AFE—Workshop on understanding and improving the link between fiscal and monetary policy

PRELIMINARY AGENDA

Workshop title: Regional Workshop on understanding and improving the link between fiscal and monetary policy:
Workshop dates: April 25-28, 2016
Location: Zanzibar
Venue: Hyatt Stone town
Participants: TBC Burundi (4), Eritrea (4), Ethiopia (4), Kenya (4), Malawi (4), Rwanda (4), Tanzania (4), and Uganda (4)
Resource persons: Alain Vandepeute (workshop moderator and speaker), Herve Joly, Thordur Jonasson, Paul Seeds (speakers).

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<td>8.30-9.15</td>
<td>Registration</td>
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<td>Opening of the workshop</td>
<td>By Alain Vandepeute</td>
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<td>9.45-11.00</td>
<td>Session 1: Monetary policy and fiscal policy a macro perspective</td>
<td>By Herve Joly</td>
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<td>11.00 – 11.30</td>
<td>Coffee/tea break and photo session</td>
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<td>Session 3: Country experiences on issues and challenges arising from the link between fiscal and monetary policy.</td>
<td>By member countries</td>
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<td>By member countries</td>
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<td>Closing remarks.</td>
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### Day 2: Tuesday, April 26 Central Bank Operations-Liquidity Forecasting and Management

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<td>By Alain Vandepeute</td>
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<td>9.00-10.30</td>
<td>Session 5: Liquidity forecasting and liquidity management: a monetary policy approach including the Memorandum of Understanding between the Central Bank and Government</td>
<td>By Alain Vandepeute</td>
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<td>10.30-10.45</td>
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<td>Session 6: Treasury single account and cash management: a fiscal approach</td>
<td>By Paul Seeds</td>
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<td>13.30-15.30</td>
<td>Session 7: Country presentations and discussion on integrating Government cash management into Central Bank Liquidity management</td>
<td>By member countries</td>
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<td>15.45-17.00</td>
<td>Session 8: Country presentations and discussion on integrating Government cash management into Central Bank Liquidity management</td>
<td>By member countries</td>
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<td>17.00-17.15</td>
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### Day 3: Wednesday, April 27: Development of financial markets

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<td>Opening</td>
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<td>9.00-10.15</td>
<td>Session 9: Money market and Government debt market: Yield curve</td>
<td>By Thordur Jonasson</td>
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<td>Session 10: Coordination of Debt and Cash Management and Monetary Policy Operations</td>
<td>By Thordur Jonasson</td>
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<td>12.30-13.30</td>
<td>Lunch Break</td>
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<tr>
<td>13.30-15.00</td>
<td>Session 11: Government debt market: Countries experiences</td>
<td>By member countries</td>
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<tr>
<td>15.00-15.30</td>
<td>Tea Break</td>
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<tr>
<td>15.30-17.00</td>
<td>Session 12: Government debt market: Countries experiences</td>
<td>By member countries</td>
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<td>17.00 – 17.15</td>
<td>Closing remarks</td>
<td>By Alain Vandepeute</td>
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### Day 4: Thursday, April 28

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<td>8.45-9.00</td>
<td>Opening remarks</td>
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<tr>
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<td>9.00-10.30</td>
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<td>Important features of the primary market-MTDS</td>
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<td>Coffee/tea Break</td>
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<td>10.45-12.15</td>
<td>14</td>
<td>Fostering the development of the secondary market</td>
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<tr>
<td>12.15-13.30</td>
<td>Lunch Break</td>
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<tr>
<td>13.30-15.15</td>
<td>Wrap-up.</td>
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Outline

I. Overview

II. Stabilization Policy

III. Fiscal Rules

IV. Growth and Redistribution
I. Overview

• What is Fiscal Policy?
  • The term fiscal policy refers to the use of public finance instruments to influence the working of the economic system to maximize economic welfare.
  • The effects of fiscal policy reflect not only the impact of the fiscal balance, but also various elements of taxation, spending, and budget financing ...
  • ... by all levels of the government

Objectives of Fiscal Policy

• Fiscal policy can serve many objectives:
  • To achieve internal balance
    ▪ Adjusting aggregate demand to available supply
    ▪ Achieving low inflation, potential output
  • To promote external balance
    ▪ Sustainable current account balance
    ▪ Reducing risk of external crisis
  • To promote economic growth
    ▪ Public infrastructure, education
  • To redistribute income
II. Stabilization Policy

