MOVING TO MORE ACTIVE CASH MANAGEMENT: Forecasts, instruments and country practices

Mike Williams
mike.williams@mj-w.net

Remote Workshop
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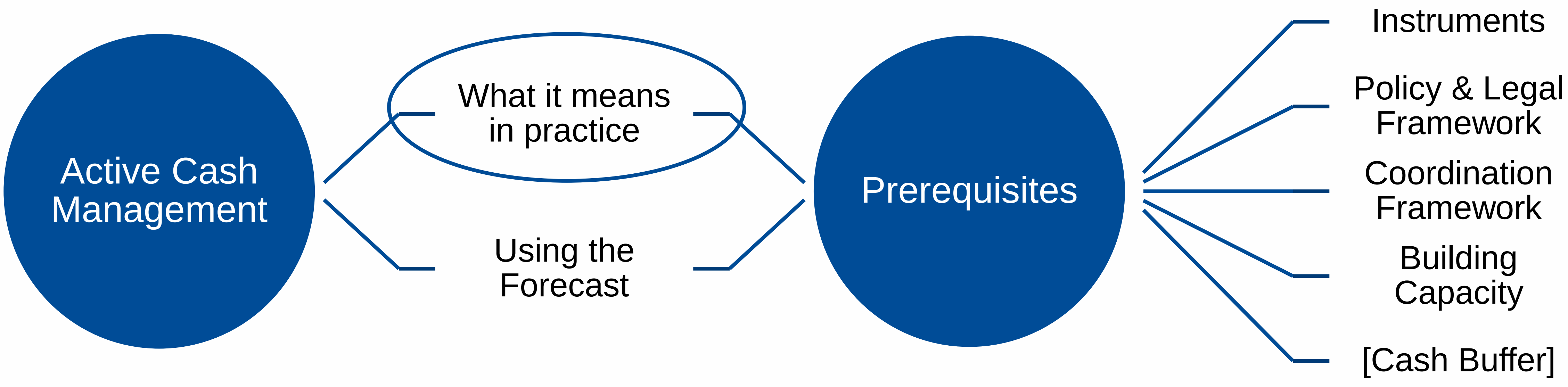
Agenda


Active Cash Management
What it means in practice
Using the Forecast
Prerequisites
Instruments
Policy & Legal Framework
Coordination Framework
Building Capacity
[Cash Buffer]

Modern Active Cash Management

Definition

- Smoothing of cash flows by utilizing short-term borrowing and lending instruments (typically by issuing Treasury bills, or T-bills)
- In a manner designed to offset the impact on the banking sector of net cash flows in and out of government
- Targeting (a range for) the TSA balance

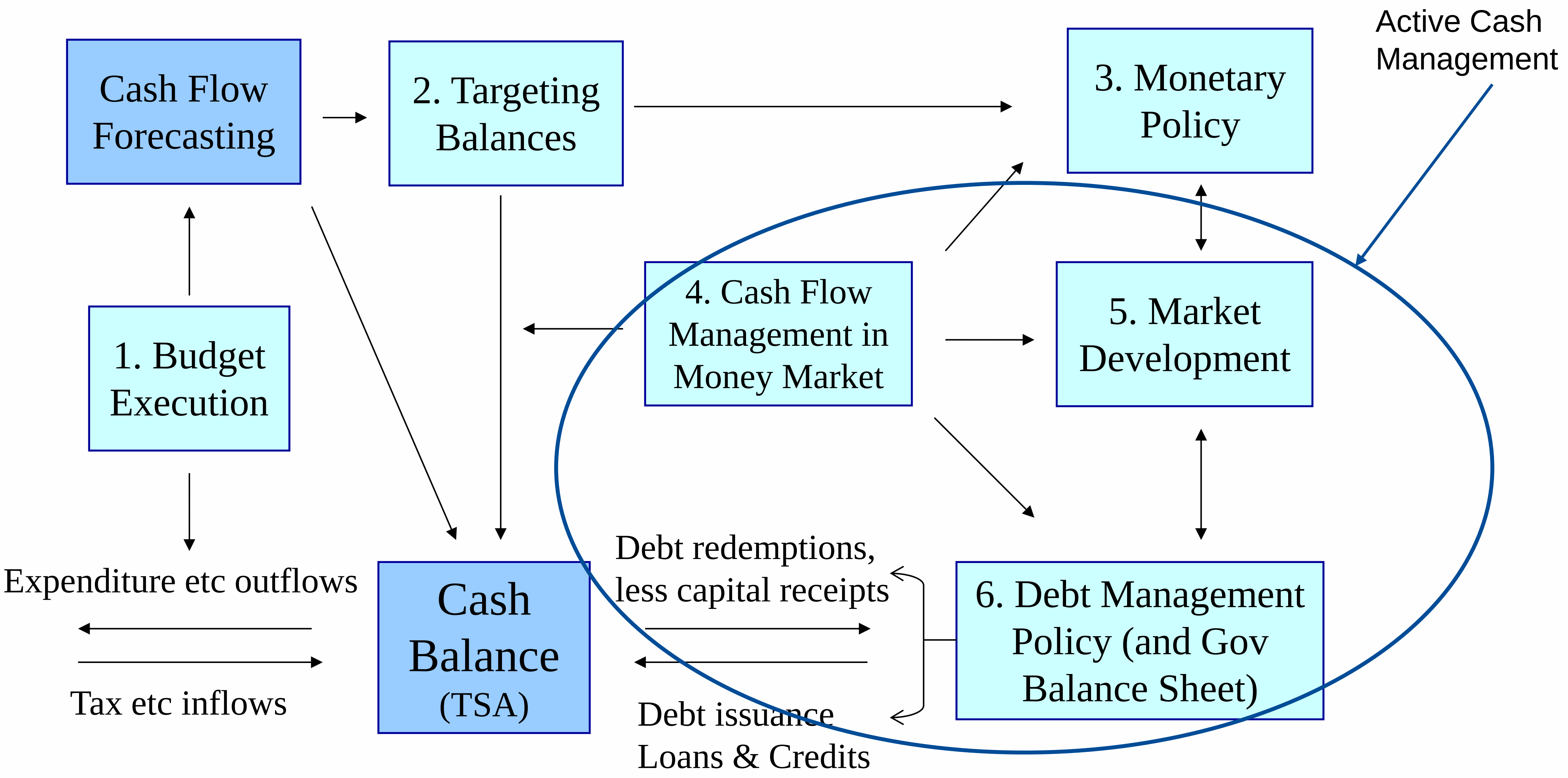
Benefits

- Allows lower average cash buffer – with benefits to other policies
  - Lower average cash balance – reducing cost
  - Reducing volatility of banking sector flows – benefits to monetary policy
  - Protects bond issuance programme
  - Wider money market development
  - Gives tools to protect expenditure plans from cash flow volatility

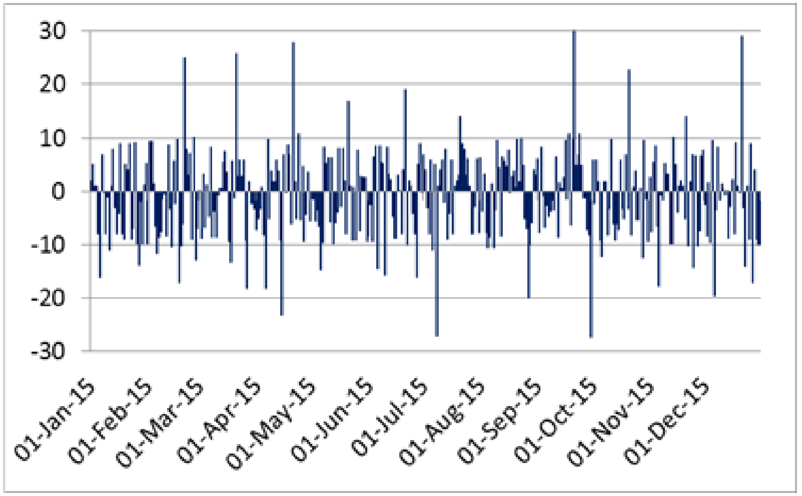
Note: there are other ways to smooth cash flows

- Linking days of outflows to days of inflows (salaries, transfers to tax payment dates)
- Smooth salary payments, avoid bond redemptions on days of cash outflows, etc

