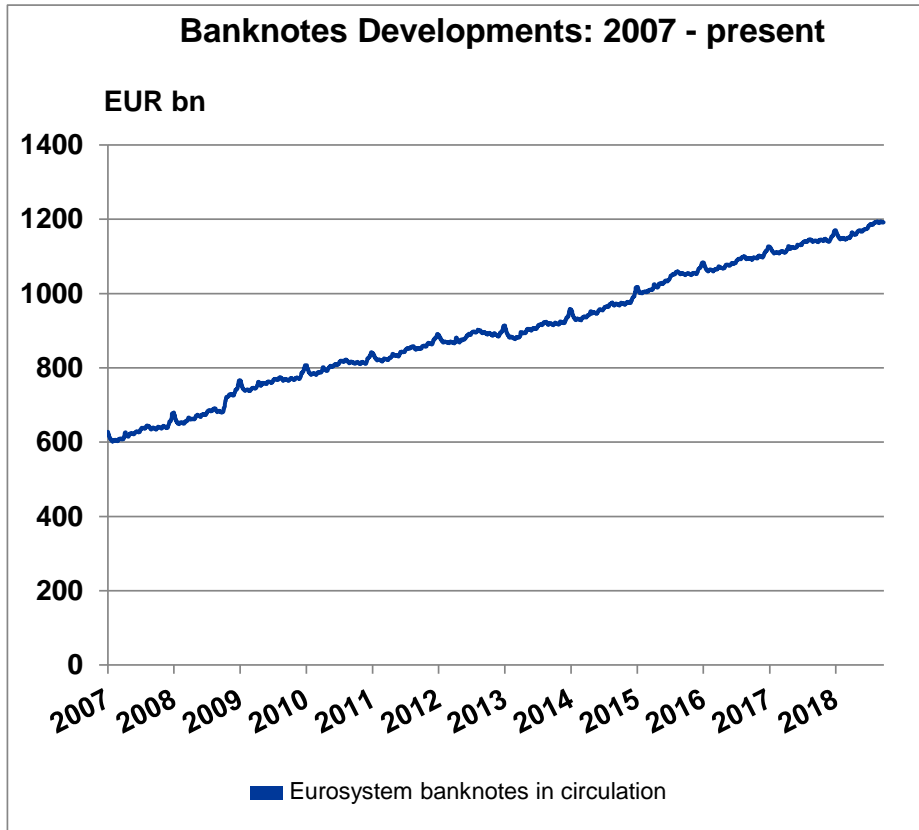
### Intra-month



### Intra-year

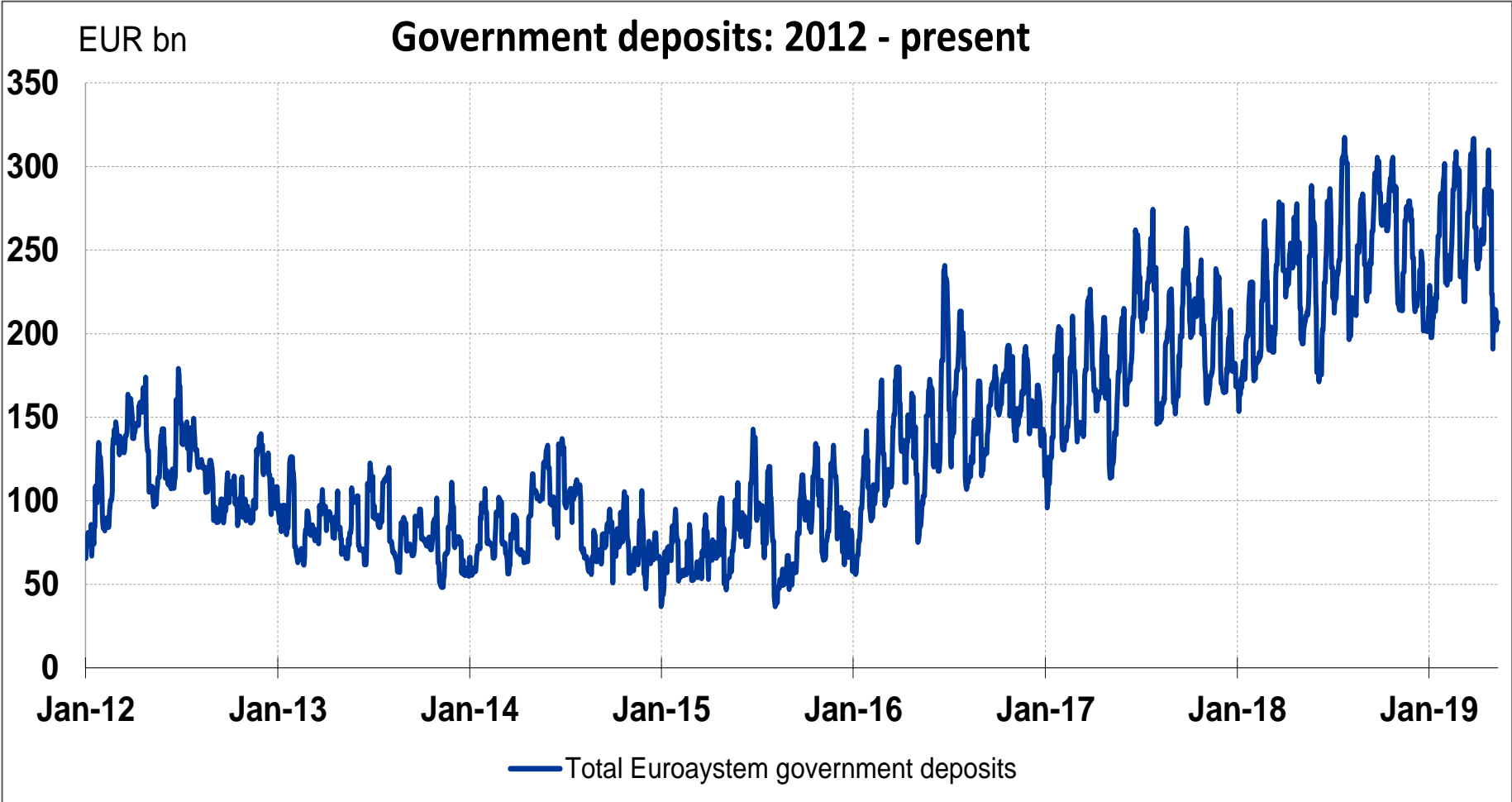


**Banknotes in circulation across the Eurosystem have displayed an upward trend, however trends differ in individual countries**



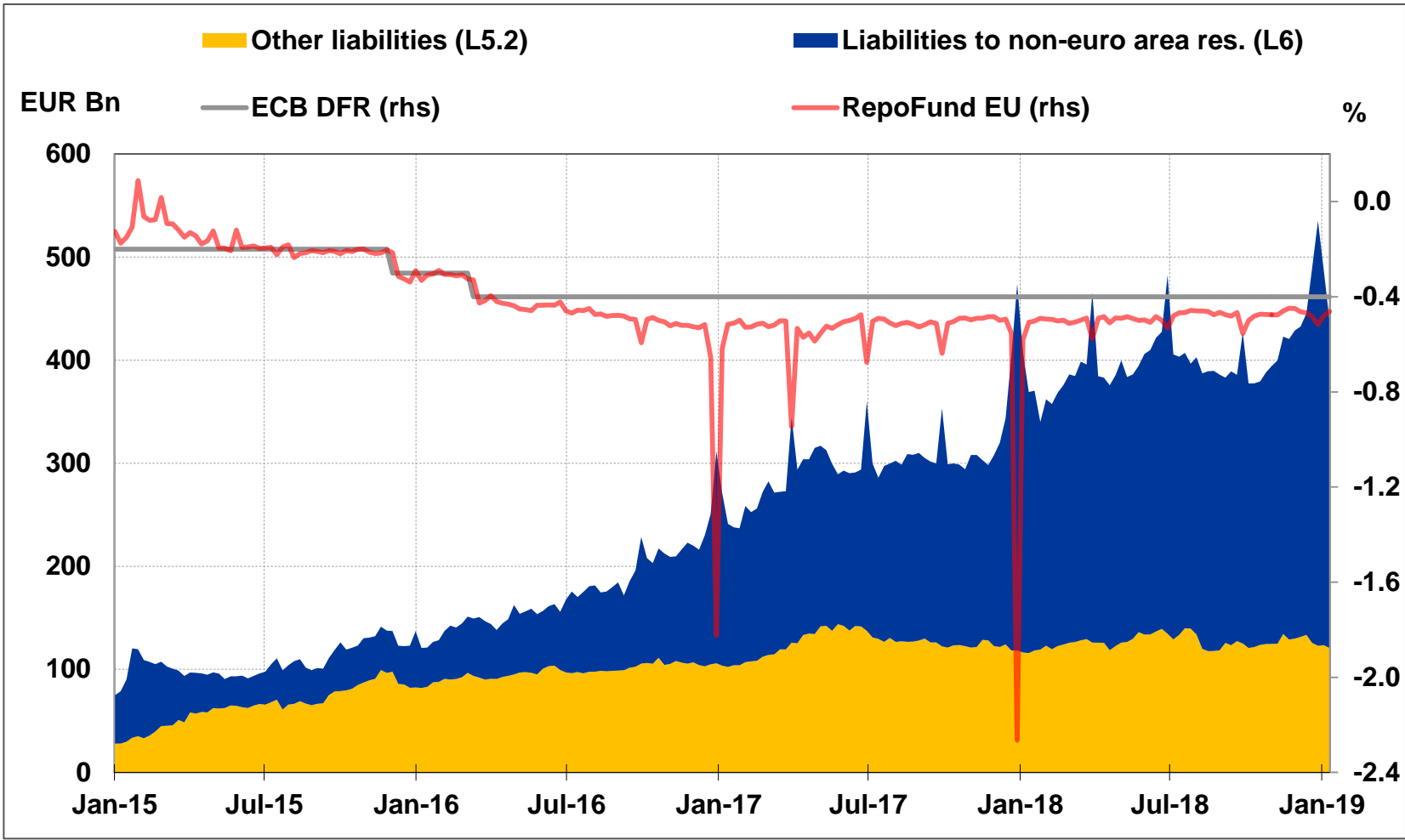
- Data series consist of hundreds of accounts:
  - Treasury accounts,
  - Social security funds
  - Local / Regional authorities
- Very large inflows and outflows during the day
- In some NCBs, end-of-day balances usually small, but can be significant in other NCBs
- Importance of information from the national Treasuries and daily bilateral contacts
- Negative rates have increased the volatility of government deposits, making them difficult to forecast

