



REPUBLIC OF TÜRKİYE
MINISTRY OF TREASURY AND FINANCE

Treasury Cash Management

(Strategies to Support Central Bank's Liquidity Management)

Bariş CAN
Deputy Director General

PEMPAL
18 Feb 2026 – Bucharest/Romania



Outline



Part I: The Context

- **Definition of Cash Management and Liquidity Management**
- **The Factors Affecting Daily Funding Need of Banking System (Transmission Mechanism)**
- **Why do Treasury operations matter for monetary policy? : Implication Areas (Volatility, Signal Noise, Sterilization Cost)**
- **Part II: Adopting Strategies (Active Cash Management)**
 - **How to mitigate the likely effects of cash volatility on Central Bank Liquidity Management?**
- **Part III: Contributions of Strategies to Central Bank**
 - **Some Evidences**



Part I: Context

- **Definition of Cash Management and Liquidity Management**
- **The Factors Affecting Daily Funding Need of Banking System (Transmission Mechanism)**
- **Why do Treasury operations matter for monetary policy? Implication Areas (Volatility, Signal Noise, Sterilization Cost)**



Government Cash Management

- “The **strategy and associated processes for managing cost-effectively the government’s short-term cash flows and cash balances**, both within government, and between government and other sectors.” (Williams, 2004)
- “Cash management is **having the right amount of money in the right place and time** to meet the government’s obligations in the most cost-effective way.” (Storkey, 2003)

Liquidity Management

- “The rules which are to be applied by central banks while **managing banking sector’s liquidity in line with monetary policy objectives**.” (Bindseil, 2000)



Treasury-Central Bank Relation (Cash Flow Side)



Daily Funding Need of the Banking System (DFNS): $CBRT^{Net} + \Delta MB^{Net} + \Delta TR^{Net}$

Treasury's aim is to stabilize the fluctuations

CBRT Operations (+/-) (CBRT Net)

- Open Market Operations
- FX Sales/Purchases
- Rediscount Loans

CBRT Operations

Open Market Operations

Required Reserve

Treasury Accounts

Banknotes in Circulation

Cash and Debt Management Operations

Treasury Accounts(+/-) (ΔTR Net)

- Tax and Non-tax revenues
- Budget Expenditures
- Issuances/Redemptions

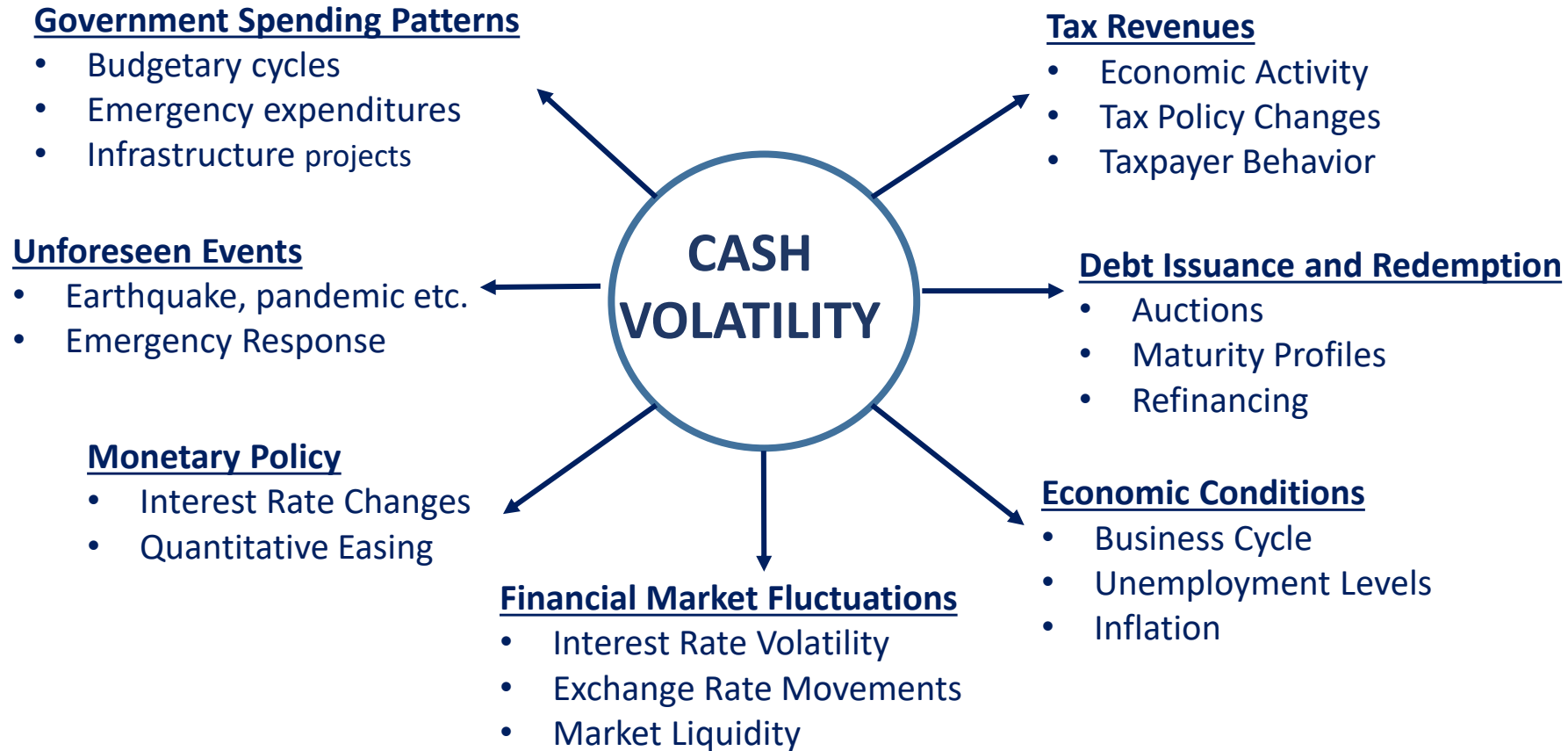
Autonomous Factors

Monetary Base (+/-) (ΔMB Net)

- Currency in Circulation
- Required Reserves



Factors of Government Cash Flow Volatility



Source: (Can, 2024)

If volatility is **not** brought **under control**, **what impact** could this have **on the central bank's liquidity management?**

Why this matters for monetary policy?