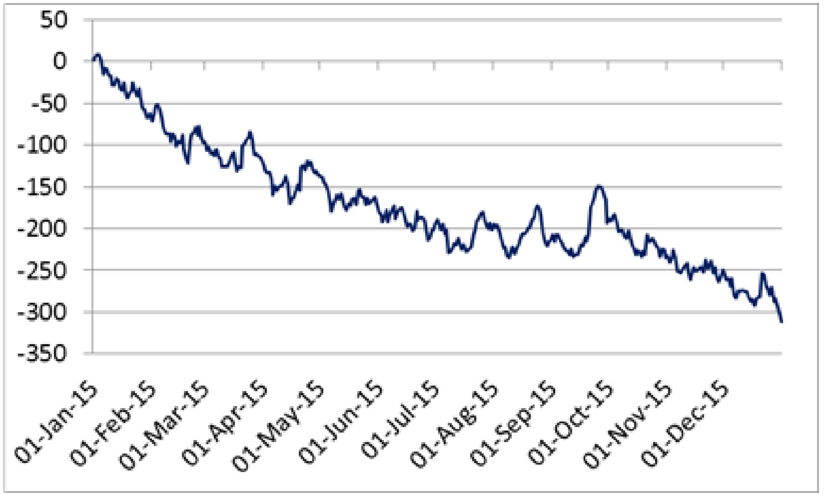
The Policy Context



Smoothing Cash Flow: the Concept

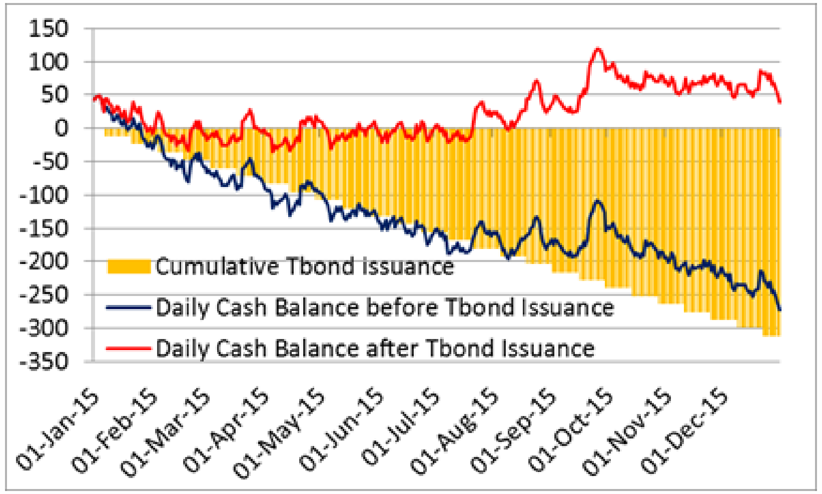


Daily cash flow before bond issuance



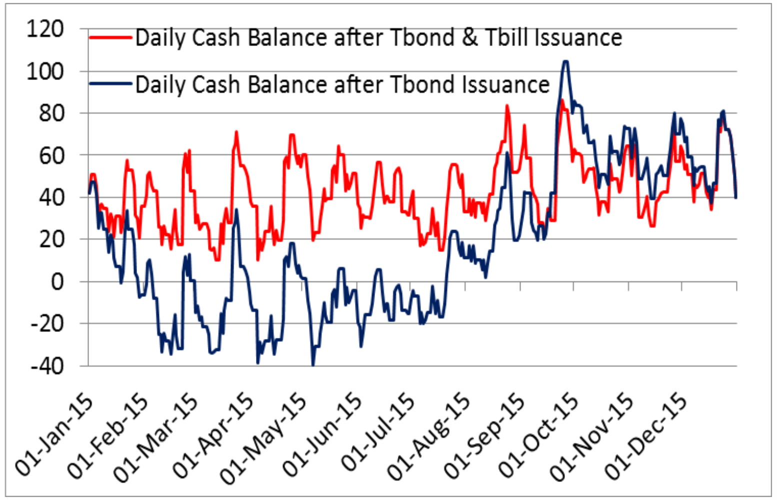
Cumulative daily cash flow

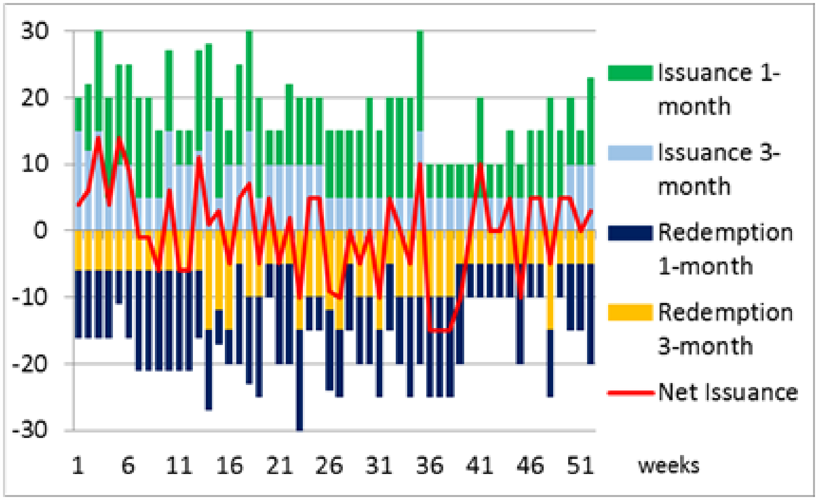
The impact of smooth gross Tbond issuance (net issuance = deficit)



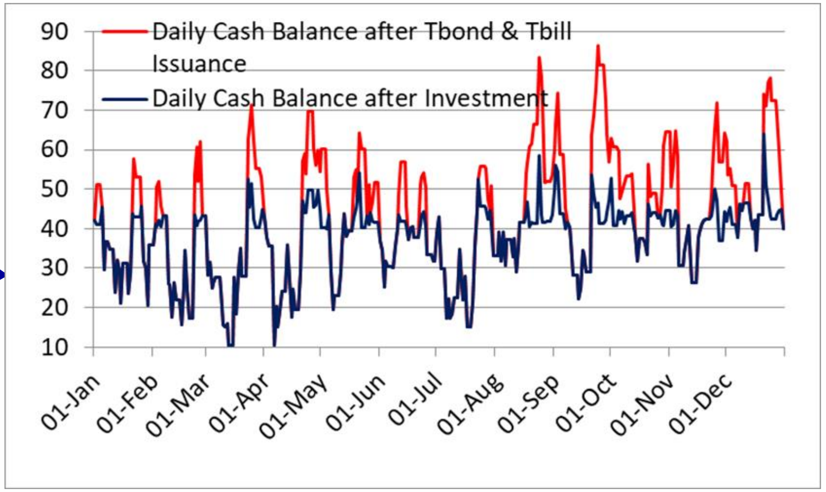
- How does the Treasury maintain the cash buffer close to its target (40 in the example)?