# Government deposits exhibit volatility and can be difficult to forecast in certain jurisdictions



- Net Foreign Assets (NFA) transactions:
  - Related to management of FX reserves / gold
  - FX trading on behalf of international organisations
  - Payment to purchase FX on behalf of governments
  - Related to IMF
  - During the crisis: USD repos, special lending agreements
  
- Net Assets denominated in Euro (NADIE) transactions:
  - Investment operations
  - Reserve management services
  - Time deposits accounts for foreign central banks
  - During crisis: USD repos, special lending agreements, foreign exchange swaps

## Non-monetary policy deposits increased significantly and exhibit volatility especially around the banks' balance sheet reporting days





# Publication of the daily liquidity data

- On a daily basis, the ECB publishes figures on liquidity conditions, autonomous factors and outstanding market operations
- Data is published to the ECB website via the ECB's Market Information Dissemination (MID) system

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

- Wire services pick data up from MID

Daily liquidity conditions (EUR millions)	
Reserve maintenance period	2019-04-17 to 2019-06-11
Average reserve requirements	128,836
Figures as at	2019-06-05
Average current account holdings in the MP	1,401,824
Current account holdings	1,433,223
Use of the marginal lending facility	80
Use of the deposit facility	599,466
Net liquidity effect from Autonomous Factors and MonPol portfolios	-1,308,650
Forecasts of autonomous factors (EUR millions)	
Estimate on 2019-06-04 of average daily autonomous factors for the period 2019-06-03 to 2019-06-11:	1,311,700
Benchmarks (EUR millions)	
Benchmark allotment based on the ECB's liquidity forecast as at 2019-06-04 for the period 2019-06-05 to 2019-06-11:	-908,500

# Banks can calculate liquidity needs

- Expected liquidity conditions in the euro area during a given MRO week can be estimated using the weekly estimation of the average autonomous factors
- This allows counterparties to estimate their liquidity needs
- The higher the autonomous factors, the lower the expected liquidity