• Fiscal policy can affect aggregate demand

\[ Y^d = C + I + G + (X - M) \]

• Directly, through G

• Indirectly, through the impact of fiscal policy on private consumption or investment

• Transmission channels
  • Disposable income
  • Interest rates

COUNTERCYCLICAL FISCAL POLICY CAN BE USED TO STABILIZE THE ECONOMY

• In a recession, the government can stimulate the economy by increasing spending and/or lowering taxes

• In an expansion, the government can limit overheating by reducing spending and/or increasing taxes
AUTOMATIC STABILIZERS

- Revenue or expenditure provisions that have counter-cyclical impact without need for policy intervention
  - Protect against shocks
  - Dampen business cycles
- Examples
  - In low-income countries, stabilizers mostly on the revenue side (e.g., lower income leads to lower tax revenue)
  - In advanced economies, stabilizers also on the expenditure side (e.g., unemployment insurance)

FISCAL MULTIPLIERS

A multiplier measures the impact of a given policy on output
- Multiplier of government spending: by how many $ does output increase if government spending increases by $1
- Multipliers capture all direct and indirect impacts of policy (can be different than one)
- The larger the multipliers, the more effective fiscal policy would be in stabilizing the economy
- Can distinguish short-term and long-term multipliers
FACTORS AFFECTING THE SIZE OF FISCAL MULTIPLIERS

- Is additional income is spent or saved?
- Is additional spending mostly in domestic or imported goods?
- Does the increased fiscal deficit reduce the amount (and/or increase the cost) of financing available to the private sector (crowding out)?
- Do the fiscal measures increase distortions and affect economic efficiency?

Size of multiplier varies across measures, countries, and circumstances.

Good Practice in Design of Fiscal stimulus

Timely:
- Increasing government expenditures cannot always be done quick enough to dampen a recession.
- A reason why tax reductions are often preferred to increase in government expenditures.

Targeted:
- On the more efficient projects (the one that will boost the activity on the short term the most).
- In case of tax cut, should be targeted on the people who are more likely to spend it sooner and in large part (financially constraint households).

Temporary:
- To avoid permanent budget deficit.
III. Fiscal Rules

- A fiscal policy rule is a permanent constraint on fiscal policy, expressed in terms of a numerical indicator of fiscal performance, such as:
  - Government budget deficit
  - Expenditure growth
  - Government debt
- Such constraints are usually explicitly written in laws, or constitutions, or in international treaties

Pros and Cons of Fiscal Rules

- Address politicians’ preference for the present and possible time consistency problems
- Fiscal rules can help build reputation and credibility. Market discipline might be too much, too late
- May be needed in a monetary union or in a federal system
  BUT
- Reduces flexibility to pursue macro stabilization and other conventional fiscal policy goals
- Governments can commit credibly to fiscal discipline without permanent rules, reputation is what counts
- Can induce non-transparent behavior (creative accounting)
Fiscal Rules in the East African Community

- EAMU protocol introduces convergence criteria expected to be met from 2021, 3 years before introduction of single currency.
- Purpose of the convergence process is to ensure that countries enter the monetary union without major disequilibria that could threaten its stability.
- Two of the convergence criteria are fiscal rules:
  - Fiscal deficit should be below 3 percent of GDP
  - Debt to GDP ratio should be below 50 percent in present value terms
Debt Sustainability

- Rules, like the ones in the EAC, often try to ensure debt sustainability.
- Debt sustainability: can a country’s debt be serviced without an unrealistically large future correction in the balance of income and expenditure?
- Assessing debt sustainability is complex and involves a lot of judgment:
  - Look at a range of debt ratios, both current and projected
  - The dynamics of public debt to GDP ratio depends on the difference between interest rate and growth rate, and level of deficit.
  - The composition of debt matters a lot too (e.g., external vs. domestic, fixed vs. floating rate)

IV. Growth and Redistribution

- Taxes and spending affect not only demand but also aggregate supply through various channels
- Supply-side effects have longer-term consequences compared to demand effects
- Government also provides public goods
- Government plays an important redistribution role
- Government intervention should generally respond to a market failure (i.e., the inability of private sector to provide this good or service adequately)
Creating Fiscal Space

To perform all these important roles, governments need first to build fiscal space
... making budgetary room for specific purposes
... without compromising the sustainability of public debt

Different ways to create fiscal space:
• Increase tax revenue
• Cut low-priority expenditures
• Borrowing from domestic or external sources, only for investment projects with high return
• Joint ventures with private sector (e.g., highways)