Smoothing Cash Flows: the Intention





Smoothing with 1-month & 3-month Tbills



Additional Smoothing with short-term investment

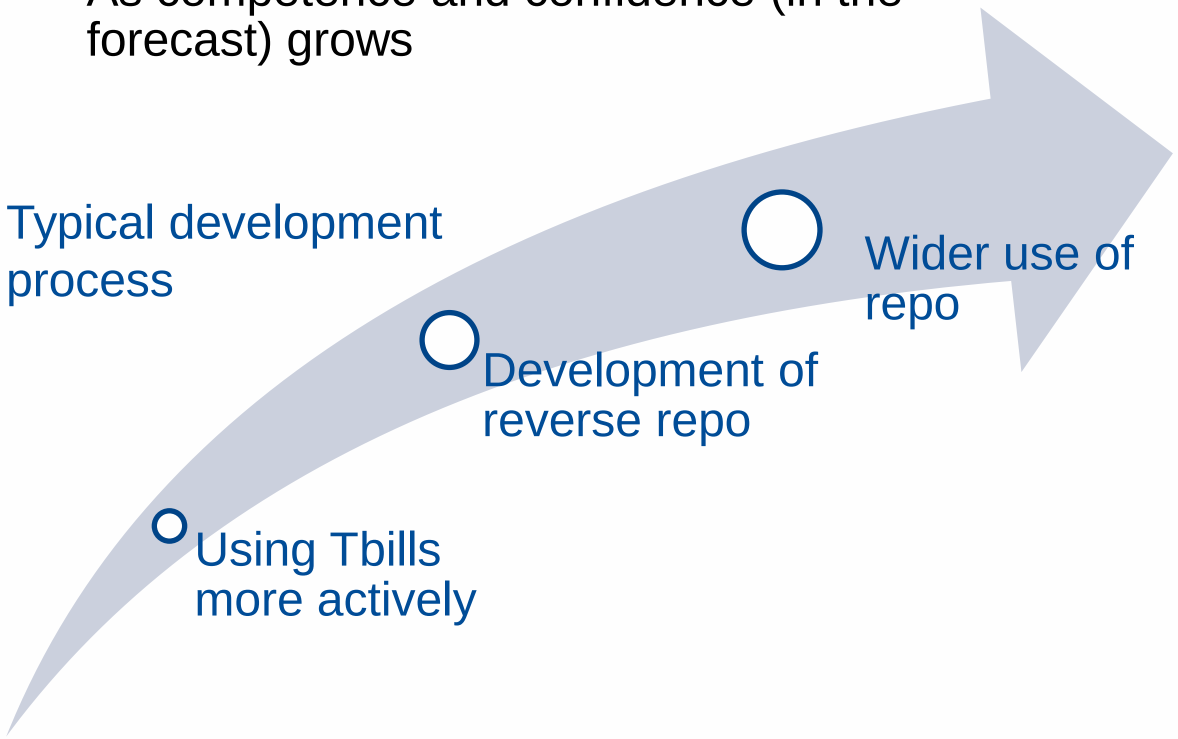
Note: Substantial intra-week variability remains; further smoothing requires overnight repo

Moving from Passive to Active Cash Management

Distinction between passive and active is not either/or

- Continuum of approaches, ranging from simple to sophisticated
- As competence and confidence (in the forecast) grows

Typical development process



Moving toward more active cash management requires:

- A target cash buffer
- Reliable and frequent forecasts of cash flows over a sufficiently long time horizon
- Availability of a range of instruments and counterparties for borrowing and investing, and a sufficiently liquid money market
- An appropriate policy and legal framework, inc for risk management
- A well-developed coordination framework with debt managers and central bank
- Sufficiently skilled staff; and adequate supporting IT infrastructure

Some Implications

* Rough tuning = the issue of Treasury bills (or other bills) in a pattern designed to offset liquidity impact of net daily cash flows

* Fine tuning = more active policies, with a wider range of instruments, to smooth more fully MoF's balance at central bank

Rough tuning* requires

- A functioning short-term Tbill market or access to bank credit
- Forecasting should be reasonably accurate
- If forecasting is monthly, access to markets should be sufficient to meet the largest anticipated cumulative monthly cash shortages
  - The more granular the forecasts, e.g. weekly, the less bulk credit is likely to be required
- Ideally: daily cash flow forecasts should be available for the current month and (at least) monthly forecasts available thereafter – to support e.g. 1-month Tbills.

Fine tuning* requires

- Cash flow forecasts should be as accurate as possible; the more accurate the forecasts, the less buffer cash required
- The Tbill market should be liquid at all tenors
  - Including < 1 month to allow issuance of cash management Tbills as necessary
- The repo market should be well-developed since this will be the most cost-effective short-term risk-free investment instrument and support v. short-term borrowing

Some – but limited – active cash management among PEMPAL countries (as reported in 2021 Survey*)

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In all countries responding, the debt department or equivalent is responsible for short-term (as well as long-term) debt issuance and other borrowing

- But lead responsibility varies for short-term investment of temporary surplus cash
- Raising concerns about coordinated / consistent interaction with the money markets

Most countries have Tbills available as a short-term borrowing instrument

- But answers suggest they are seen more as a regularly-issued debt management instrument
- Rather than a more flexible cash management instrument

Cash surpluses: half (8/16) respondents able to place term deposits with central bank and half with commercial banks

- 3 countries able to invest with both CB and commercial banks
- Just 3 countries have capabilities to borrow & lend through repo
- Survey did not explore detail on maturities, collateral etc.

** Note: 16 countries responded: some others would be able to report some activity (eg Uzbekistan's auction of temporary surplus cash to banks)*

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  - What it means in practice
  - **Using the Forecast**
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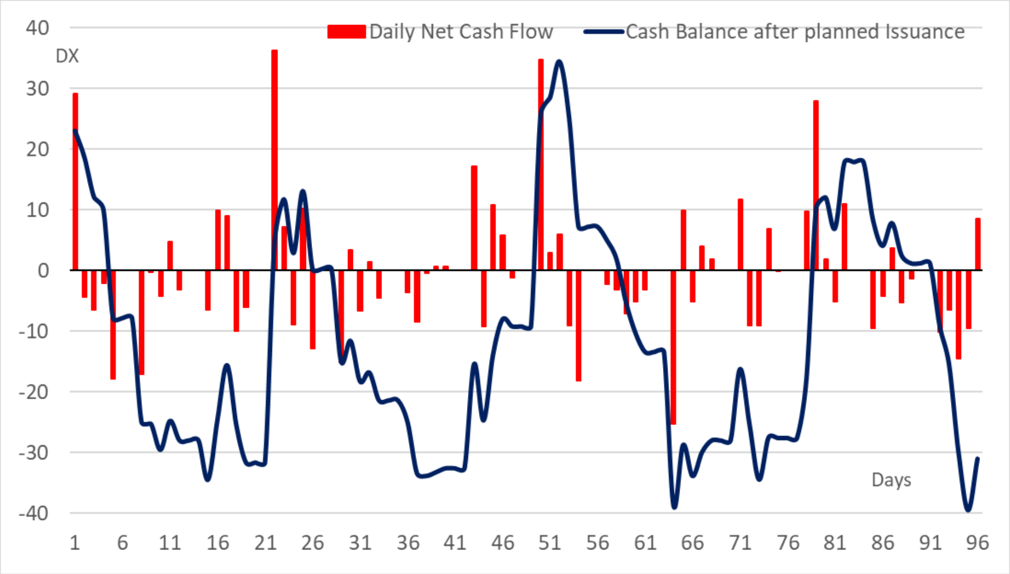
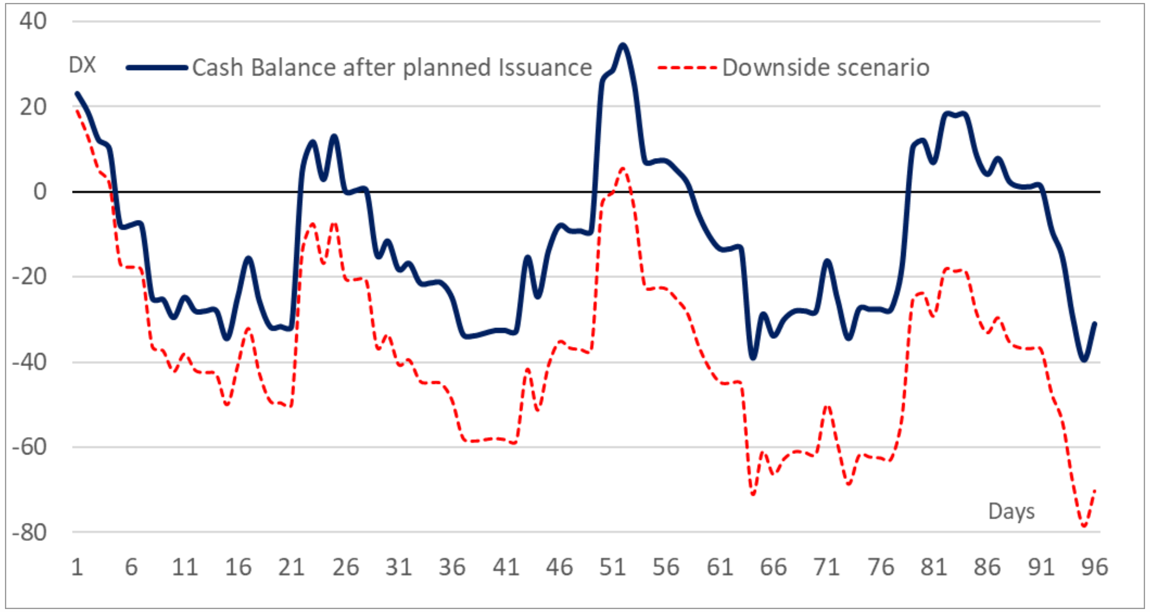
  - Coordination Framework
  - Building Capacity
  - [Cash Buffer]