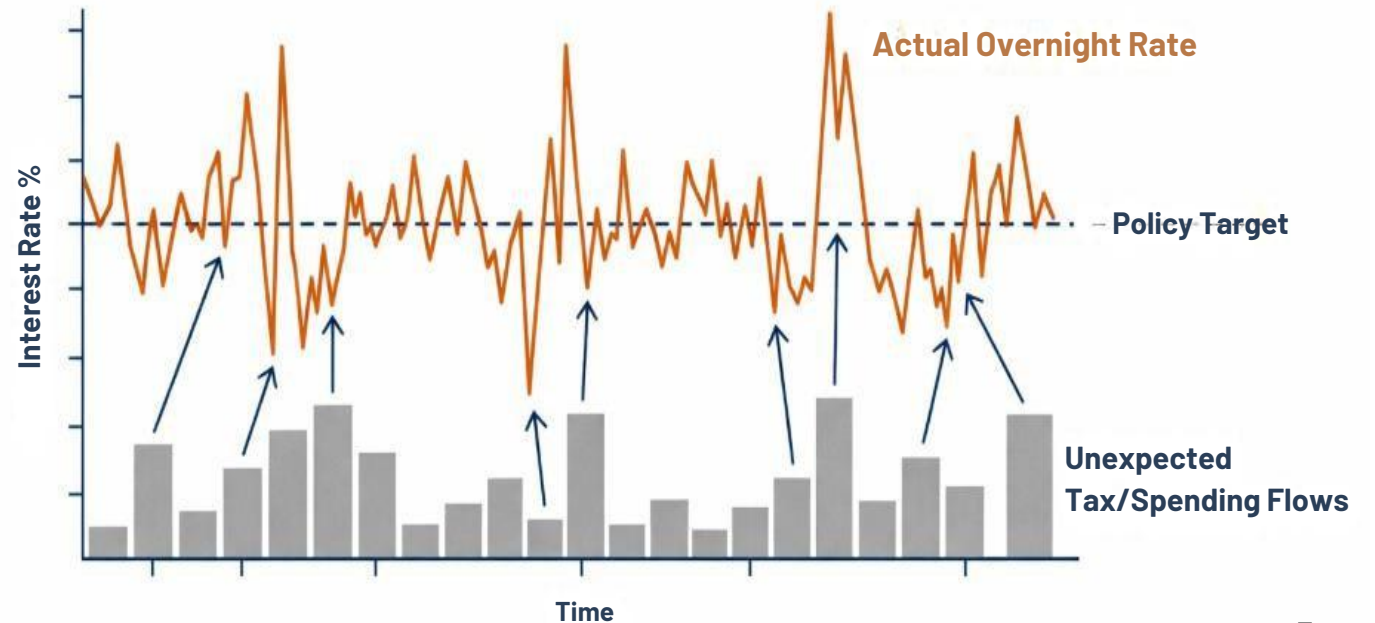


Implication of Treasury's Cash Management for Monetary Policy - I



Implication Area	Mechanism	Impact on Monetary Policy	Broader Economic/Fiscal Cost
1. Volatility Transfer	Government cash flows (Tax/Spending) act as the dominant "Autonomous Factor" affecting banking reserves.	Loss of Rate Control: Unpredicted swings force the Overnight Rate away from the Policy Target, weakening the transmission mechanism.	Higher risk premia in the interbank market; banks hoard cash rather than lending to the real economy.

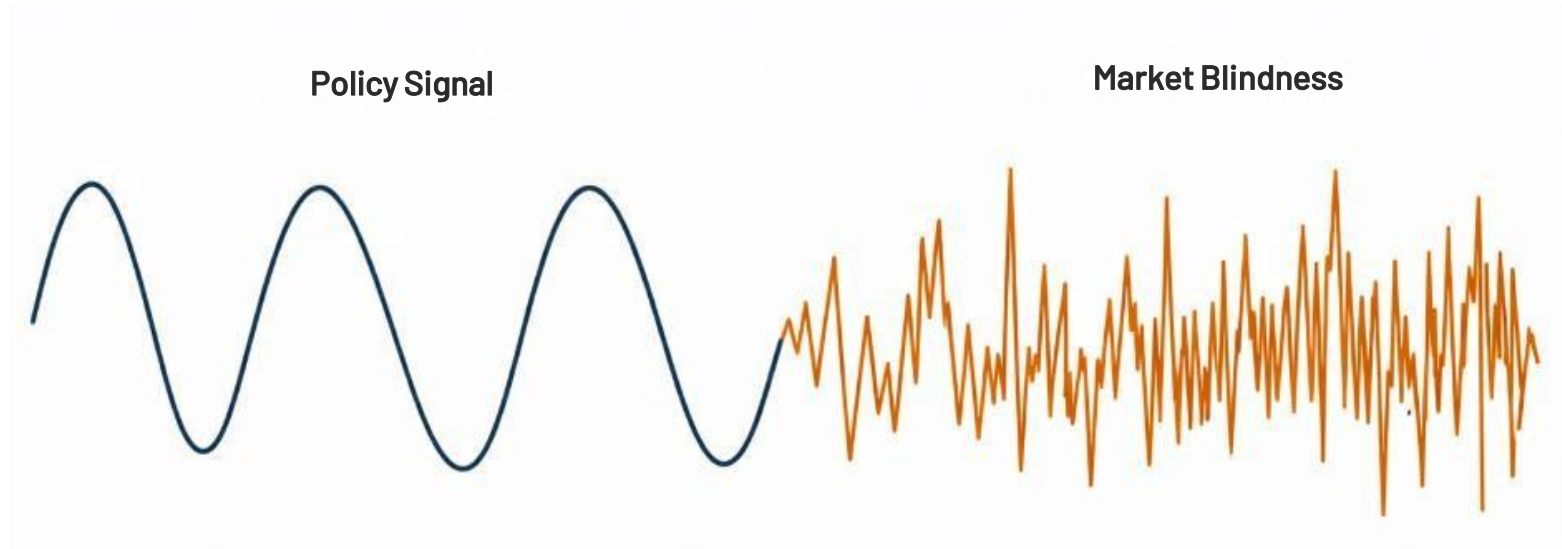
➤ Unpredicted government cash flows force the overnight rate (O/N) away from the Policy Target.



Implication of Treasury's Cash Management for Monetary Policy - II

Implication Area	Mechanism	Impact on Monetary Policy	Broader Economic/Fiscal Cost
2. Signal Extraction Problem	Volatility caused by cash mismanagement creates "market noise."	Credibility Erosion: The market cannot distinguish between a deliberate policy tightening and a liquidity accident (Treasury error).	Inflation expectations may become unanchored if the Central Bank is perceived as incompetent.

- Volatility in government cash flows obscures the monetary policy signal
- Operational noise may create Market Blindness



Implication of Treasury's Cash Management for Monetary Policy - III

Implication Area	Mechanism	Impact on Monetary Policy	Broader Economic/Fiscal Cost
3. Sterilization Costs	Treasury holds idle cash buffers in commercial banks (injecting liquidity) while CB tries to drain it.	Balance Sheet Expansion: The CB is forced to issue large volumes of CB Bills to mop up the excess liquidity created by the Treasury.	"Double Cost": The Govt pays interest on debt to build the buffer, while the CB pays interest to sterilize it.

➤ If the cash buffer is kept outside the Central Bank, the Government pays interest to borrow cash buffers, while the Central Bank pays interest to mop up the resulting excess liquidity.

Sterilization Costs (The Double Cost)





Part II: Adopting Strategies



- **Considering all these effects, what should we do?**
- **How to mitigate the likely effects of cash volatility on Central Bank Liquidity Management?**



Considering all these effects, what should we do?