	I. Open Market Operations				II. Standing Facilities			III. Autonomous Factors		IV. Reserve Holdings						
	1	2	3	4 (1+2+3)	5	6	7 (6-5)	8	9	10 (4+7-9)	11	12 (10-11)	13	14		
	Main Refinancing Operations:	Long Term Refinancing Operations:	Monetary Policy Portfolios:	Total Open Market Operations:	Marginal Lending Facility	Deposit Facility	Net Standing Facilities	Deviation from previous day Autonomous Factors	Autonomous Factors	Daily Current Accounts	Reserve Requirements	Excess Reserves	Average Daily Excess Reserves	Average Daily Excess Reserves		
Wed	13-03-2019	<b>6,093</b>	722,621	2,643,157	<b>3,371,870</b>		1	603,779	<b>603,778</b>		1,351,666	1,417,411	128,441	1,288,970	1,288,970	1,288,970
Thu	14-03-2019	6,093	722,621	2,643,157	<b>3,371,870</b>		3	610,791	<b>610,788</b>		1,355,813	1,406,175	128,441	1,277,735	1,283,352	2,572,322
Fri	15-03-2019	6,093	722,621	2,639,074	<b>3,367,787</b>		1	591,502	<b>591,500</b>		1,372,837	1,403,450	128,441	1,275,009	1,280,571	3,852,893
Sat	16-03-2019	6,093	722,621	2,639,074	<b>3,367,787</b>		1	591,502	<b>591,500</b>		1,372,837	1,403,450	128,441	1,275,009	1,279,181	5,132,074
Sun	17-03-2019	6,093	722,621	2,639,074	<b>3,367,787</b>		1	591,502	<b>591,500</b>		1,372,837	1,403,450	128,441	1,275,009	1,278,346	6,410,420
Mon	18-03-2019	6,093	722,621	2,639,074	<b>3,367,787</b>		5	614,491	<b>614,485</b>		1,375,162	1,376,440	128,441	1,247,999	1,273,288	7,683,708
Tue	19-03-2019	6,093	722,621	2,639,074	<b>3,367,787</b>		12	617,722	<b>617,711</b>		1,382,804	1,365,389	128,441	1,236,949	1,268,097	8,951,805
Wed	20-03-2019	<b>5,621</b>	722,621	2,639,074	<b>3,367,316</b>		0	616,553	<b>616,553</b>		1,394,353	1,353,480	128,441	1,225,039	1,262,715	10,214,519
Thu	21-03-2019	5,621	722,621	2,639,074	<b>3,367,316</b>		0	606,966	<b>606,966</b>		1,400,587	1,357,292	128,441	1,228,852	1,258,952	11,473,472
Fri	22-03-2019	5,621	722,621	2,637,125	<b>3,365,368</b>		0	620,177	<b>620,177</b>	-2,537	1,393,758	1,351,432	128,441	1,222,991	1,255,356	12,728,828
Sat	23-03-2019	5,621	722,621	2,637,125	<b>3,365,368</b>		0	620,177	<b>620,177</b>	-2,537	1,393,758	1,351,432	128,441	1,222,991	1,252,414	13,981,241
Sun	24-03-2019	5,621	722,621	2,637,125	<b>3,365,368</b>		0	620,177	<b>620,177</b>	-2,537	1,393,758	1,351,432	128,441	1,222,991	1,249,962	15,231,203
Mon	25-03-2019	5,621	722,621	2,637,125	<b>3,365,367</b>					-9,661	1,399,493	1,965,874	128,441	1,837,433	1,295,152	16,526,355
Tue	26-03-2019	5,621	722,621	2,637,125	<b>3,365,367</b>					-6,549	1,407,930	1,957,437	128,441	1,828,996	1,333,284	17,859,639
Wed	27-03-2019	<b>5,621</b>	<b>719,176</b>	2,637,125	<b>3,361,922</b>					-8,191	1,398,365	1,963,558	128,441	1,835,117	1,366,739	19,226,378
Thu	28-03-2019	5,621	<b>717,622</b>	2,637,125	<b>3,360,369</b>					-6,399	1,386,921	1,973,447	128,441	1,845,006	1,396,631	20,623,009
Fri	29-03-2019	5,621	717,622	2,637,125	<b>3,360,369</b>					5,669	1,385,540	1,974,828	128,441	1,846,388	1,423,087	22,046,096
Sat	30-03-2019	5,621	717,622	2,637,125	<b>3,360,369</b>					5,669	1,385,540	1,974,828	128,441	1,846,388	1,446,604	23,492,700

Only figures in bold are definite. All other figures are subject to uncertainty.  
The displayed figures for future monetary policy operations

## Concept

- Benchmark amount = MRO allotment amount that would create neutral liquidity conditions (demand=supply) for the next MRO period (7-days)
- Benchmark amount would allow for a smooth fulfilment of the reserve requirements

## MRO benchmark calculation

Future liquidity needs during upcoming MRO period

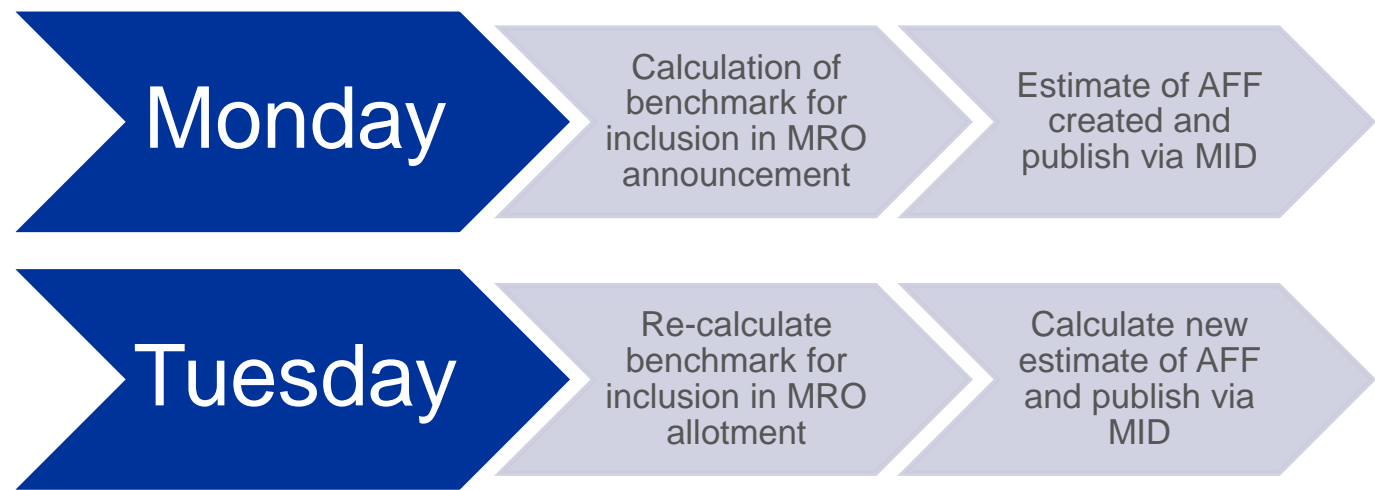
- Liquidity already provided through other operations during MRO week (e.g. LTRO)
- Accumulated liquidity imbalance so far in the maintenance period