Smoothing Cash Flows in Practice – 1/2

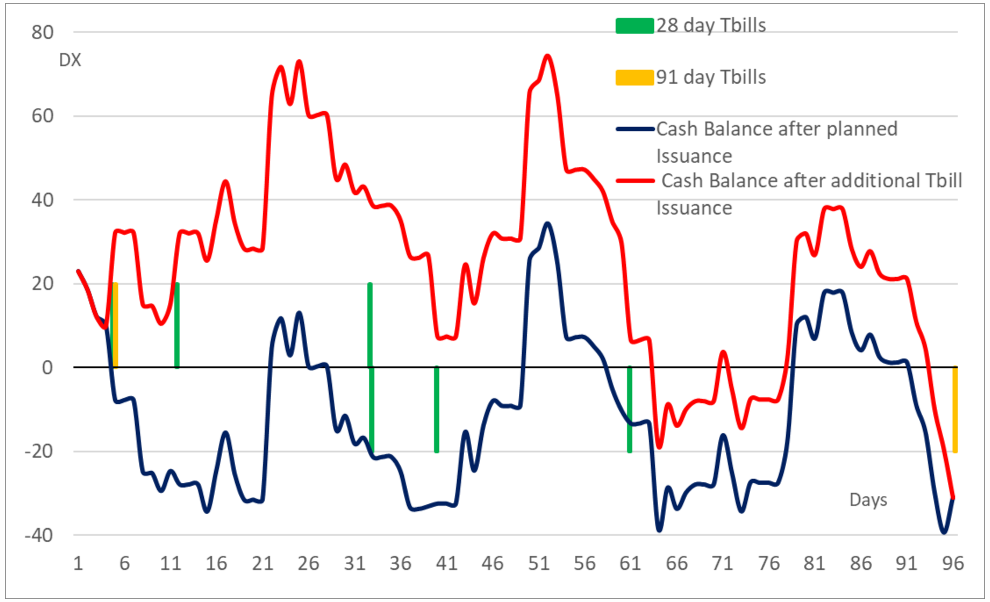


- Forecast of Daily cash flows three months ahead and implied TSA cash balance
- Forecast after planned Tbond and Tbill issuance
- Day 1 = Monday, Tbill issuance on Fridays, settled on Friday – forecast being reviewed previous Thursday (Day -4)
- Tbill issuance announced on Friday for following Friday
- Assumes no public holidays (other than weekends)

- Target buffer – range 20-40
- Clearly some action needs to be taken
- Identify also main risks
- Dotted line shows a downside scenario
  - (e.g. 2 standard deviations, although a scenario probably more useful)

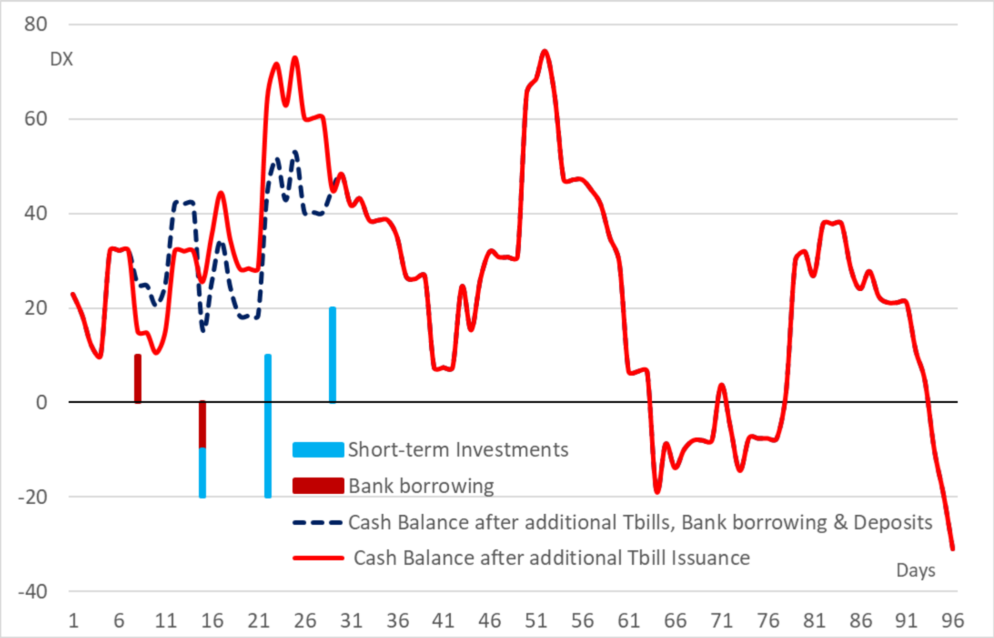


Smoothing Cash Flows in Practice – 2/2



- Forecast shows cash shortage over most of period => issue additional 91-day Tbills
- Particular problem in near future => issue also 28-day Tbills
- Recommendation shows, on Day 5, additional 20 of 28-day Tbills and 20 of 31-day Tbills; the 28-day Tbills are refinanced on Day 33; and a further 20 issued on Day 12
- There is a cost to the borrowing, but without it the MoF would have had to finance a larger buffer

- These Tbills may not be sufficient, given cash shortage in very short-term and downside risks
- Prepare therefore to borrow an additional 10 from banks (for 1 week) on Day 8 (a Monday)
- Strong cash inflows a month ahead: prepare to invest back into banking sector (assumes 10 on Day 15, and 20 on Day 22, each for 1 week)
- These later decisions can be reviewed in a week's time – to take account of updated forecast
- Handling the heavy outflows Days 53-63 to be considered at future meetings



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Cash Management Instruments

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Borrowing

- Treasury bill usually main instrument in moving towards more active cash management
  - TBill has different roles as instrument of
    - debt management
    - cash management
    - monetary policy
- Emphasis on shorter-term (e.g. 1 month) bills for cash management – some use Tbills of odd maturities
- Repo usually used for fine tuning – but requires liquid market and procedures

Investing

- (Reverse) repo preferred instrument if market sufficiently liquid
  - Secured and flexible
- Many countries use bank deposits
  - Lend at market rates – term or overnight
  - Competitive process (by tender if no transparent prices eg China, Chile)
  - But should be collateralised – reduce credit risk
- Consider (remunerated) deposits with central bank if important to underpin monetary policy stance

Note: buying and selling MoF's holdings of securities risks damaging the bond market and removing flexibility; use only as collateral

Some False Distinctions

- Cash management bills and debt management bills are the same economically - both are debt. Distinction can be useful presentationally
- Irrelevant whether a bill is redeemed within the same or a later financial year
- Interest earned reduces net interest expenditure in budget
- Financing plan can allow for a net change in stock
  - Often sensible: e.g. if an end year spending surge, Tbill stock may need to rise in December, falling in January
  - Identify changes in other short-term assets & liabilities
  - Tbill issuance must be scored net not gross against any borrowing limit

Government Expenditure	A
Government Revenue	B
Surplus (-) or Deficit (+)	**C=A-B**
Other flows:	
Assets sales or privatisation receipts	D
On-lending, net of repayments	E
Debt redemptions and repayments	F
Gross Financing Requirement	**G=C-D+E+F**
Sources of Financing:	
I. External Loans and Credits	
• Project-related	H
• Programme loans	I
• Commercial borrowing	J
II. Domestic Borrowing	
• [Bonds]	K
• Bills	L
• [Loans]	M
Net change in short-term liabilities*	N
Total Gross Financing	**G=H+I+J+K +L+M+N**

** Increased overdraft net of increased cash balances*

Greater Flexibility in Tbills Issuance

Typical Tbill tender

- Issued weekly, settlement same day or T+1
- Amounts and maturities on offer announced at close of each tender (ie for following week)

Ad Hoc tenders [UK parameters]

- Same legal instrument – potentially fungible with existing issues
- Standard and non-standard maturities
- Announce intention previous week
  - With standard weekly announcement
- Details on morning of tender – see timetable
  - Settlement may be same day