- The objective is to **lessen the impact of government cash flows volatility on liquidity management.**
- For this purpose, we carry out the following operations:

1) Cash Forecasting and Programming

2) Setting Target Cash Balance

3) Managing Cash Flows

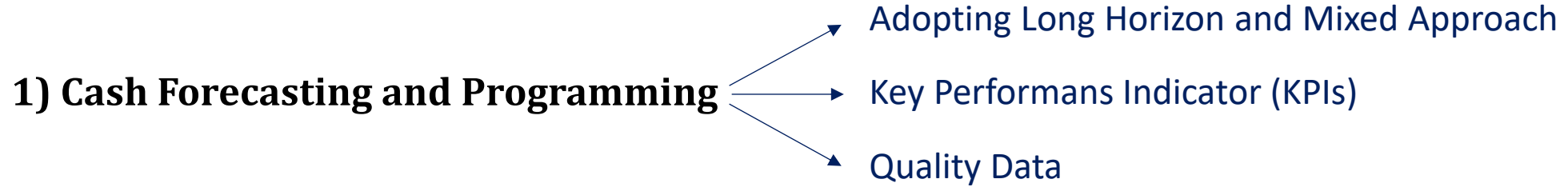
4) Information Sharing



How to mitigate the likely effects of cash volatility



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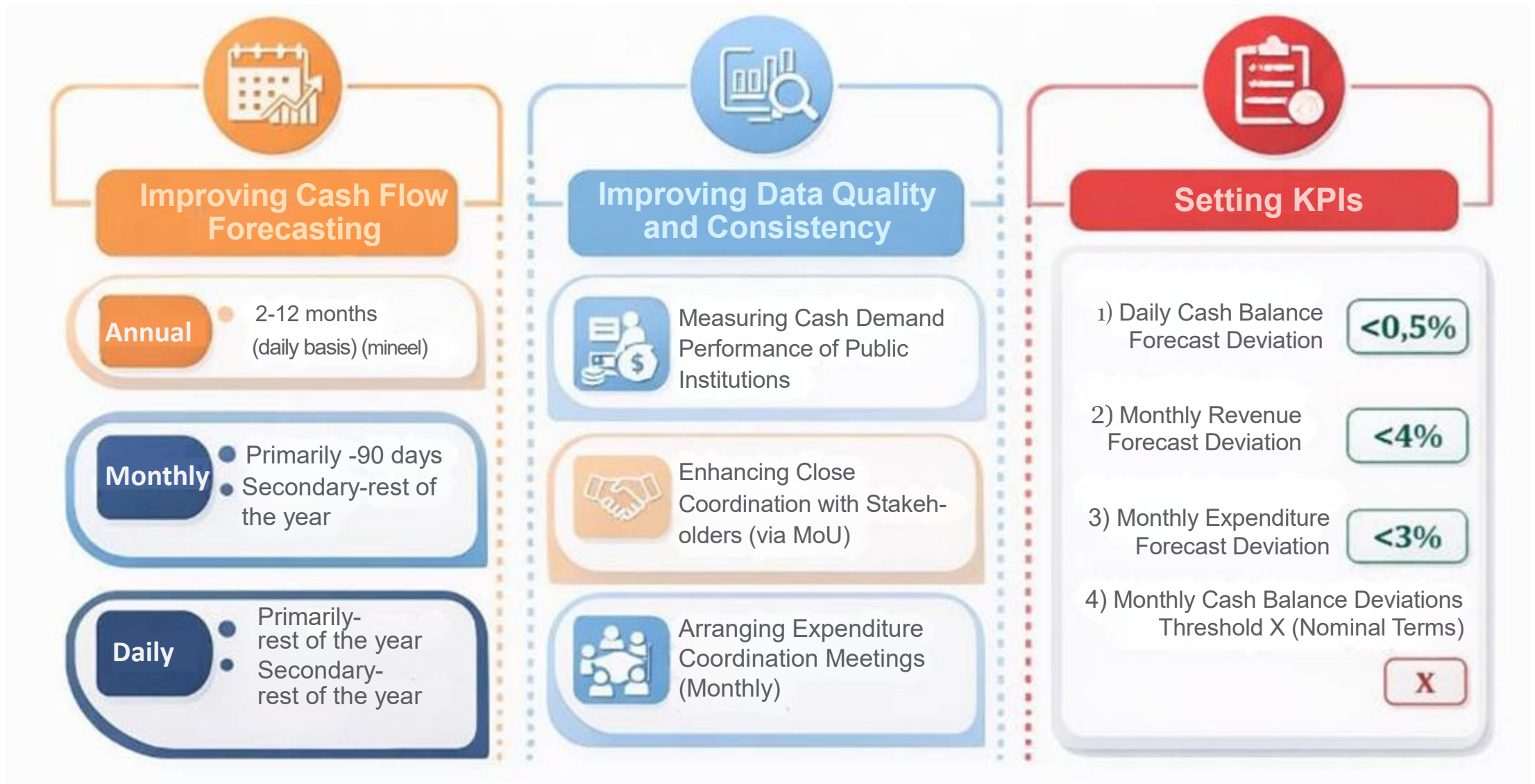