## For further information see

[http://www.ecb.int/mopo/implement/omo/pdf/How\\_to\\_calculate\\_the\\_benchmark.pdf](http://www.ecb.int/mopo/implement/omo/pdf/How_to_calculate_the_benchmark.pdf)

## The ECB also performs liquidity management tasks on a weekly and per MP basis

### Weekly tasks:



## Discussion and proposal by the Liquidity Committee (LiCo)

- Two Executive Board members in charge of Directorate General Market Operations (DG-M), Directorate General Economics (DG-E)
- Management and Experts from DG-E and DG-M

## Basis for discussion

- Financial market review and market view on liquidity (DG-M)
- Economic review (DG-E)
- Integrated reporting on money market and liquidity developments. Liquidity situation evaluation (DG-M)
- Allotment result: special interest in bidding behaviour (DG-M)



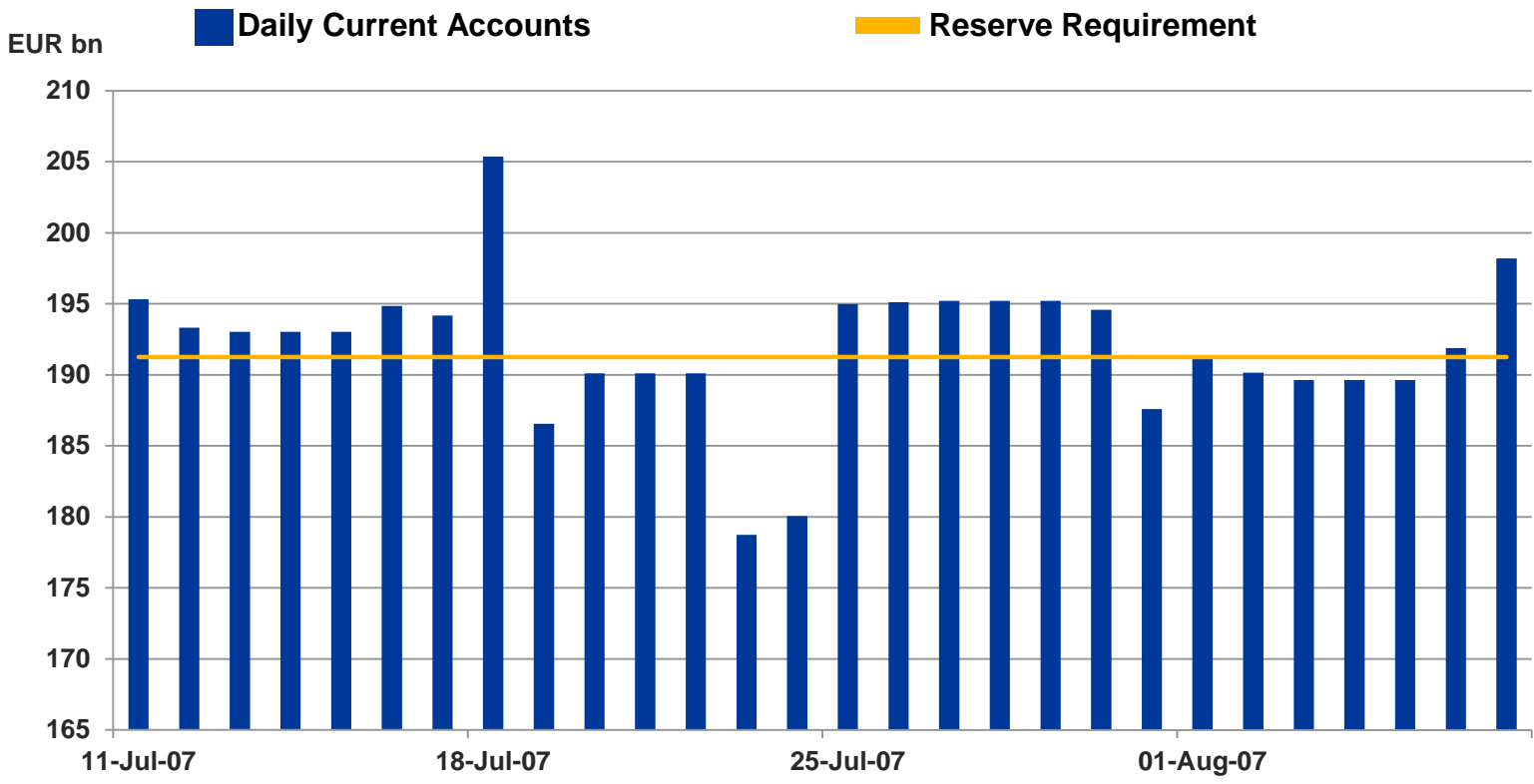
(Broad based) recommendation from LiCo to the Executive Board