Announce tender	08.00
Bidding Window	08.30-45
Results by	09.00
RTGS payments by	13.30
Settlement by	close

Bilateral Tbill Issuance

- The UK DMO may issue Tbills bilaterally, including on request from any eligible cash management counterparty – where consistent with the DMO's own cash management operations
- Priced in line with market. Maturity must differ by at least 5 days from those issued at adjacent tenders

Investment is an Intrinsic Part of Modern Cash Management

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The investment of surplus cash is not simply an arbitrary add-on

- Smoothing of the cash flows implies investment of surpluses
- Smoothing brings benefits: reduces the volatility of cash, allows a reduced cash balance, facilitates monetary policy operations
- Well-managed investment is inherently cost-effective: reduces net debt interest
- Reflected in many countries' cash management objective

The Treasury/DMO or cash manager has responsibility for only short-term investments

- Surplus over and above the cash buffer invested in the money market
- Shorter-term surpluses with short time horizon – transitory, not expected to be sustained – cash managers rarely invest cash > than 3-6 months
- The "surplus" in this context is identified by the forecast (an allowance for caution may be reflected in either the size or maturity of the investment)

Structural or persistent surpluses should be handled separately

- Savings or wealth fund with own objectives, strategic asset allocation, management and governance structure

Investment in Practice

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Reverse repo is preferred instrument if market sufficiently liquid	Many countries invest in bank deposits	For repos or bank deposits a list of pre-approved banks is usually established	Deposits at the central bank
• It is secure and flexible • Often backed by government (or central bank) securities • The collateral is marked to market daily – with term that is longer than the repo • Collateral may be managed by central bank (as agent) or Central Securities Depository, CSD (if it offers tri-party repo)	• Loans at market rates: term or overnight • Competitive process (or auction if no transparent market prices) • Possible as differential with respect to, eg, overnight rates (Spain) • But should be collateralized: reduce credit risk • Contract allows deposits to be broken (at a cost)	• Sign all documentation beforehand eg GMRAs • Simplify each auction: just short notice is required • Cautious credit risk policy - but the collateral greatly reduces the risk • See annex on repo	• Consider deposits (term and remunerated) at CB only if there is a monetary imbalance, i.e., when it is a response to a structural problem • All deposits in CB (both TSA and term deposits) should be remunerated at market rates ("market-related risk-free interest rate")

Foreign Currency (FX) Balances – an aside

Cash Management focuses on the availability of domestic currency (DX)

- What matters for the TSA and monetary policy

Normal best practice:

- All FX inflows converted to DX by central bank – which makes FX available to MoF when needed
- Modified if shortage of FX or an illiquid local FX/DX market – MoF may need some FX balances

In principle, any FX balances can be used as an instrument

- Either by direct exchange (on market or with CB) or via a swap (usually with CB as counterpart) – eg Albania, Hungary

But FX balances should not be substantial

- Limited source of new DX cash
- Unlikely to be a sensible way of parking temporary surplus cash (FX risk, transactions costs)

Implies: access to FX balances best seen as a very short-term instrument, primarily as a safety net

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Prerequisites

- Instruments
- **Policy & Legal Framework**
- Coordination Framework
- Building Capacity
- [Cash Buffer]

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Policy Framework

Objectives

- Ensuring cash availability, smoothing cash flows
- Cash buffer objectives
- Risk, liquidity, yield objectives
- Include build up of assets to meet end year expenditure surges

Clarity on acceptable instruments

- Including maturities (geared to cash flow profile; loans/deposits redeemed on days of cash outflow)

Specification of risks; policy towards market, credit, liquidity, legal and operational risks, including

- Identification of acceptable counterparties
- Contractual requirements (GRMA)
- Requirements for and handling of collateral
- Mode of accessing market (tenders, bilateral price quotes, platforms, etc)
- Market consultation

Establishing performance criteria

Legal Framework

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Legal Requirements, specifically for active cash management	• [Ideally] clear Ministerial responsibility for cash management objectives – and a high-level definition of those objectives • Powers of the MoF to borrow to support the efficient management of the government's cash flows, and to invest surplus balances in the financial markets (or as term deposits in the central bank)
Note	• To retain flexibility to respond to market conditions or practices, it is probably not advisable to specify instruments in a legal document • It would be acceptable to insist that risk parameters are identified and approved • There must be no constraint on maturities adopted; ability to borrow across the year end; or central bank's ability to remunerate deposits
Legal requirements for wider cash management	• Control over bank accounts and ability to establish & structure TSA • Requirements that MDAs submit cash forecasts • Powers to establish incentive schemes • Reporting and auditing requirements

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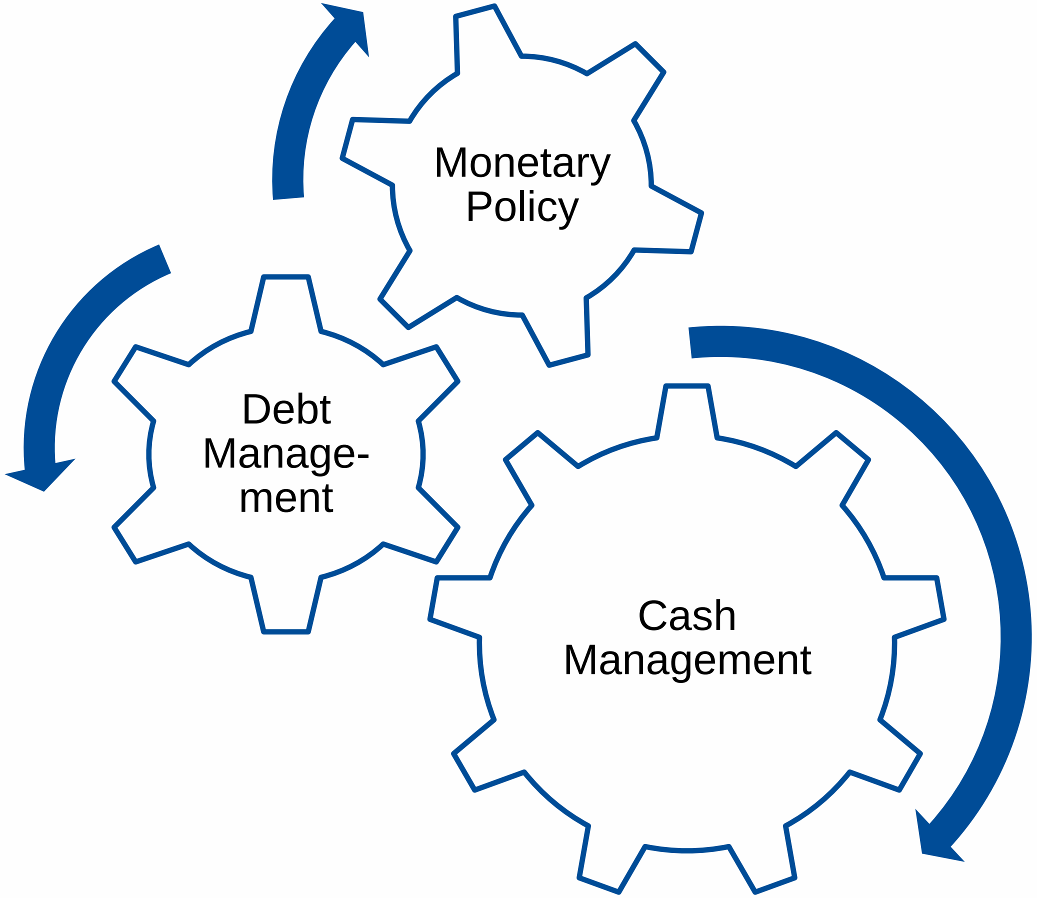
Key Linkages

Debt Management

- Strategic and operational interaction
- Debt strategy, annual borrowing plan and in-year
- Requires integrated decision making with debt managers

Monetary Policy

- Cash management transactions affect banking sector liquidity
- Requires good understanding with Central Bank
- Central role of money market – and common objectives



Cash and Debt: Making the Choice

Financing government's gross borrowing requirement **implies choices** between instruments: internal or external, short or long-term, bonds or bills, fixed or floating rate, retail or wholesale, etc