2) Setting Target Cash Balance

3) Managing Cash Flows

4) Information Sharing

Mitigating Cash Flow Forecast Deviations





How to mitigate the likely effects of cash volatility



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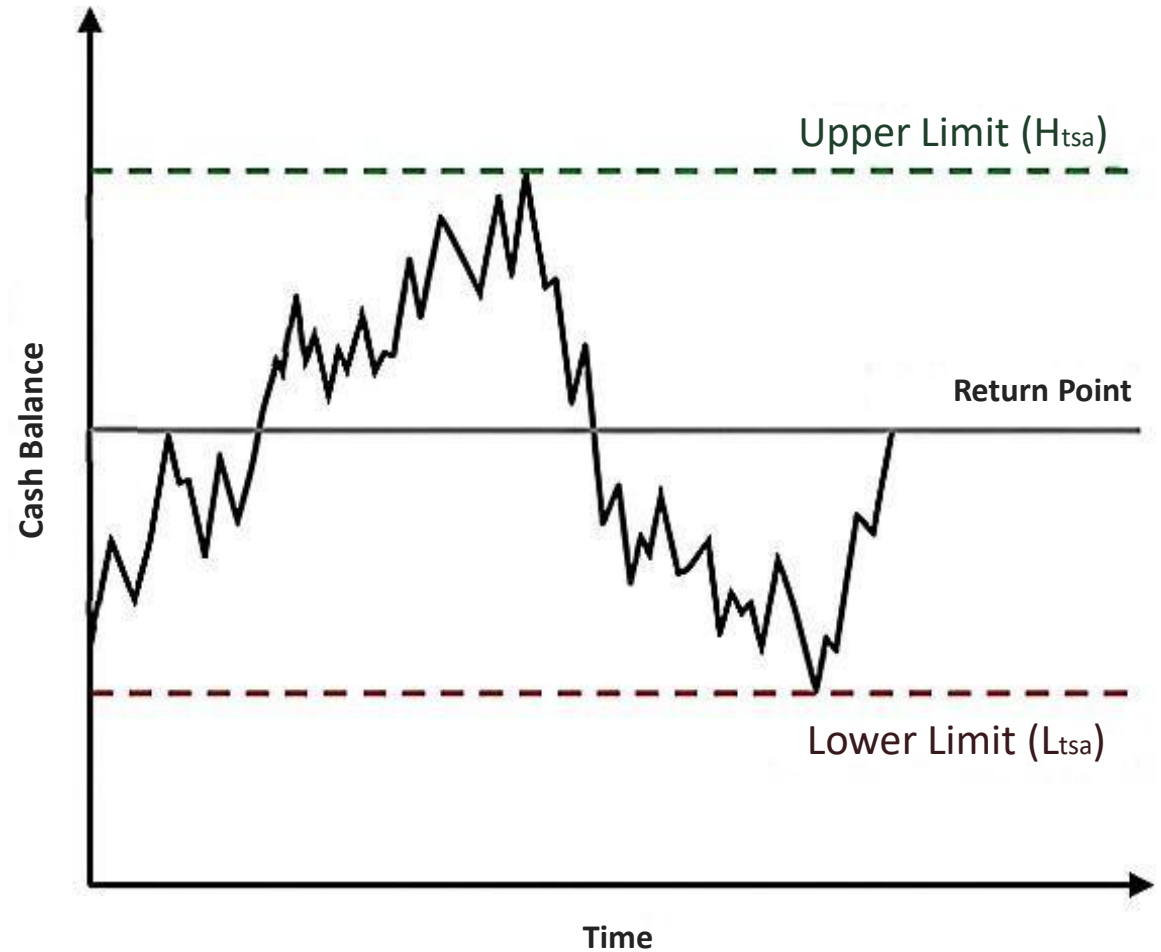
3) Managing Cash Flows

4) Information Sharing

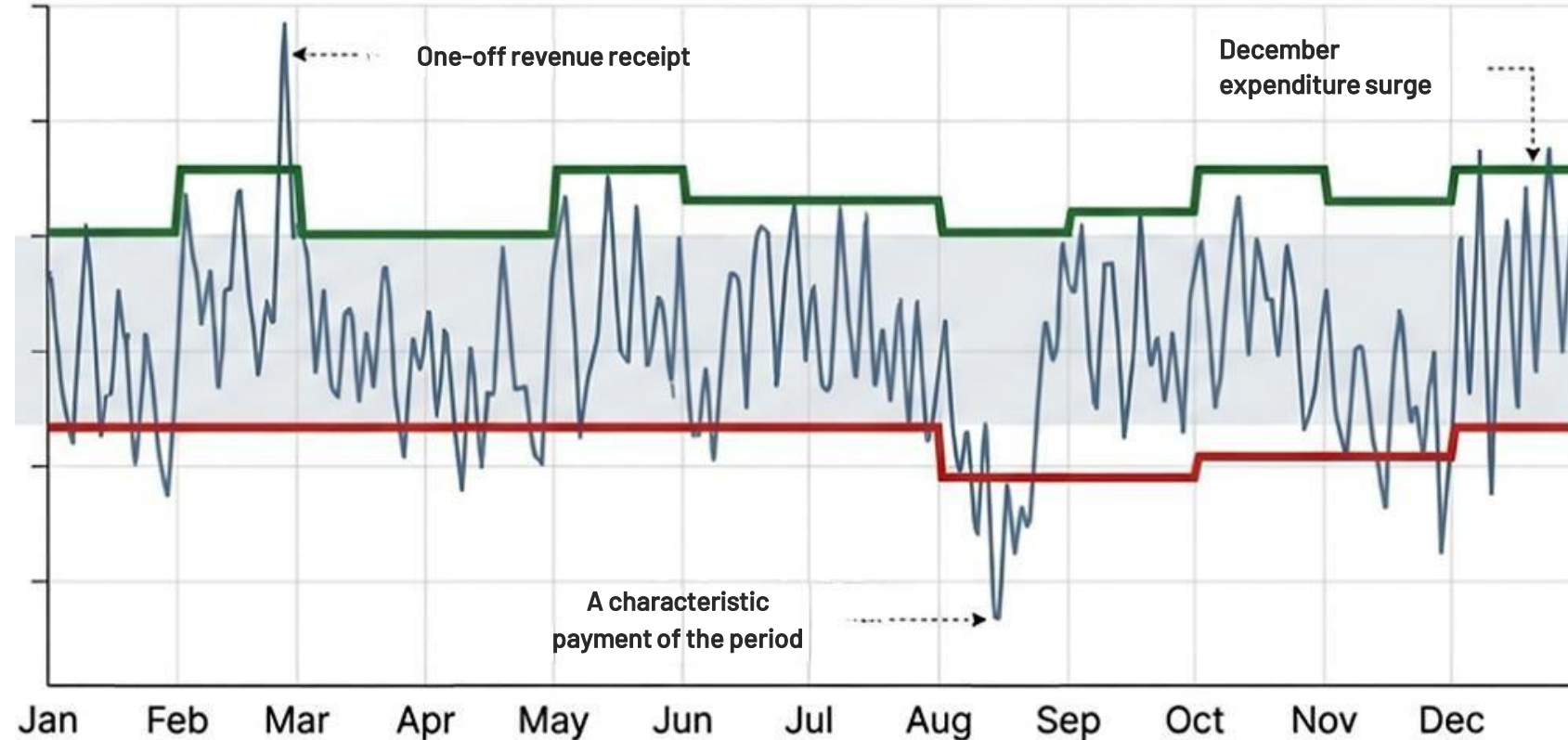
How to Set up a Target Cash Balance

«Dynamic Corridor Model (by Modified Miller-Orr Model)»

- Based on Modified Miller-Orr Model (Can, 2019), we establish mathematical boundaries for Treasury cash reserve.
 - **Upper Limit**= The trigger point to invest surplus cash.
 - **Lower Limit**= The safety floor requiring borrowing or buffer utilization.
 - **The Goal**= Allow cash balances to fluctuate naturally between these bounds to minimize transaction cost.



DAILY CASH RESERVES



SURPLUS ZONE

Condition: Reserve > Upper Limit
Action: Investing Surplus on Public Banks

STRATEGIC CORRIDOR

Goal: Aim: Manage cash flows strictly within this interval.

DEFICIT ZONE

Condition: Reserve < Lower Limit
Action: 1. Using Short-term Borrowing
Instrument
2. Utilizing Cash Buffer

The Treasury actively manages daily volatility **by borrowing only when reserves dip below the Lower Level** and **investing idle cash when reserves exceed the Higher Level**, ensuring liquidity without inefficiency.