Monetary Policy

Regional Workshop
Zanzibar
April 25, 2016
I. Goals, Instruments, and Targets
   A. Goals or Objectives
   B. Instruments
   C. Targets
II. Monetary Transmission Mechanism
III. Monetary Frameworks
Monetary policy objectives

• It is generally admitted that price stability, or low and stable inflation, should be the main objective, reflecting the view that money is “neutral” in the long term (i.e., does not affect real variables)

• ...but other objectives sometime added:
  • Contribute to economic growth/high employment
  • Financial stability
  • Exchange rate stability

Direct and Indirect Instruments

**Direct instruments** (e.g., Ethiopia)
• For instance, directed lending, ceilings on interest rates
• Easy to implement and explain; no need for developed financial markets
  BUT
  • Development of financial markets hampered

**Indirect instruments** (other AFE countries)
• For instance, reserve requirements, OMOs
• Offer greater flexibility to monetary authorities, are often more effective
• Foster market development
  BUT
  • Some require minimum development of financial markets
From instruments to goals: the need for targets

- The central bank cannot directly affect policy goals (e.g., inflation)
- There are long and unpredictable lags in the monetary transmission mechanism.
- Need targets for things that are more directly within the control of central bank

Operating targets

- A variable more directly within the control of the central bank
  - Reserve money
    - The central bank can control its own balance sheet.
  - Short-term interest rates
    - Overnight interest rate/7 day interest rate (Uganda)
- The central bank can use policy instruments to achieve a pre-specified value of its operating target
**Intermediate targets**

- Between the operating target and the policy goal
- Characteristics
  - Must be consistent with monetary policy goals.
  - Can be influenced by the central bank.
  - Can be accurately measured.
  - Are available on a timely basis.
- Examples
  - Money stock
  - Outstanding credit
  - Long-term interest rates

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**Targets and objectives in AFE countries**

- **Tanzania, Rwanda and Malawi**: Reserve money growth is the operating target, and growth in M2 (Broad Money) is the intermediate target.
- **Uganda and Kenya**: Interest rate is the operating target. Intermediate target is the Inflation Forecast. Monetary policy instruments include Open Market Operations (Repos including Reverse Repos, and Term Auction Deposits), Cash Reserve Ratio, and Foreign Exchange Market operations.
- **Primary objective**: Maintaining domestic price stability.
- Other secondary objectives exist:
  - NBR: achieving and maintaining exchange stability, and having a sound and vibrant financial system to encourage and promote sustainable economic development.
  - BoU: Real output to stay as close as possible to the economy’s potential level.
  - CBK: “the Bank shall foster the liquidity, solvency, and proper functioning of a stable market-based financial system”
  - The Reserve Bank of Malawi formulates and implements monetary policy with the twin objectives of attaining price stability and financial...
II. Monetary transmission mechanism

A monetary policy tightening leads to:

- An increase in short and longer-term interest rates
- An increase in real interest rates
- Firms cutting back on investment expenditures; Households cutting back on consumption
- Aggregate output and employment fall
- Downward pressure on prices
Exchange rate channel

- A monetary policy tightening increases domestic interest rates:
  - Capital flows into the country, and the exchange rate appreciates
  - Net exports fall
  - Domestic output and employment fall; there is downward pressure on prices. And imported prices decrease

Asset price channel

- A monetary policy tightening increases domestic interest rates:
  - Affects the price of assets (by decreasing the present value of future earnings from these assets).
  - Increases the cost of financing, and therefore investment.
  - Reduces net wealth, and with it consumption.
  - Affects output negatively and employment.
III. Monetary policy frameworks

- A nominal anchor is an intermediate target that helps to pin down inflationary expectations.
- The choice of an intermediate target defines the monetary policy framework:
  - Exchange rate anchor
  - Monetary aggregate anchor
  - Inflation targeting
- Many countries are moving toward more flexible frameworks that are forward-looking.
- A number of countries have adopted some form of inflation targeting (e.g., Uganda, Kenya)

The Impossible Trinity

- It is not possible to have all three of the following at the same time:
  - Perfect capital mobility
  - Exchange rate stability
  - Monetary policy autonomy
- The monetary authority must choose between:
  - Fixing the exchange rate, but then monetary policy is constrained by the defense of the peg
  - Having another nominal anchor and using monetary policy to target domestic objectives
Monetary aggregate target (1)