Choices made in context of debt management strategy, Depend on market appetite, market volatility, interest rate prospects

- **Demand:** intermediaries' and investors' requirements varying with market and their cash flow
- **Supply:** government's financing choices made in the context of the profile of financing flows
- **Price:** represented by the yield curve

In making these decisions [debt/cash] managers must

- Juggle the full range of instruments in deciding issuance
- Trading-off the demands of the strategy, the demands of the market, <u>and the government's need for cash</u>, taking account of price

Debt Management: the Coordination Cycle

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Preparation of the Debt Management Strategy

- Ensure sufficient stock of Tbills
- Building a cash buffer,
- Money market development

Preparation of Annual Financing Plan

- Reflecting in-year profile of cash flows
- Timing of redemptions

The Monthly / Quarterly Issuance Plan

- Retaining some flexibility to respond to events (eg in the issue of Tbills)

Short-term Responses to Market Volatility

- Tbills and Tbonds can work together to meet the borrowing requirement and smooth cash flows

Interaction with Central Bank

- Operational understanding important to both debt and cash managers
- Bank may also be fiscal agent
- Other cash management requirements
  - Monitoring TSA
  - Investing surpluses

Operational Coordination

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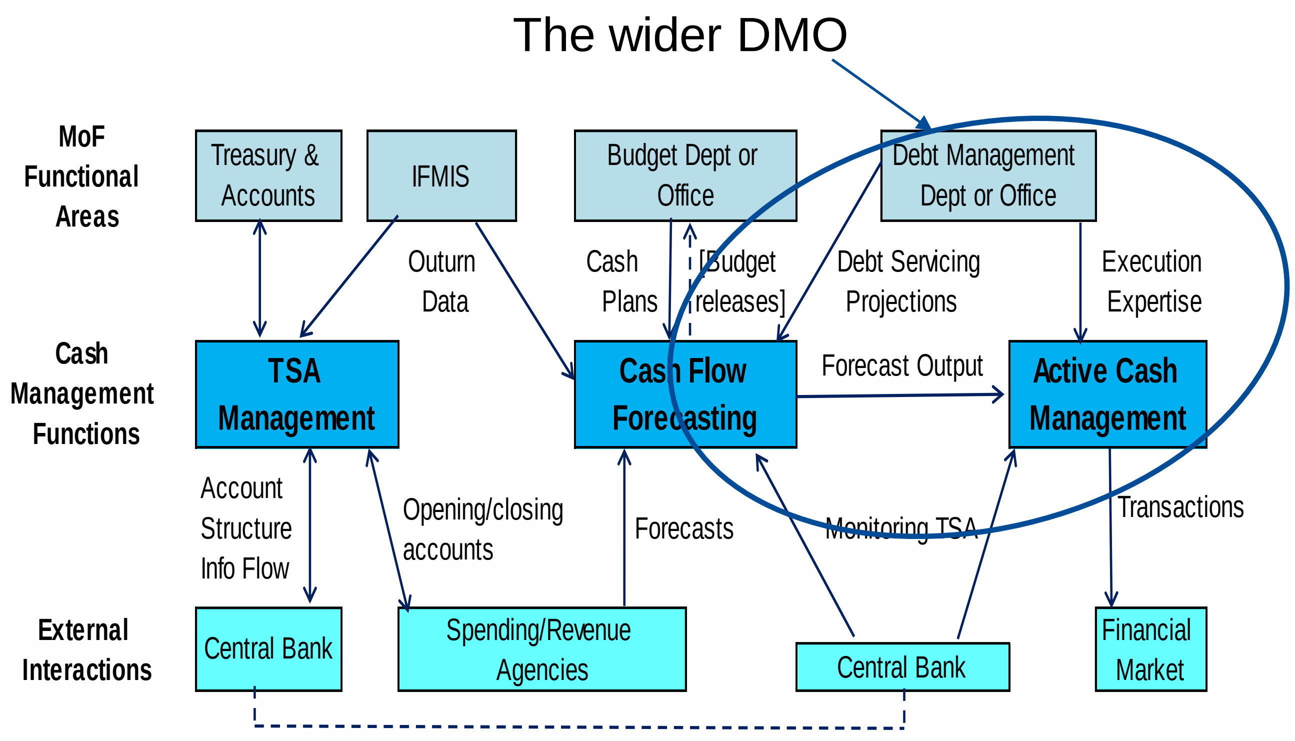
Other day-to-day coordination requirements include:

- Linkage of issuance dates with redemption dates
- Maturity dates chosen to avoid weeks, and especially days, of heavy cash outflow (e.g. salary payments): instead target days of cash inflow (the due date for tax payments)
- Debt managers can mitigate the cash management problems that potentially arise when large bonds come to maturity
- Debt managers can also correct repo market distortions or disruptions

In time…

- As interaction with the market develops, potentially greater benefits from integration of debt & cash functions
- Through active management of the short-term cash position, the combined function will be better placed to weaken the link between the timing of cash flows and bond issuance
  - Allows pattern of bond sales to be announced in advance
- In any event, front office should be integrated - to ensure government presents a consistent face to the market

Integrating Cash Management with Debt Management Functions



Separate Functions Require Coordination Structures

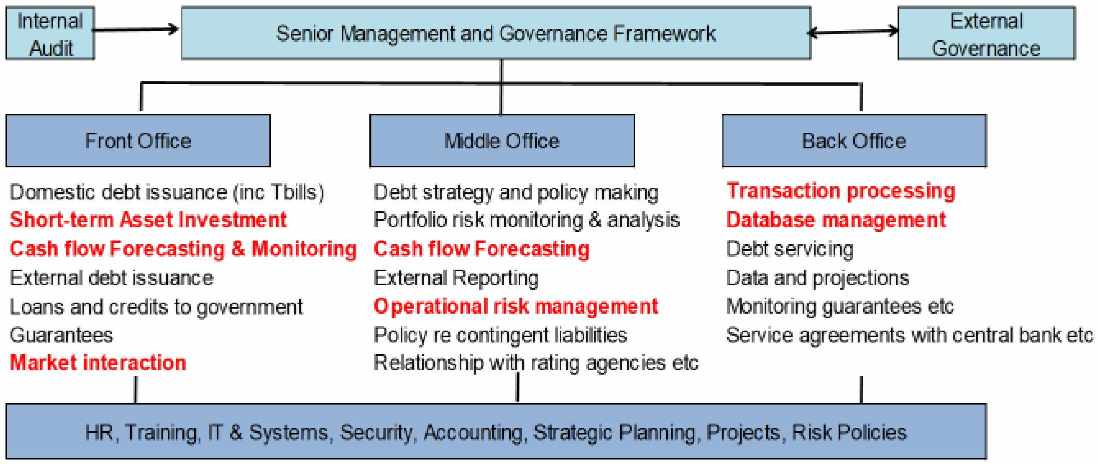
Cash Coordination Committee

- Useful and widely used coordination mechanism for short-term cash management decisions
- Meets weekly, chaired e.g. by Head Treasury
  - Including also budget division, macro-fiscal unit, debt managers, central bank, tax authorities
  - Delegated authority for decisions within agreed parameters
- Main responsibilities:
  - Review cash flow outturns, compare to forecasts
  - Review cash flow forecasts for the period ahead
  - Decide on action needed to ensure cash adequacy over the period ahead
- Supported by Cash Management Unit (CMU)
  - Responsible for forecast preparation, database, error analysis etc
  - Also preparation of scenarios and what-ifs
  - Policy recommendations (discussed with debt managers)

The same Front Office both Borrows & Lends

- The institutional, governance, and decision-making requirements that apply to the investment of cash surpluses are, in principle, no different from those that apply to other cash or debt management transactions

The Integrated DMU



- The investment of surpluses in some countries (inc some PEMPAL countries) lies with the treasury, reflecting its historical role as the (largely passive) cash manager
- It has survived the development of a modern debt management office with responsibility for both Tbond and Tbill issuance (Mexico is an example; in Chile, legacy legislation has left the investment of surpluses with the budget directorate)
- Separate responsibilities for investment and issuance risk confusing signals to the market (and unnecessary skill duplication)

