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Directorate General Market Operations

Forecasting liquidity and conducting credit operations

ECB Central Banking Seminar
Frankfurt am Main, 12 July 2018
# Overview

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<td>Recent and future liquidity developments</td>
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Focus on liquidity management and operations

**Liquidity management**
- Compilation and publication of liquidity data for Eurosystem:
  - Current accounts
  - Standing facilities
  - Autonomous factors
  - Analysis of liquidity data/distribution

**Money Market Monitoring**
- Market monitoring
- Market Intelligence
- Market analysis
- Counterparty feedback
- NCBs & non euro area CBs
- EONIA calculating agent
- 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...)

Integrated structure
Managing day-to-day liquidity to steer interest rates

Liquidity management focused on interest rate management

Liquidity supply

Eurosystem

Open market ops

Marginal lending facility

MRO*

LTRO**

FTO***

Liquidity demand

banks

Autonomous factors

Excess reserves

Required reserves

Overnight interest rate

Deposit facility

Policy rate

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

#### OPEN MARKET OPERATIONS

| Standard Tender |
|-----------------|-----------------|
| **MRO** Weekly 1-week maturity |
| **LTRO** |

#### Quick Tender & Bilateral Operation

- **non standardised maturity**
- **no regular frequency**

#### Structural Operation

- **Fine Tuning**
- **Reverse Transaction FX Swaps**

#### STANDING FACILITIES

- **Access at the discretion of counterparties**
- **Overnight maturity**

#### Marginal Lending Facility

- **Reverse Transaction**

<table>
<thead>
<tr>
<th>Deposit Facility</th>
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#### Liquidity Providing

<table>
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<tr>
<th>Reverse Transaction</th>
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#### Liquidity Absorbing

<table>
<thead>
<tr>
<th>Reverse Transaction</th>
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</table>

- **Fixed Term Deposit**
- **Issuance of Debt Certificates; Outright Sales**
- **Outright purchases**

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[www.ecb.europa.eu](http://www.ecb.europa.eu)
Liquidity demand and supply from a balance sheet perspective

### Eurosysterm simplified balance sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monetary policy operations</strong></td>
<td><strong>Monetary policy operations</strong></td>
</tr>
<tr>
<td>Reverse open market operations</td>
<td>Deposit facility</td>
</tr>
<tr>
<td>Marginal lending facility</td>
<td></td>
</tr>
<tr>
<td>Securities held for monetary policy purposes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autonomous factors</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Net assets denominated in euro</td>
<td>Banknotes in circulation</td>
</tr>
<tr>
<td>Net foreign assets</td>
<td>Government deposits</td>
</tr>
<tr>
<td></td>
<td>Other autonomous factors (net)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current account holdings</th>
<th>Intra-Eurosysterm liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum reserves requirement</td>
<td></td>
</tr>
<tr>
<td>Excess reserves</td>
<td></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 maintenance period
Liquidity demand: Excess reserves

What are they?
• Reserve holdings in excess of minimum reserve requirements.
• Remuneration rate = Minimum of 0% or the DF 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
Autonomous factors

What are they?

Sum of all items on a central bank’s balance sheet that are not 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
Banknotes forecasting can be impacted by seasonal volatility

Intra-week

Intra-year

Intra-month
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
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
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.

### Daily Liquidity Conditions (EUR millions)

<table>
<thead>
<tr>
<th>Category</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve maintenance period</td>
<td>2018-06-20 to 2018-07-31</td>
</tr>
<tr>
<td>Average reserve requirements</td>
<td>124,691</td>
</tr>
<tr>
<td>Figures as at 2018-06-20</td>
<td></td>
</tr>
<tr>
<td>Average current account holdings in the MP</td>
<td>1,361,779</td>
</tr>
<tr>
<td>Current account holdings</td>
<td>1,361,779</td>
</tr>
<tr>
<td>Use of the marginal lending facility</td>
<td>83</td>
</tr>
<tr>
<td>Use of the deposit facility</td>
<td>603,266</td>
</tr>
<tr>
<td>Net liquidity effect from Autonomous Factors and MonPol portfolios</td>
<td>-1,206,836</td>
</tr>
</tbody>
</table>

### Forecasts of Autonomous Factors (EUR millions)

| Estimate on 2018-06-19 of average daily autonomous factors for the period 2018-06-20 to 2018-06-26: | 1,346,300 |
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>
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<tr>
<th>Date</th>
<th>Liability table</th>
<th>Liquidity table</th>
<th>All figures in EUR billion</th>
<th>(Only figures in bold characters are definitive. All other figures are subject to uncertainty. Especially the displayed amounts of future monetary policy operations have only the purpose of a sensitivity analysis.)</th>
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Liquidity supply: Benchmark calculation

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 calculates and publishes the MRO benchmark on a weekly basis.
Liquidity supply: LiCo allotment proposal and decision

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
Liquidity supply: Fine-tuning operation

Fine-tuning operation on last day of MP steers rates

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

1. Minimum reserve requirement
2. Standing facilities

3. Open market credit operations
   - Main refinancing operation, MRO (1w)
   - Long-term refinancing operations, LTRO (3m)
   - Fine tuning operations (o/n -1w)

4. Outright asset purchases
   - Extra lending operations (O/N, VLTRO, TLTRO, EUR, USD, CHF)

Unconventional tools added during the crisis

- Front-loading of liquidity provision
- Fixed-Rate Full Allotment
- Negative rates
- Forward Guidance

- OMT
- CBPP1-3
- SMP
- CSPP
- ABSPP
- PSPP
Eurosystem 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 level of DF

- 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 given on excess liquidity analysis, e.g. on distribution of excess liquidity

The liquidity management processes and forecasting techniques did not change
Focus on distribution of excess liquidity across the Eurosystem

- 80-90% of excess liquidity is held in Germany, France and the Netherlands
- Concentrated within a small number of institutions → Top 50 liquidity holders hold 65-83% of total
- Pre crisis, risk aversion played a role. Now, internal risk limits play a larger role
- Location of where APP purchases took place also a factor
What will influence the level of excess liquidity going forward?

**APP to continue until December 2018**
- Net purchases to continue at a monthly pace of EUR 30 bn until end-September 2018
- The Governing Council anticipates that, after September 2018, subject to incoming data confirming the medium-term inflation outlook, the monthly pace of the net asset purchases will be reduced to EUR 15 bn until the end of December 2018 and that net purchases will then end
- Principal reinvestments will continue for an extended period of time after the end of net asset purchases, or for as long as necessary to maintain favourable liquidity conditions

**TLTRO-II Voluntary Early Repayments may exert downward pressure**
- First TLTRO-II early repayment settles on 27 June 2018
- Size and probability of repayments are difficult to forecast as largely bank specific
- Maturity date for each TLTRO-II is staggered on a quarterly basis which should minimise any potential liquidity cliff
- Counterparties may switch TLTRO-II funds into other Eurosystem operations once each operation matures
- Voluntary early repayments of TLTRO-I funds will have a low impact on excess liquidity levels – EUR 12 bn outstanding in the operation
Recent and future liquidity developments (2)

Excess liquidity expected to exceed EUR 2 trillion by the end of 2018, before gradually falling below this level – dependent on magnitude of TLTRO-II early repayments.

Excess liquidity projections: 2018-2019

- First TLTRO II.1 Early Repayment - EUR 399 bn outstanding
- First TLTRO II.4 Early Repayment - EUR 233 bn outstanding
Recent and future liquidity developments (3)

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 of 2019’

**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
Questions?

Thank you for your attention.