- Flexible exchange rate regime and no fiscal dominance
- Quantity Theory of Money (QTM): $MV = PY$
  - If forecasts for inflation and real GDP are available and if velocity is predictable, a target for money growth can be easily set.
- But owing to financial innovation, velocity is not easily predictable.
  - Loss of predictive power of QTM
  - Difficult to link changes in monetary aggregates to inflation rates

Monetary aggregate target (2)

- More problems ...
  - Which monetary aggregate to target?
  - Trying to set money growth in the presence of money demand shocks introduces interest rate volatility.
  - Difficult to explain to the public.
- Regimes targeting monetary aggregates progressively abandoned since the 1980s
- Move to interest-based framework
Inflation targeting

- Central bank has explicit mandate to pursue price stability as the primary objective of monetary policy.
- Quantitative inflation targets are set.
- Policy decisions are based on a forward-looking assessment of inflationary pressures.
- Generally associated with interest rate instruments
- Easy to understand, and therefore facilitates anchoring of expectations
- Requires good forecasting and policy analysis capacity

Uganda: The Move to Interest-Based Policy

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<tr>
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<th>Spread (7-day interbank - policy rate)</th>
<th>CBR</th>
<th>CBR Lower Bound</th>
<th>CBR Upper Bound</th>
<th>7-day interbank rate</th>
<th>7-day Repo rate</th>
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Hybrid frameworks

• Many countries have no explicitly stated nominal anchor, but rather monitor various indicators in conducting monetary policy ("eclectic" approach)
  • United States
  • Japan
  • EMU
  • India

• Some central banks are not classified as *de jure* inflation targeting, though might be considered *de facto* inflation targeting central banks.
I. Different Objectives...

• Fiscal policy tries:
  • To influence aggregate demand (e.g., to stimulate or cool down the economy)
  • By doing this, it affects internal and external balance.

• Monetary policy generally tries:
  • To achieve price stability or low/stable inflation. This main objective may sometimes be accompanied by other objectives (e.g., full employment, financial stability)
...but lots of spillovers...

A few examples:

• Fiscal policy can affect prices/inflation
  • Closing the output gap contributes to low and stable inflation.
  • But conversely efforts to stimulate the economy through excessive fiscal stimulus can increase inflation, affect external accounts and the exchange rate.
• And monetary policy can affect fiscal prospects.
  • Monetary policy tightening can reduce growth and government revenue.
  • Monetary policy tightening can affect the cost of financing for the government (through higher interest rates).

...requiring coordination on the policy mix

• Policy mix = combination of fiscal policy and monetary policy.
• Depending on circumstances, some combinations are better than others. For instance:
  • A very loose fiscal policy aimed at stimulating the economy may raise inflation prospects and require a tight monetary policy. The latter in turn could have a number of undesirable consequences (exchange rate appreciation, higher cost of financing for all agents, difficulties in the financial system).
  • The same macroeconomic outcome (in terms of growth) could be obtained through less loose fiscal policy and less tight monetary policy and fewer undesirable outcomes
• Getting the policy mix right requires coordination while respecting each institution’s independence and mandates. At a minimum, need to exchange information and analyses
II. Fiscal Dominance

• Situation where the government forces the central bank to do things which are inconsistent with its price stability mandate

• Monetary financing of the deficit is most obvious example, but there are other forms (e.g., force central bank to provide subsidized funds to priority sectors)

• Fiscal dominance affects monetary policy effectiveness by reducing its ability to focus on its primary objective.

• For instance, monetary financing may lead to excessive money creation, with ultimately impact on inflation

Fiscal Dominance and Hyperinflation in Zimbabwe

• Period of sharp output decline started in 1999 (Tobacco, Maize) – Simultaneously significant increase in Government Spending in the Defense sector financed through Monetization as tax base insufficient

• Wave of emigration due to the domestic economic situation and food shortage further eroded the tax base -> Sharp increase in Monetization from

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<th>1980</th>
<th>2008</th>
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<tr>
<td>Inflation (Annual)</td>
<td>5.4%</td>
<td>231 000 000%</td>
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<tr>
<td>Inflation (Monthly)</td>
<td>0.5%</td>
<td>2 600%</td>
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<tr>
<td>Largest Denomination</td>
<td>Z$20</td>
<td>Z$100 000 000 000 000 000 000 (issued in 2009)</td>
</tr>
<tr>
<td>Exchange rate Z$/USD</td>
<td>0.647</td>
<td>Z$4 000 000  (Dec)</td>
</tr>
<tr>
<td>Real GDP Growth (y/y basis)</td>
<td>14.6%</td>
<td>-17%</td>
</tr>
<tr>
<td>External Debt/GDP</td>
<td>11%</td>
<td>119%</td>
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• In 2008, GDP/capita declined to US$136 back to average 1954 GDP/capita level, eliminating gains of past 53 years
How to address fiscal dominance?