**Final allotment decision by Executive Board**

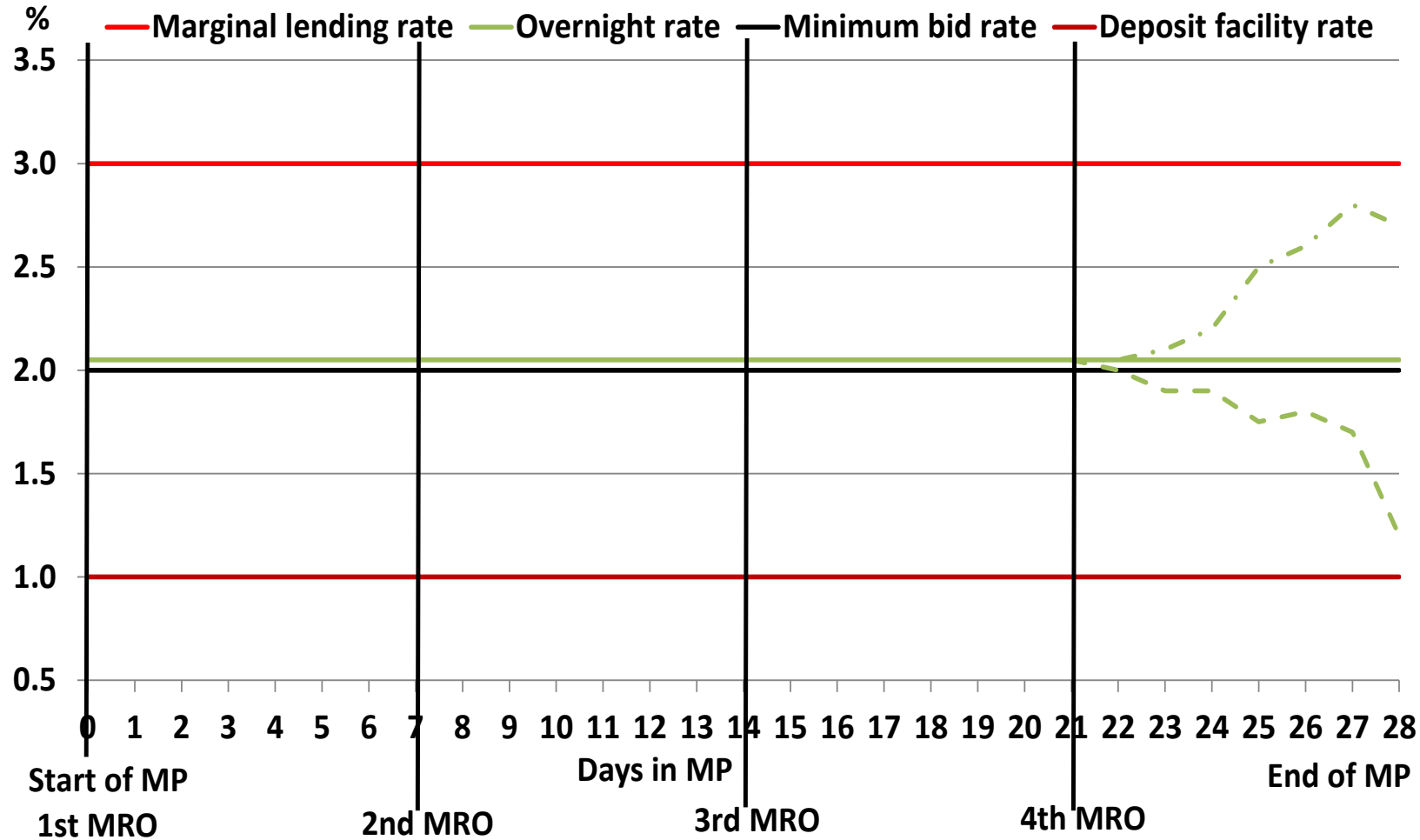
## MRO allotments aim to establish

- Neutral conditions at the end of the maintenance period
- Smooth fulfilment of reserve requirements during the period



## Fine-tuning operation on last day of MP steers rates

- Such that EONIA = mid point of corridor = MRO/policy rate



# Unconventional tools added during the crisis

## Monetary policy tools

### 3. Open market credit operations

Main refinancing operation, MRO (1w)

Long-term refinancing operations, LTRO (3m)

Fine tuning operations (o/n -1w)