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Investing Cash Surplus

Utilizing Cash Buffer and Extended TSA Balance Actively

Using Short-term Cash Borrowing Instrument

Supporting Central Bank Liquidity Management Policy

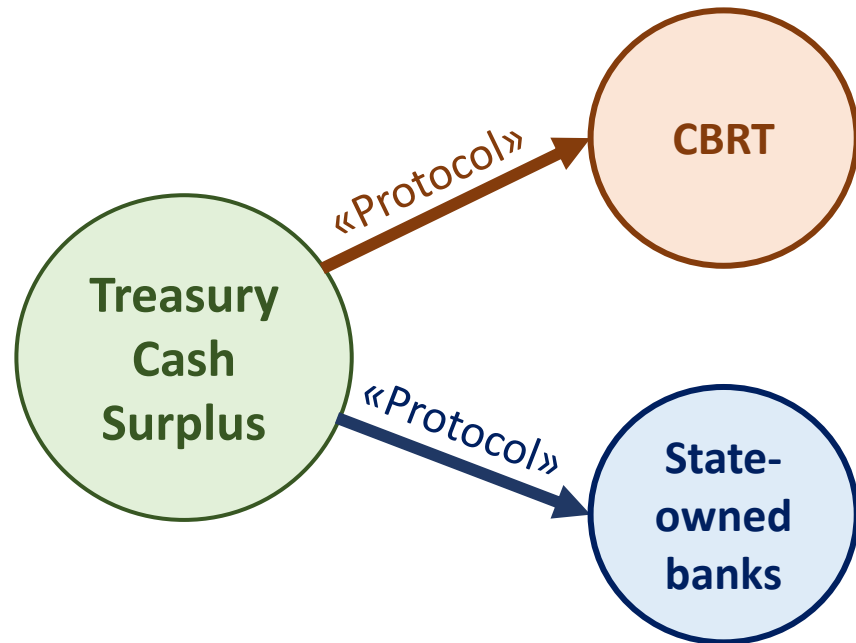
4) Information Sharing



Investing Cash Surplus



- Treasury TL and FX accounts are **remunerated daily with “x” rates** at the central bank and other state-owned banks.
- The objective is to **reduce the idle cash amount of TSA** held at the central bank.

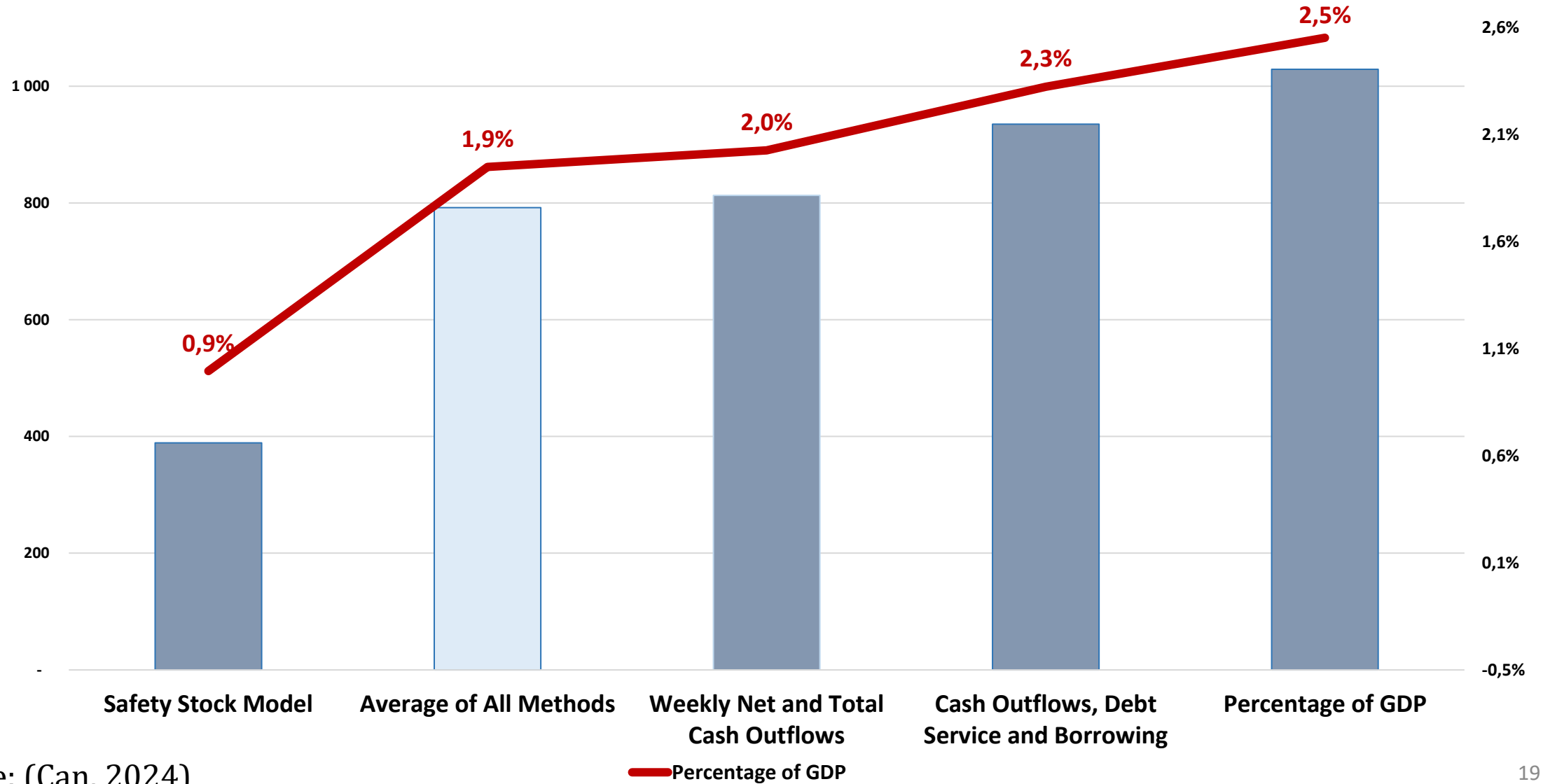


How is the investing decision taken?

- ✓ Taken by «Debt and Risk Management Committee».
- ✓ Based on **objective criteria**
- ✓ Compatible with **Protocol with banks**