- Strengthen central banks independence.
- Develop domestic financial markets in which governments can fund their own operations.
- Large budget deficits create pressure for the central bank to confront the private sector with a high cost of borrowing or provide excess liquidity to the economy.

→ Fiscal discipline is critical

III. Other Coordination issues (i)

- Monetary policy, whether it targets prices or quantities, requires good liquidity forecasting/management. A major factor affecting banks’ liquidity is government operations.
- Good cash management at Ministry of Finance and close coordination with Central Bank (CB) is required for CB to be able to forecast liquidity changes.
- Existence of CB advances to the government, generally to smooth out revenue fluctuations. Complicates liquidity management (as the government can inject liquidity at short notice into the system).
- Aid inflows to the government also raise issues for monetary policy. Large source of liquidity creation, that needs to be mopped up.
- Good debt management help build a yield curve and improve the transmission mechanism.
Treasury securities often play an important role in monetary operations. They may be issued to absorb liquidity, play a critical role as collateral for liquidity operations.

- A well functioning government securities market is important for monetary operations. It also reduces the risk of fiscal dominance. Developing it is responsibility of government.

- Conversely, the design of monetary operations can affect the development of the securities market.

Monetary operations may have a large cost. For instance, the CB may need to issue paper to sterilize large foreign exchange inflows.

- Coordination is needed to agree on who is going to bear the cost, and how. In the absence of coordination, CB may run a sub-optimal policy because it cannot handle the cost.
The Case of Tanzania

- The conduct of monetary policy is complicated by a number of factors related to government operations:
  - Foreign donors’ funding of the budget and development projects
  - Government access to central bank advances
  - Government accounts in the banking system, which are volatile, carry high reserve requirement, and require banks to hold large precautionary reserves
  - Weak government liquidity management and budget planning.
  - Shallow financial markets
  - Together with money targeting regime, leads to high interest rate volatility

Interest rate volatility in Tanzania
Monetary Policy Transmission in Tanzania and Other Countries

Figure 1. Pass-through Coefficients (2012-15)

Stage 1: From Overnight to Tbill Interest Rates

Stage 2: From Tbill to Market Lending Interest Rates

Additional slides
**FISCAL POLICY AND EXTERNAL BALANCE**

Fiscal policy has an impact on balance of payments situation
- The identity

\[ \text{CAB} = (S - I) + (T - G) \]

implies that external balance equals the sum of the private sector savings-investment balance and the government budget balance

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**FISCAL POLICY AND EXCHANGE RATE REGIME**

A fiscal stimulus increases the need for financing, raising domestic interest rates, increasing capital inflows and leading to appreciation pressures

Under a fixed exchange rate regime:
- To keep the exchange rate fixed, the Central Bank must increase money supply/loosen monetary policy, thereby reinforcing initial fiscal stimulus
  - Fiscal stimulus is more powerful under fixed exchange rates

Under a flexible exchange rate:
- Appreciation reduces net exports, aggregate demand, and interest rates
  - Fiscal stimulus is ineffective with perfect capital mobility
Liquidity Forecasting provides short horizon inputs for Liquidity Management Framework

- Three components:
  - Tracking day-to-day changes in central bank’s balance sheet and currency in circulation
  - Forecasting future changes in balance sheet and currency in circulation
  - Forecasting changes in demand for bank reserves
Goals of Liquidity Forecasting

• Overall objective: Provide quantitative guidance for the appropriate level and direction of monetary operations

• Components:
  • Track history of relevant series, including monetary operations.
  • Provide forecasts of exogenous liquidity, at the frequency and horizon needed
  • Track errors in forecasting in order to refine forecasting framework

Why is Liquidity Forecasting Important?

• Forecasts form the basis for liquidity management and decisions on monetary operations. Effective use of OMO instruments

• Maintain stable liquidity conditions of the money market, smooth short-term fluctuations and initiate an interest rate mechanism.
Interest rate/Reserve Money does it matter for liquidity forecasting and management?