### 1. Minimum reserve requirement

### 2. Standing facilities

Marginal lending

Deposit

Front-loading of liquidity provision

Fixed-Rate Full Allotment

Negative rates

Forward Guidance

### 4. Outright asset purchases

OMT

CBPP1-3

SMP

CSPP

ABSPP

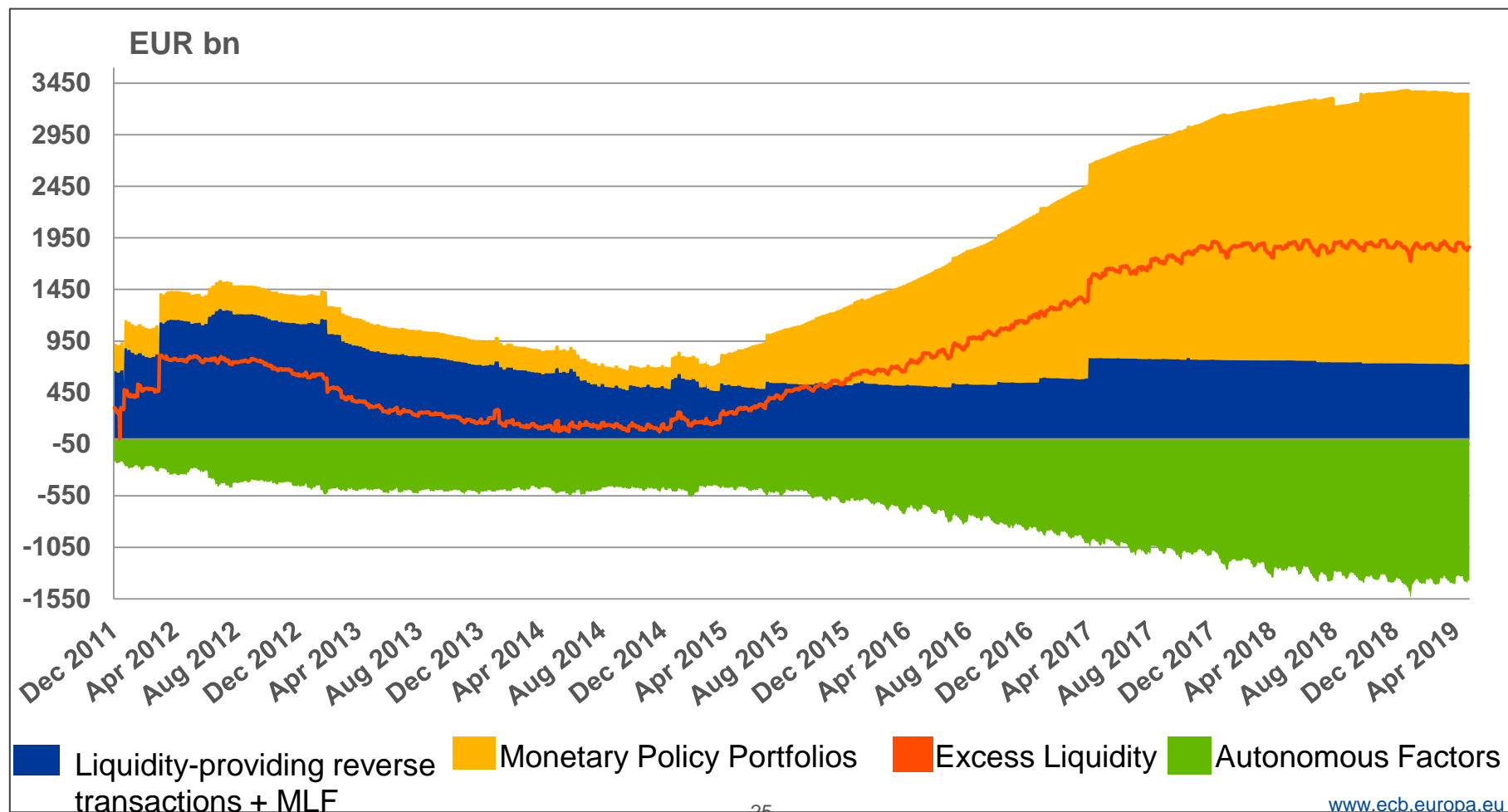
PSPP

Additional lending operations  
(O/N, VLTRO, TLTRO, EUR, USD, CHF)