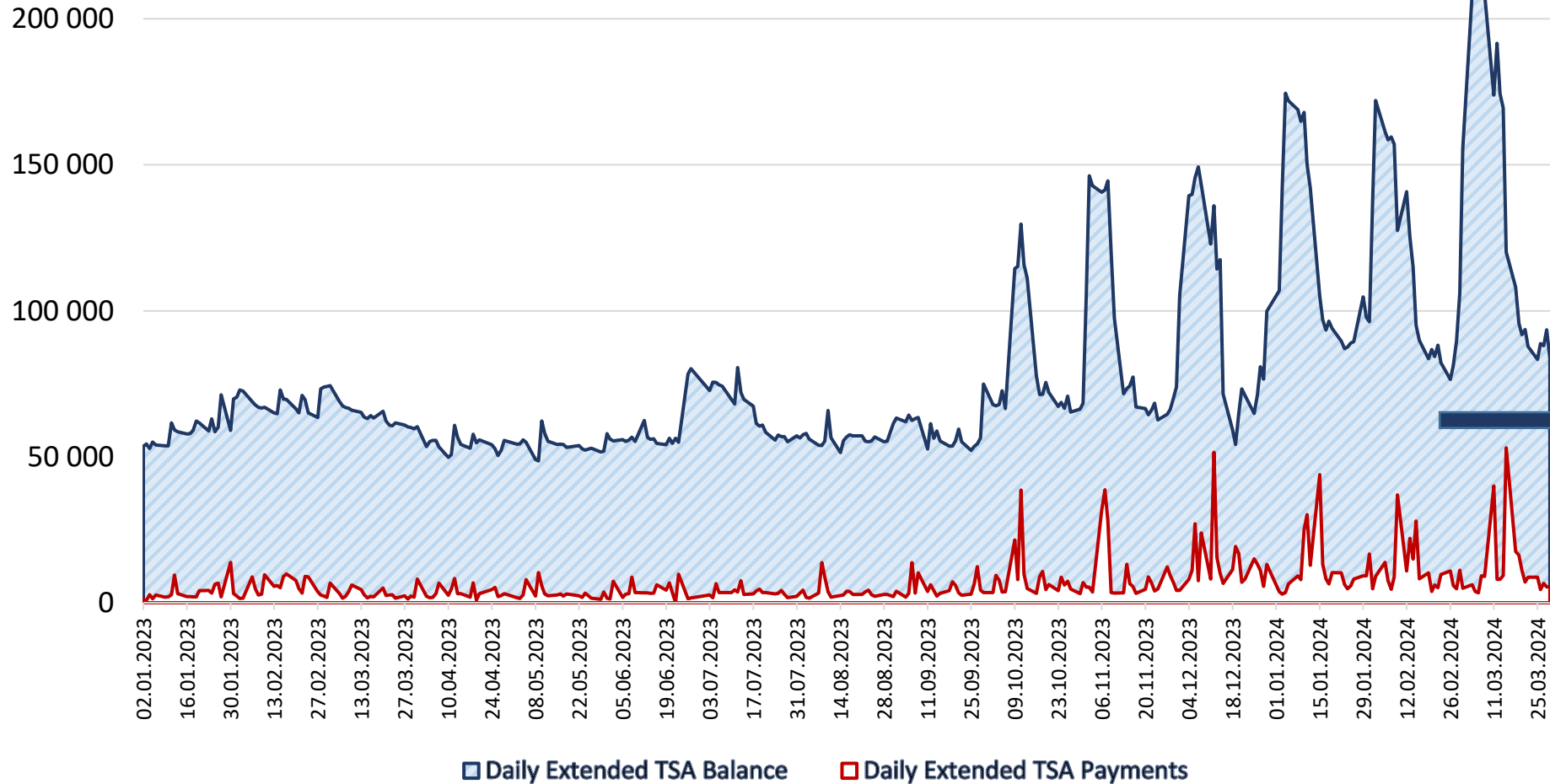
Active Use of Cash Buffer



Source: (Can, 2024)



Extended TSA as a Cash Buffer

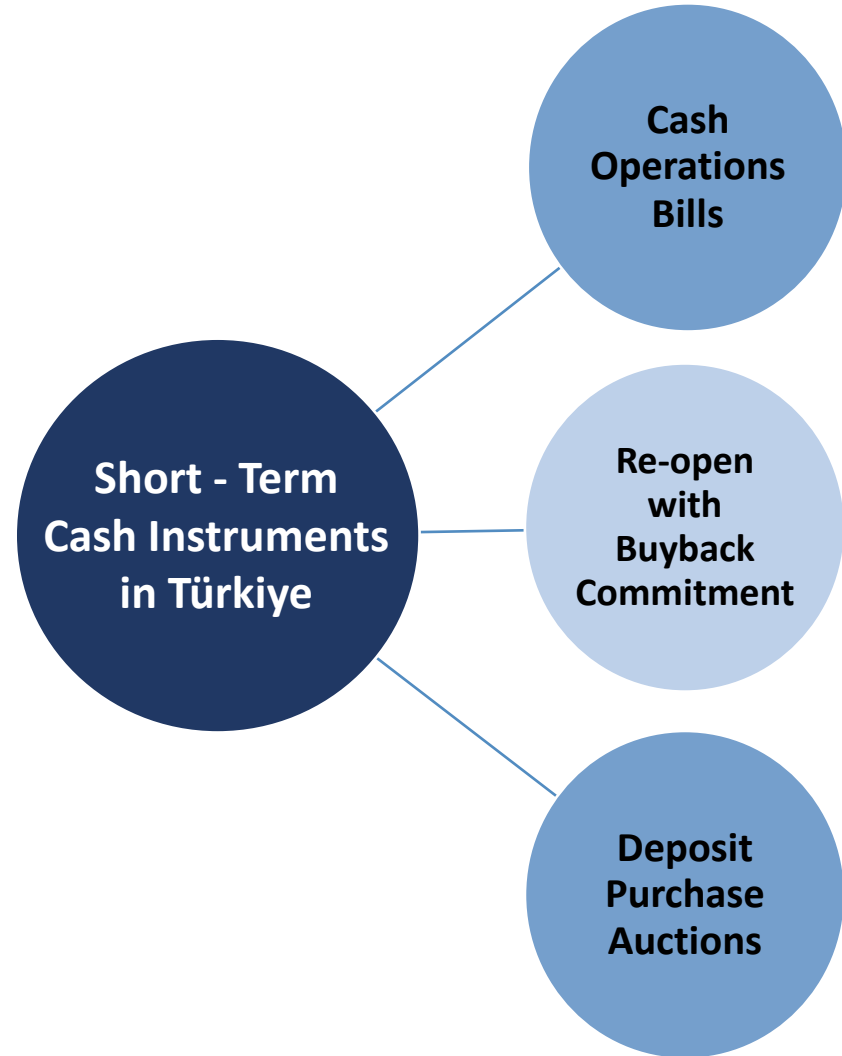


On average, approximately **10% of the daily balance is used for payments** to institutions in the extended TSA system, while the **remaining balance is utilized as a cash buffer.**

Excess resources collected in the extended TSA system are utilized to meet short-term financing needs.



Short-Term Money Market Instruments



- In Türkiye, we have a legal framework (*Regulation on Financing Through Money Market Cash Operations*) regarding the use of short-term cash management instruments:
- The objective is to
 - Minimize government borrowing costs and carry cost
 - Alleviate cash flow imbalance
 - Contribute - debt management
 - liquidity management
- Instruments have at most **30 days of maturity**.
- **Not utilized so far due to strategic benchmark on holding strong cash reserves.**



Contribution to Central Bank Liquidity Management Via Cash Management Operations



EXAMPLE (billion TL)	2024 Q1	
Cash Balance (A)	- 500	Cash deficit resulting from Treasury operations may lead to excess liquidity in the money market.
Domestic Borrowing (Net) (B)	300	Borrowing (net) can offset some of the potential negative impact of excess liquidity in the market.
Impact Resulting from Treasury Operations (A+B)	- 200	
Deposits withdrawn from Public Banks (C)	150	To further mitigate the adverse effects of the excess liquidity in the money market, the Treasury withdraw deposits from commercial banks to CBRT.
Overall Impact (A+B+C)	- 50	Treasury operations' impact on liquidity management is reduced to 50 billion instead of 200 billion.



