Forecasting liquidity and conducting credit operations
# 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...)

ECB-PUBLIC
Liquidity management is closely related to interest rate management.

Managing day-to-day liquidity to steer interest rates

- **Liquidity supply**
  - Eurosystem
  - Open market ops
    - MRO*
    - LTRO**
    - FTO***

- **Liquidity demand**
  - Banks
  - Autonomous factors
  - Excess reserves
  - Required reserves

*Main Refinancing Operation, **Longer-term Refinancing Operation, ***Fine-tuning Operation
Overview of monetary policy tools

OPEN MARKET OPERATIONS

Standard Tender

Quick Tender & Bilateral Operation
- non standardised maturity
- no regular frequency

LTRO

MRO
weekly
1-week maturity

Liquidity Providing

Reverse Transaction

Liquidity Absorbing

Reverse Transaction

Fine Tuning

Reverse Transaction

FX Swaps

Structural Operation

Reverse Transaction

Outright purchases

STANDING FACILITIES

• Access at the discretion of counterparties
• Overnight maturity

Marginal Lending Facility

Reverse Transaction

Deposit Facility

Reverse Transaction

Deposit

Issuance of Debt Certificates; Outright Sales

Reverse Transaction

Fixed Term Deposit

www.ecb.europa.eu
### Eurosysten simplified balance sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
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<tr>
<td><strong>Monetary policy operations</strong></td>
<td><strong>Monetary policy operations</strong></td>
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<td>Reverse open market operations</td>
<td>Deposit facility</td>
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<td>Marginal lending facility</td>
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<td>Securities held for monetary policy purposes</td>
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<td><strong>Autonomous factors</strong></td>
<td><strong>Autonomous factors</strong></td>
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<td>Net assets denominated in euro</td>
<td>Banknotes in circulation</td>
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<td>Net foreign assets</td>
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<td><strong>Current account holdings</strong></td>
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<td>Minimum reserve requirements</td>
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<td>Excess reserves</td>
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<tr>
<td><strong>Intra-Eurosysten claims</strong></td>
<td><strong>Intra-Eurosysten liabilities</strong></td>
</tr>
</tbody>
</table>
Liquidity demand: Reserve requirements

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
Liquidity demand: Excess reserves

**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
**Autonomous factors**

**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 forecasting can be impacted by seasonal volatility.

**Intra-week**

![Graph showing banknotes in EUR bn over the week](image)

**Intra-month**

![Graph showing banknotes in EUR bn over the month](image)

**Intra-year**

![Graph showing banknotes in EUR bn over the year](image)
Banknotes in circulation across the Eurosystem have displayed an upward trend, however trends differ in individual countries.
Government deposit forecasting

- 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.
Forecasting NFA and NADIE

- **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.

![Graph showing developments in non-monetary policy deposits](chart.png)

- Other liabilities (L5.2)
- Liabilities to non-euro area res. (L6)
- ECB DFR (rhs)
- RepoFund EU (rhs)
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
- Wire services pick data up from MID
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.

![Table showing Open Market Operations, Standing Facilities, Autonomous Factors, and Reserve Holdings for different days and weeks]( ECB-PUBLIC 18 )

Only figures in bold are definite. All other figures are subject to uncertainty.

The displayed figures for future monetary policy operations are estimates.
**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
The ECB also performs liquidity management tasks on a weekly and per MP basis

**Weekly tasks:**

- **Monday**
  - Calculation of benchmark for inclusion in MRO announcement
  - Estimate of AFF created and publish via MID

- **Tuesday**
  - Re-calculate benchmark for inclusion in MRO allotment
  - Calculate new estimate of AFF and publish via MID
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
Liquidity supply: MRO allotment before the crisis

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
### 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)**

#### 2. Standing Facilities
- **Marginal Lending**
- **Deposit**

#### 4. Outright Asset Purchases
- **OMT**
- **CBPP1-3**
- **SMP**
- **CSPP**
- **ABSPP**
- **PSPP**

### Unconventional Tools Added During the Crisis
- Front-loading of Liquidity Provision
- Fixed-Rate Full Allotment
- Negative Rates
- Forward Guidance

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Unconventional tools added during the crisis
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
Eurosystm liquidity management did not change

- 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
Future liquidity developments

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!