- Investment of surplus cash falls naturally into the integrated debt office

The Role of the Money Market

Developed money market supports

- **Monetary policy** – greater reliance on market instruments, interest rate signals, improves transmission mechanism
- **Cash Management** – facilitates cash flow smoothing, lending & borrowing
- **Debt management**
  - Directly - facilitating issuance of Tbills, reducing risk of auction failure
  - Indirectly - helping intermediaries (primary dealers etc) fund positions
- **Wider market development**
  - Interbank market helps banks etc to manage their balance sheets flexibly
  - Prices complete short end of yield curve; facilitates pricing, risk management

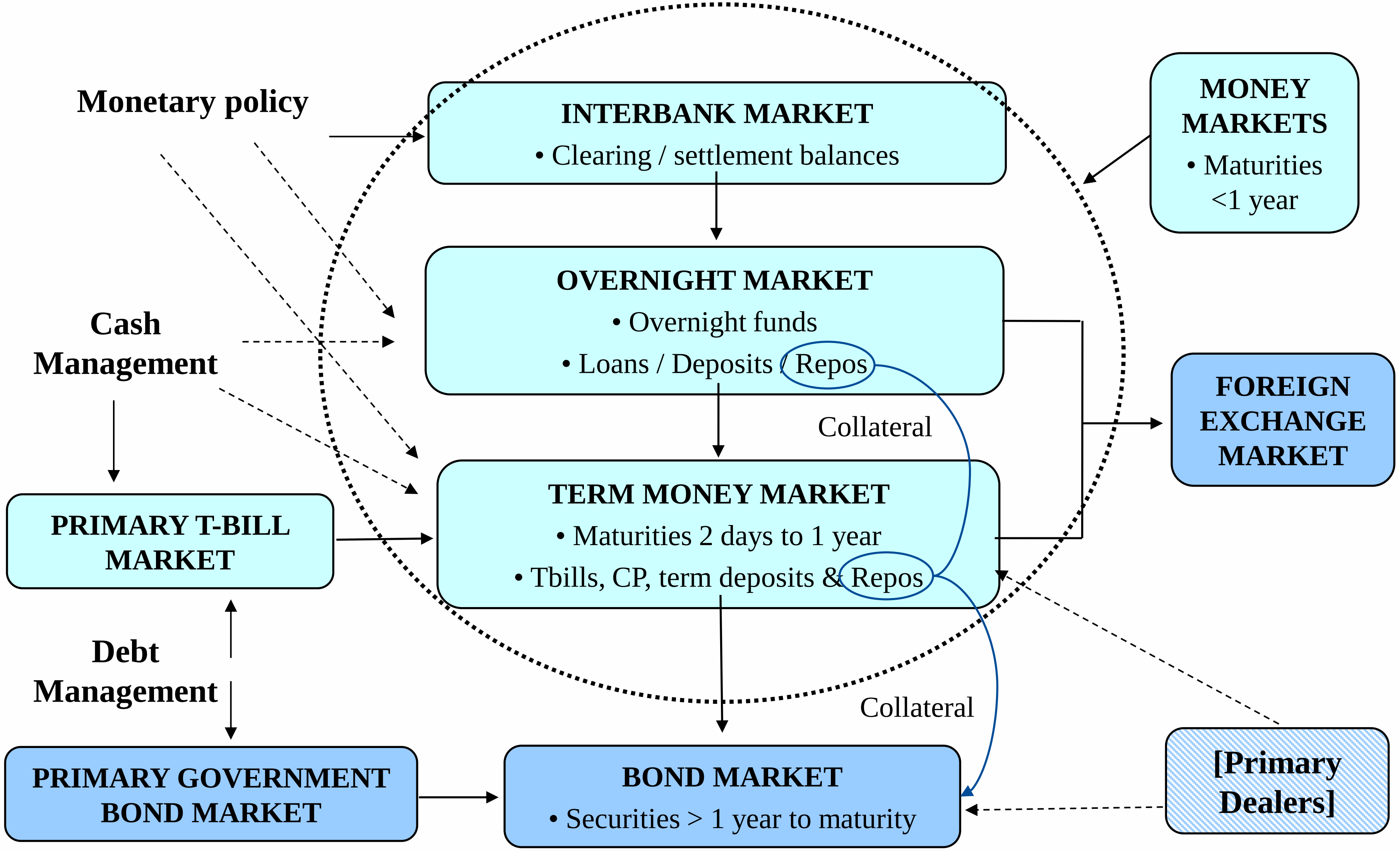
Requires

- Market based instruments for monetary policy
- Efficient inter-bank and repo markets
- Sound debt and cash management policies

Emphasises importance of:

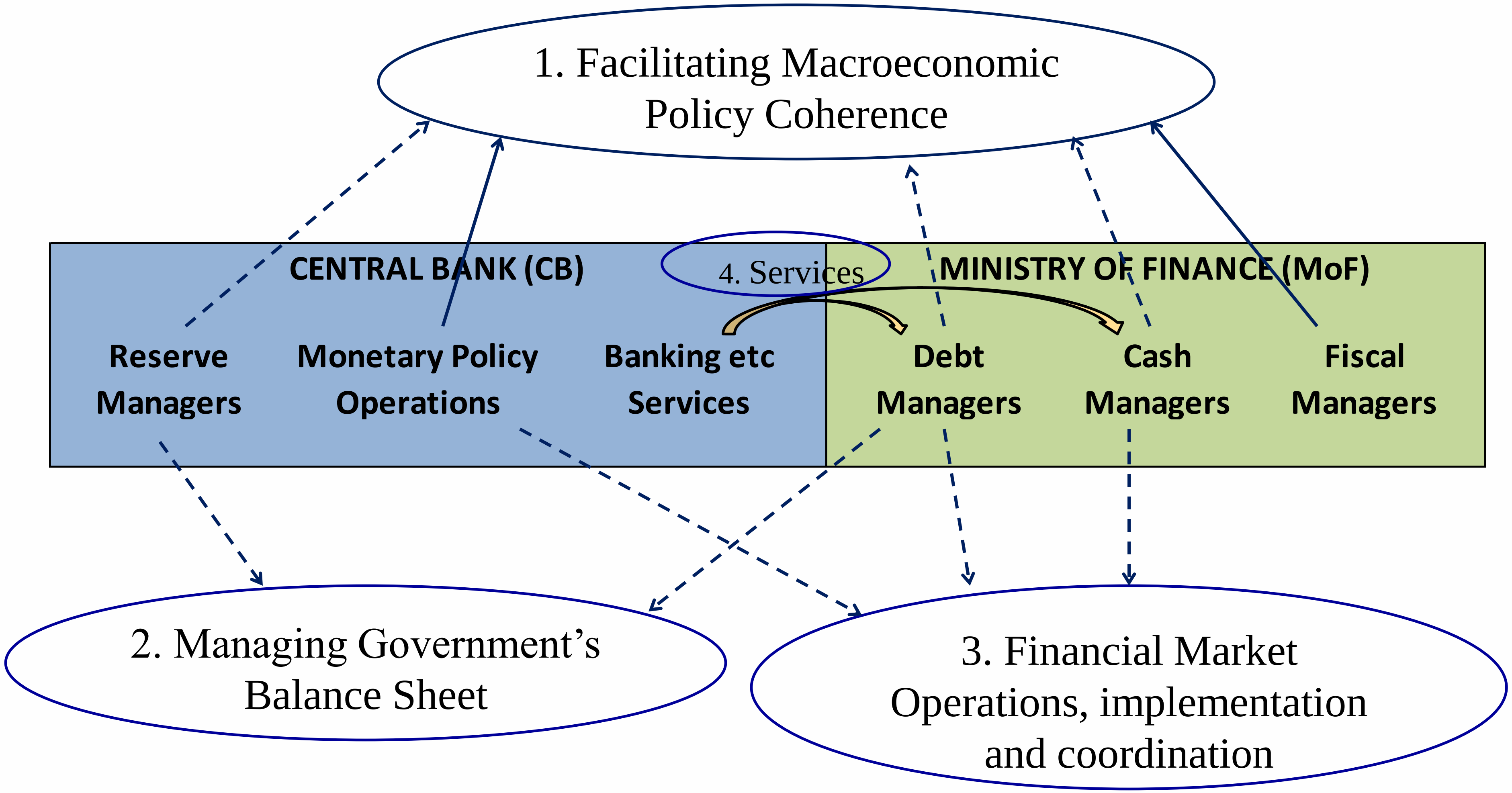
- Debt and cash managers working closely together
- Interaction between cash management policies and monetary policy