How to mitigate the likely effects of cash volatility



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Daily Data Sharing with CBRT



TREASURY CASH PROJECTION

	(t)	→	(t+15)
REVENUES	x	...	x
Tax	x	...	x
Non-tax	x	...	x
NON-INTEREST EXPENDITURES	x	...	x
Personnel Expenditures	x	...	x
Other Expenditures (Provincial Expenditures, Transfers to Local Administrations and SOE's, Social Security Institutions, Ministries etc.)	x	...	x
BORROWING	x	...	x
Domestic	x	...	x
Foreign	x	...	x
DEBT SERVICE	x	...	x
Domestic	x	...	x
Foreign	x	...	x
PRIVATIZATION AND FUNDS INCOME	x	...	x
CASH HOLDINGS	x	...	x
CBRT	x	...	x
TL	x	...	x
FX	x	...	x
GOLD	x	...	x
SDR	x	...	x

Cash Management Department

CBRT

TAX TRANSFER INFORMATION

Tax Type	t	→	t+3
Income Tax Revenues	x	...	x
Corporate Tax Revenues	x	...	x
Value Added Tax Revenues	x	...	x
Private Consumption Tax Revenues	x	...	x
Other Tax Revenues	x	...	x
Non-tax Revenues	x	...	x
Non-tax Revenues and Penalties	x	...	x
Custom Tax Revenues	x	...	x
Total	x	...	x



Coordination Meetings with CBRT



- In addition to daily data sharing, the Treasury and the CBRT meet once a month at the “**Coordination Meeting**”.
- The meeting time is usually set as the week before the CBRT Monetary Policy Committee meetings.
- Mutual information sharing is usually on the following topics:





Part III: Contributions



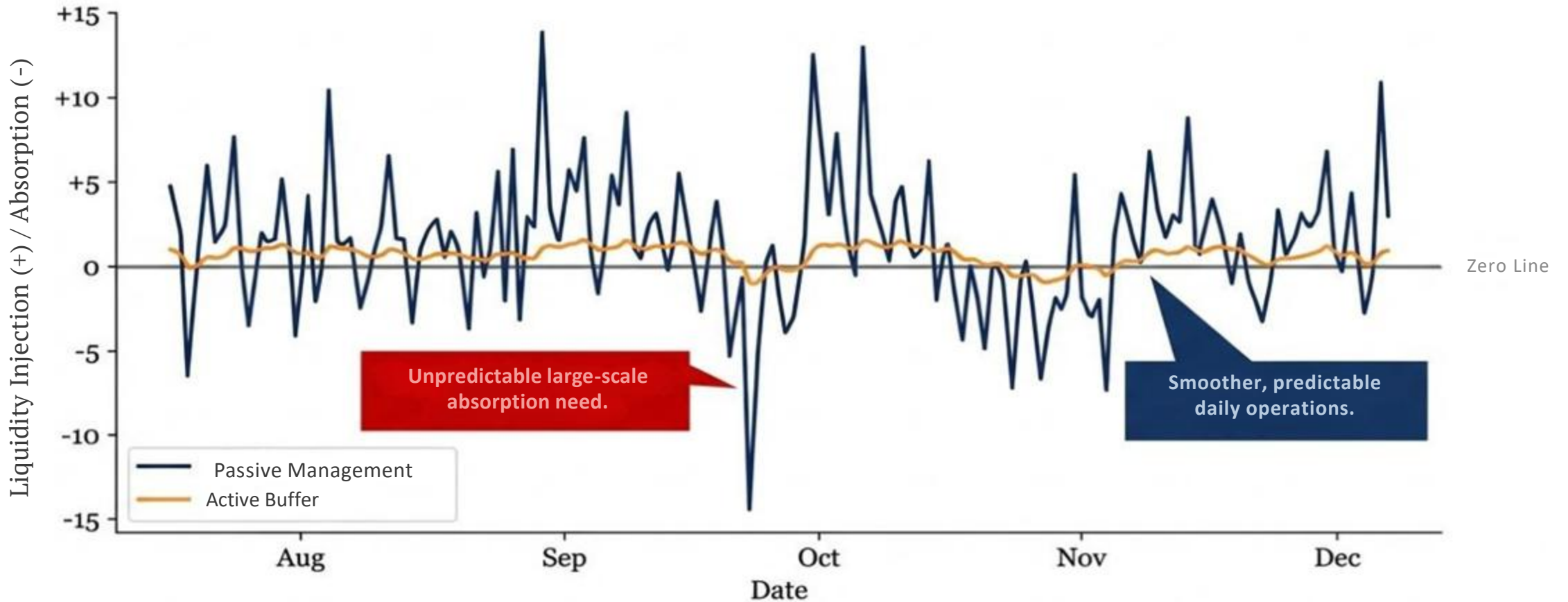
- **What are the contributions of the implemented policy to central bank liquidity management?**