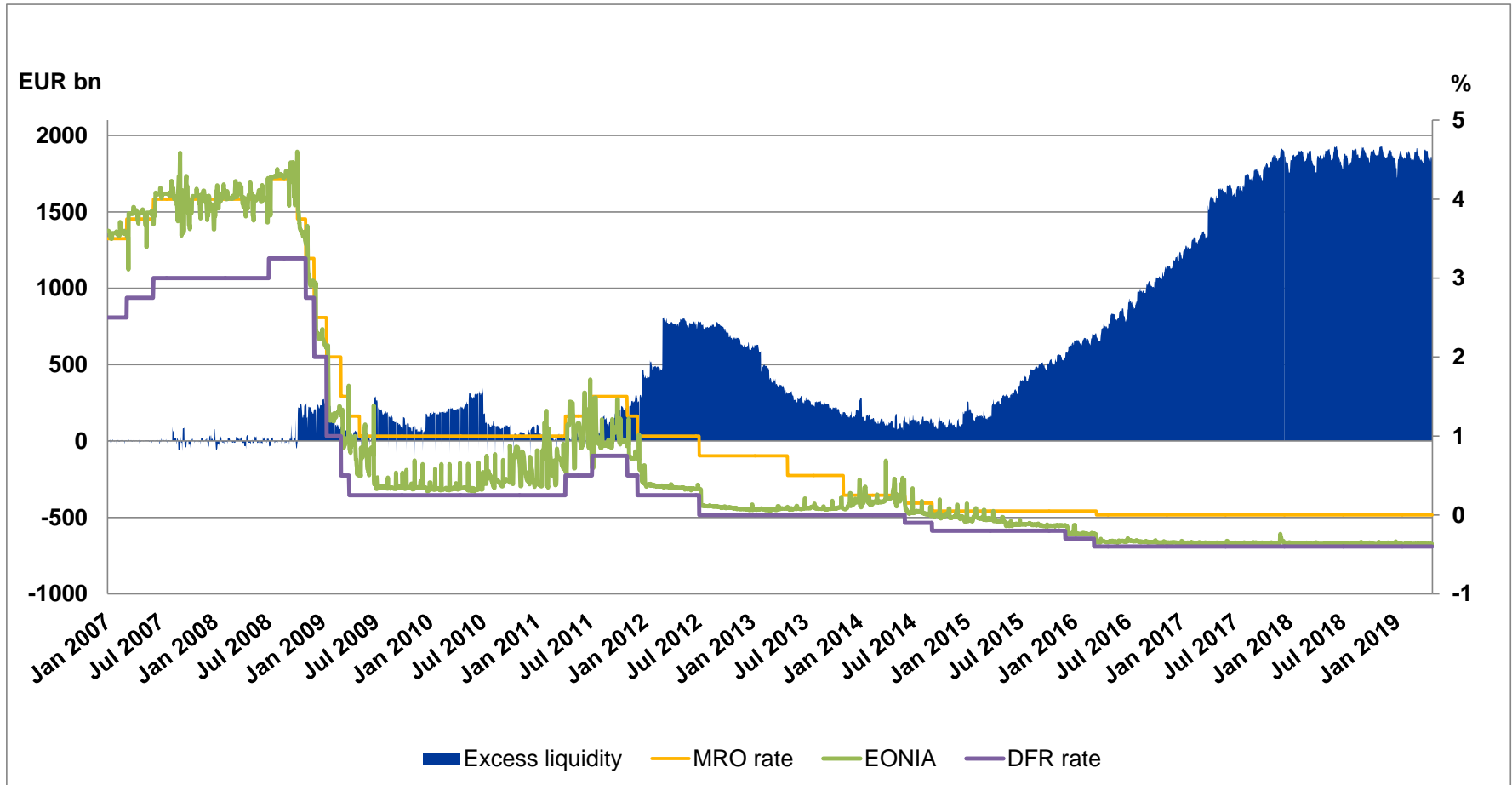


## Excess liquidity stands at EUR 1.9 trillion

- The gradual increase in excess liquidity used to be mainly driven by APP and TLTRO-II
- Autonomous factors developments have contributed towards a partial offset of excess liquidity growth
- Currently, after entering the reinvestment phase of APP, excess liquidity remains stable around EUR 1.9 trillion



## EONIA has drifted towards the ECB Deposit Facility Rate as excess liquidity increased



- Significant preferences for frontloading reserves → Demand for liquidity at MRO rate normally exceeded liquidity needs
- Fixed rate full allotment and liquidity surplus brought short-term interest rates to the level of the ECB Deposit Facility Rate
- In this environment, liquidity demand function is driven by factors not mechanically related to liquidity needs → benchmark allotment less relevant
- MRO benchmark is negative (i.e. excess liquidity)
- Focus is on excess liquidity analysis, e.g. on distribution of excess liquidity

**But liquidity management processes and forecasting techniques did not change**

## What will influence the level of excess liquidity going forward?

### Fixed Rate Full Allotment

- Standard tenders will be conducted as FRFA ‘for as long as necessary, and at least until the end of the last reserve maintenance period starting in March 2021’

### APP reinvestments

- the Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

### Autonomous Factors developments may continue to offset excess liquidity growth

- Government deposits likely to remain elevated in current market conditions
- Banknotes likely to be impacted by financial developments

### TLTRO-II voluntary early repayments

- Voluntary early repayments of funds borrowed in TLTRO-II may exert downward pressure on excess liquidity levels

### TLTRO-III

- Take-up in TLTRO-III (commencing in September 2019) will impact excess liquidity levels

Questions ?

Thank you for your attention!