The Money Market and its Interactions



Developed money market important - as an objective in itself and through its links to other financial markets

Interaction with the Central Bank: an Overview



Active Cash Management and Monetary Policy

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- Liquidity of the domestic banking sector depends on:
  - Monetary policy operations of central bank - borrowing or lending to credit institutions, reserve requirements, deposit services, etc.
  - "Autonomous" Influences - demand for notes & coin by the public (predictable), net inflow of FX (depends on intervention policy) and changes in government deposits at the central bank (ie, changes in the balance of TSA)
- Less fluctuation in government cash flows across the TSA, implies less fluctuation in monetary conditions and banking liquidity (other factors being equal)
  - Less weight should be assigned to monetary operations to control liquidity
  - Active cash management facilitates the task of central banks

Assets	Liabilities
Refinancing facility for banks	Banks' current account deposits
Marginal lending to banks	Banks' required deposits
Net foreign Assets	Bank notes in circulation
Other (net)	Government deposits

Can be rearranged

Liquidity supply through monetary policy operations

Refinancing facility for banks
plus Marginal lending to banks
less Banks' required deposits

Equals "Autonomous" factors

Bank notes in circulation
plus Government deposits
less net foreign assets

Plus Other factors / Residual

Interaction with Central Bank

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Coordination requires some form of a Memorandum of Understanding

- The joint program for money market development
- Respective operations, whether investments, Tbill issues, or OMOs
- Ideally, for mopping cash, CB uses Tbills not its own securities
- The times of day for operations and the timing and forms of announcements
- Information exchanges. The central bank must also know the parameters of expected operations in the money market, for example, the target end-of-day balance. CB can usefully be member/observer of CCC
- Clarify respective responsibilities in Service Level Agreement (SLA)

Cash held at the central bank should be remunerated at market rates without risk ("market-related risk-free interest rate")

Consider deposits (term and remunerated) at the central bank only if there is a monetary imbalance, i.e., when it is a response to a structural problem

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Active Cash Management

What it means in practice

Using the Forecast

Prerequisites

- Instruments
- Policy & Legal Framework
- Coordination Framework
- **Building Capacity**
- [Cash Buffer]

Establishing the Policy

- Agree the objective; scope the benefits
- High level agreement with Central Bank
- Identify risks and mitigation factors
- Establish governance framework, including decision-making process
- Agree performance indicators

Steps in Establishing the Capability

1. Identify the target buffer
2. Research the instrument, maturity and platform options
3. Agree on internal responsibilities
4. Establish CCC or similar
5. Define transaction processes and timeline
6. Discuss with central bank, CSD (and regulator?)
7. Agree collateral requirements and management
8. Identify new IT requirements (Δ transactions)
9. ConDoc to explain intentions to the market
10. Prepare contractual documents
11. Document internal procedures
12. Test IT, publish operational notice

Internal Procedures

- Procedures, incorporating controls, are an essential part of risk management framework
  - To provide a check-list for staff member or manager to ensure that all necessary actions underpinning an activity have been executed and the relevant controls evidenced, i.e.
    - Approvals
    - Authorisations
    - Verifications
    - Reconciliations
    - Segregation of duties
  - To ensure process can be fully and safely discharged even in absence of staff member
  - To provide basis for risk manager, auditor or compliance officer to confirm that actions are in accordance with agreed procedures; and embedded controls are effective, efficient and proportionate

- Need to distinguish between
  - Management decisions (eg of Cash Coordination Committee)
  - Front, middle and back office functions
  - Interaction with others (Central bank, Stock exchange, CSD etc) – and market (inc auction platform etc)
- Time-line also of the essence

Some Conclusions

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More Active Cash Management brings benefits

- Allows lower average cash buffer – reducing costs
- Reduced volatility of banking sector flows, supporting monetary policy
- Supports money market development and adds to financial resilience

Maintaining a passive approach brings none of these benefits

- Extra costs of maintaining a large buffer (financed by Tbonds) likely to be much greater than costs of issuing of Tbills - the more so if CB does not remunerate the buffer
- Continued market uncertainty about respective roles of CB and Treasury
- Banking sector continues to see the Treasury as a problem, not a solution

Some preparation and thought is needed

- Developing forecasts, identifying target buffer
- Instituting coordination mechanisms – with CB & debt managers – and working with the market
- Establishing policy and legal framework, identifying risks, building capacity

Develop over time as capacity, competence and market liquidity grows

THANK YOU!

Annex: Repo

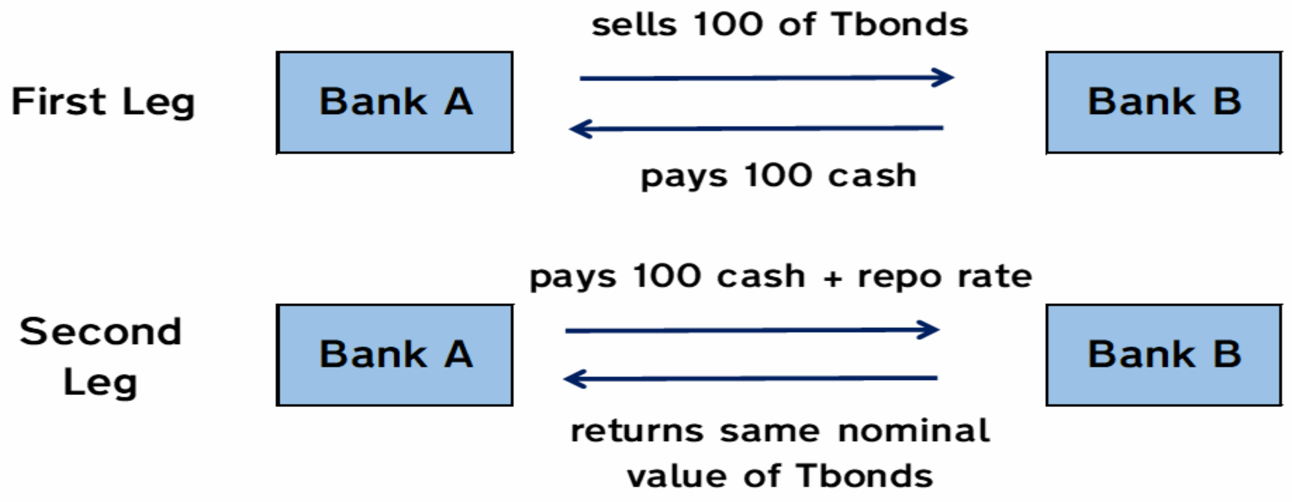
A repo (or “repurchase”; or sometimes “sale and repurchase”) transaction is a purchase or sale of securities with a simultaneous agreement to reverse the transaction at an agreed date and price in the future

The interest rate implied by the difference between the sale and the “repurchase” price is the repo rate

In economic terms it is the same as collateralised lending/borrowing, but

- Unlike a collateralised loan it legally involves the transfer of an asset (which gives the lender better access to the collateral in the event of default)
- It is more flexible: it maintains liquidity – the loan is effectively securitised and can be on-sold – and it allows for margining

Classic Repo



- Repo may be with "general" collateral or a specific bond (eg needed to cover a short – the repo rate will usually be less)
- If initial margin ("haircut") is required, collateral of 100/(1-V) will be paid – where V is the margin
- If a coupon is paid during the term of the repo, it will be handed over to the seller (the value of the collateral may need to be restored as the accrued price falls). Markets often avoid collateral near a coupon date for this reason
- Interest may be fixed or variable rate

Why Repo is Important

Money Market

- Reduces credit concerns; helps to develop interbank market
- Flexibility => ideal instrument for monetary policy operations

Supports debt & cash management

- **Supports debt and money market development**
  - Ability of lender to use collateral promotes activity & liquidity
  - Facilitates short-selling – the security sold short can be repoed in as collateral
- **Promotes arbitrage between debt and money markets**
  - Creates a more continuous yield curve
- **Provides mechanism for financing positions**
  - Primary dealers can repo out securities to finance purchases of same securities
  - Supports active risk management by participants
  - Reduces risk of auction failure
- **For cash managers**
  - Access to domestic short-term funding
  - Secure investment of excess cash balances