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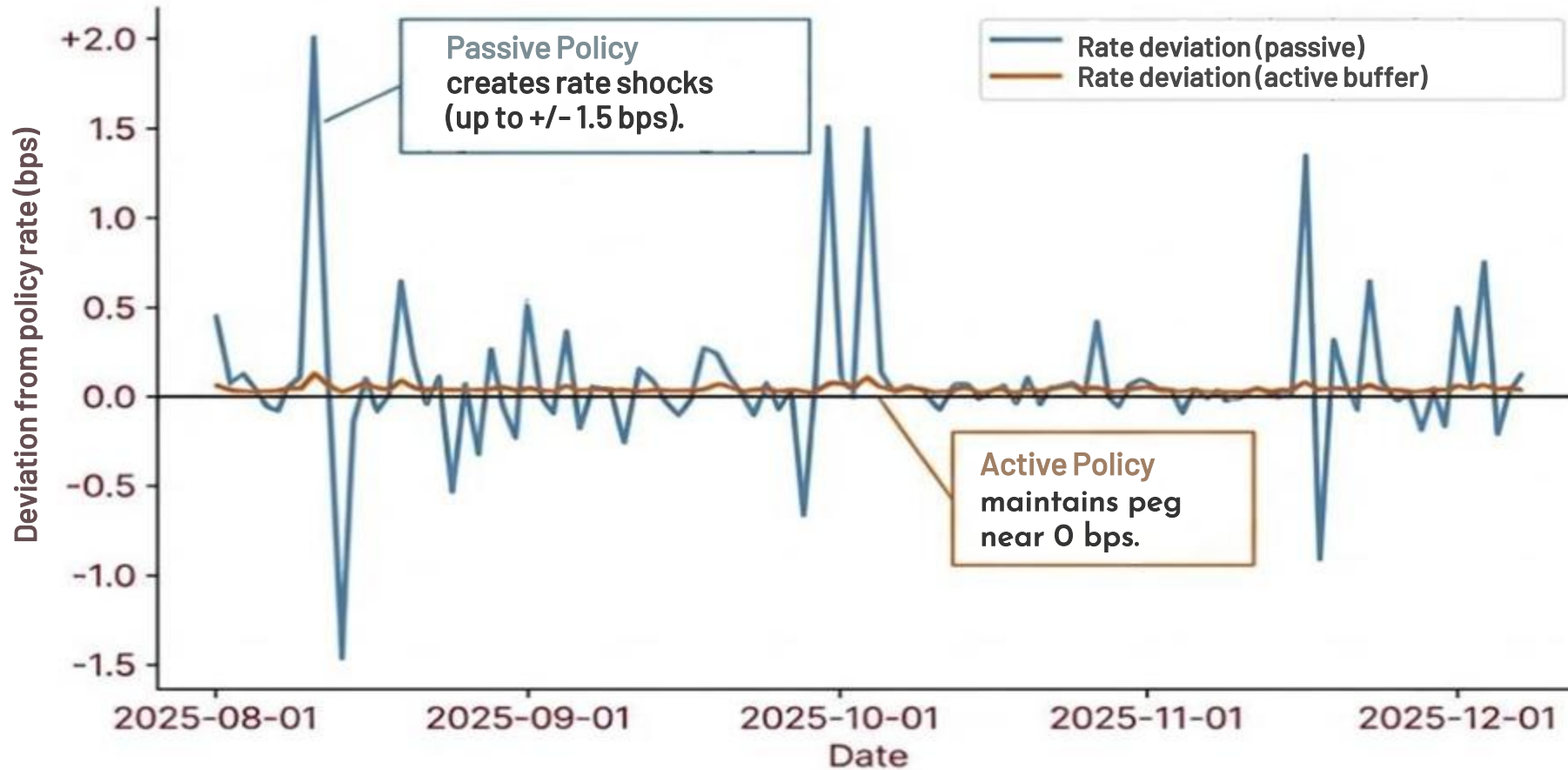
- **Reduces reserve volatility:** A cash-balance buffer/corridor smooths Treasury inflows and outflows, so banking system reserves move less abruptly.
- **Improves overnight rate control:** Smaller reserve shocks mean less pressure on the overnight rate to deviate from the policy target/corridor.
- **Lowers the need for frequent OMOs:** The central bank can conduct fewer and smaller liquidity-injecting/absorbing operations.
- **Strengthens liquidity forecasting accuracy:** Better Treasury cash-flow forecasting and information sharing reduce “autonomous factor” surprises.
- **Reduces sterilization costs and operational burden:** Less excess liquidity to mop up (or unexpected shortages to cover) can lower interest costs and day-to-day operational stress.
- **Supports smoother money market functioning:** More predictable liquidity conditions reduce rate spikes and improve market confidence and pricing.)



- Under Passive management, the Central Bank faces unpredictable, large-scale liquidity needs.
- Active management smooths these flows, resulting in smaller, more manageable daily operations.

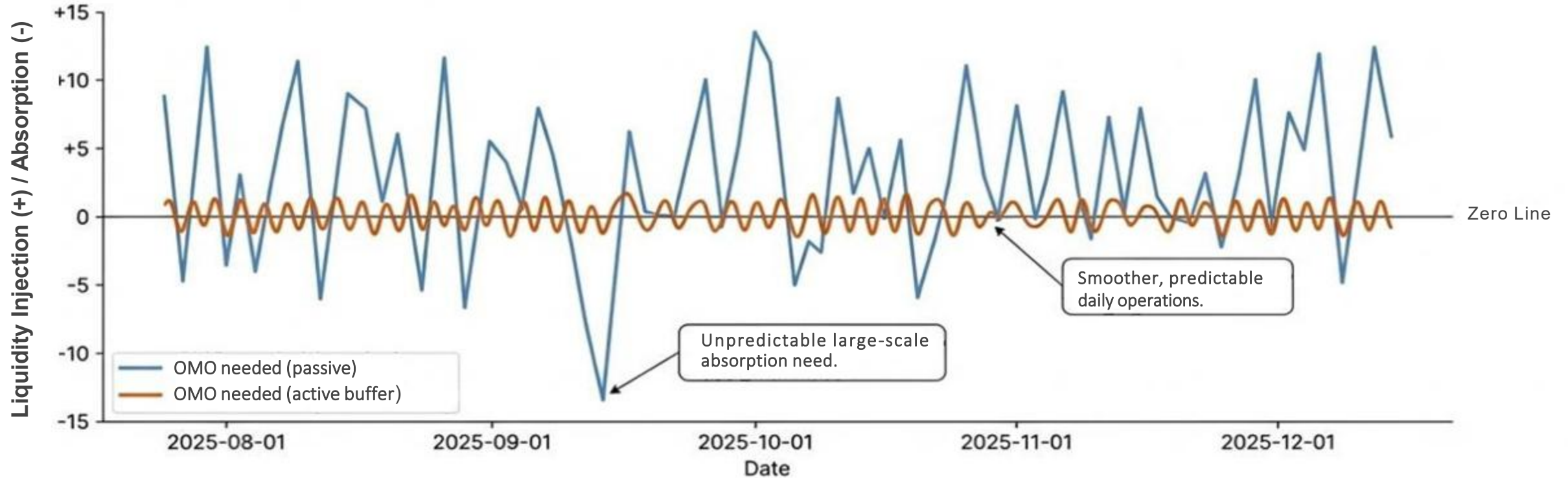


Maintaining Policy Rate Peg



- Without active cash management, **liquidity shocks force the overnight rate to deviate significantly from the Central Bank's policy target.**

OMO needed (bn) (+ inject / - absorb)



- Under Passive management, the Central Bank faces unpredictable, large-scale liquidity needs. Active management smooths these flows, resulting in smaller, more manageable daily operations.



Conclusion



- **Treasury cash flow operations may affect CB liquidity management** policy by impacting funding need of banking systems.
- **To neutralize the likely effects** of Treasury cash operations on CB liquidity management policy,
 - Treasury try to **improve its cash flow forecasting** by adopting mixed approach and long-horizon and
 - Treasury aim to reduce uncertainty on cash flows by **setting target cash balance range**.
 - Treasury **actively manage its cash flows to keep its reserve within the target cash interval** by actively investing surplus or utilizing cash buffer policy.
 - In coordination with CB, **Treasury may use its cash reserve to absorb/inject liquidity** in the banking system.
- Smoothing Treasury flows transforms the government from a source of market volatility **into a stabilizer**, significantly **reducing the operational burden of daily OMOs**.
- Enhanced forecasting and coordination **minimize 'autonomous factor' shocks**, directly lowering fiscal costs while **supporting the effective transmission of monetary policy**



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Thank You For Your Attention

baris.can@hmb.gov.tr

bariscan@etu.edu.tr



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