• Obvious for interest rate as an operational target

• International trend for liquidity management in reserve money targeting system for a system more toward market-based system
  
  ▪ To allow more room for interest rates
  ▪ For Interbank (money) market development
  ▪ Interest rate transmission mechanism; benchmark-yield curve; and control on inflation

RM target and actual (red line)
Evolution of Excess Reserve

The overnight interbank WAR is on a downward movement as the level of banks' excess reserves at the BoT declined.

Evolution of Excess Reserve and Overnight Interest rate

The overnight interbank WAR is on a downward movement as the level of banks' excess reserves at the BoT declined.
Liquidity management

Meaning management of Commercial banks reserve

- Bank reserves held to fulfill reserve requirements and meet settlement obligations
- Bank reserves = required reserves + excess reserves
- Commercial banks balances in the Central Bank

Excess Reserves

- All deviations from required reserves (including negative)
- Used for payment purposes mainly.
- The demand is motivated by precaution/uncertainty, especially if no central bank credit facility.
- Determinants for demand:
  - Level and volatility of payments. Central bank sanctions on reserve requirement
  - Distribution of reserves, where interbank markets are not efficient. Segmented markets.
Liquidity management

• **Structural liquidity**
  • How to address it?
    • T-bills or Central Bank bills

• **Short term liquidity (maintenance period)**
  • Open Market Operations
  • Standing Facility
  • Demand for reserves

Addressing short term liquidity shocks

• **Shock expected**
  • Good liquidity forecasting
  • Open Market Operation to Neutralize shocks

• **Shock unexpected**
  • Standing facility
  • Fine tuning operation
OMO: Characteristics

- **Initiative of the Central Bank**
- **Frequency:** often weekly
- **Matching the maintenance period and be covered by the liquidity forecasting**
- **Maturity:** one-week injecting or absorbing
- **Instrument:** repo/reverse repo type transaction using collateral.
- **Auction** (multiple or single price auction)

Liquidity forecasting implies managing Central Bank Balance Sheet

- **Rearranging the central bank’s balance sheet to define the supply of bank reserves =**
  
  \[
  \text{Net foreign assets} \\
  \text{Net position of the government} \\
  \text{Net currency in circulation} \\
  \text{Net Central Bank operations} \\
  + \text{other items, net}
  \]

  \[
  \text{Autonomous Liquidity Position}
  \]

- **Comparing forecasted demand and projected supply arising from autonomous factors gives estimate of net supply / demand**
Bank Reserve Projections

<table>
<thead>
<tr>
<th></th>
<th>Currency in circulation</th>
<th>Net Foreign Assets</th>
<th>Net government position</th>
<th>Other items net</th>
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<th>Bank reserves</th>
<th>Reserve Requirement</th>
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Liquidity Forecasting Framework

- Forecasting horizon: at least reserve maintenance period, or intervention period
- Forecasting interval: aim for daily.
- Frequency of updates: daily or intraday.
- Rolling cycle incorporating new data.
- Assess forecasting errors.
Organization of Liquidity Forecasting

- Functions of a liquidity forecasting division:
  - Communicate with different information sources to ensure timely receipt of data
  - Supervise the consistency of forecasted components
  - Produce overall forecast
  - Assess forecasting errors

- Optimal size of LF division depends on complexity, amount, and availability of data

- Close liaison with liquidity management staff

Stylized Liquidity Forecasting Process

- MoF/CB's Fiscal Affairs Div. - Govt. cashflows, incl. borrowing and debt service (During day t)
- International Dept. - FX transactions, including intervention (During day t)
- Research and Accounts Depts. - Reserve, currency demand, CB's other transactions (During day t)

Liquidity Forecasting Division: Checks consistency of forecasts, produces overall liquidity forecast and tracks errors

At end of day t or beginning of day t + 1

Monetary Policy Operations Department
Determines and carries out monetary policy operations based on forecasts
Net Position of Government

- Often the most volatile component and most difficult to predict
- Institutional differences play an important role
  - Location of government deposits – does government have flexibility to place deposits with both central and commercial banks
  - Local governments and State Owned Enterprises
  - Sale of government securities on tap

Forecasting Government Position

- Continuous (day-to-day) communication with government is important. Cash flow projection committees recommended
- Decompose government transactions in the main categories and break the annual budget down into higher frequencies.
  - Adjust for seasonal and exceptional effects
  - Revise projections based on outcomes
# Importance of accurate day to day liquidity forecasting

<table>
<thead>
<tr>
<th>Date</th>
<th>Government Flow</th>
<th>Bank Reserves</th>
<th>Reserve Requirement</th>
<th>Projected Excess Reserves</th>
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**Cash Management and TSA**

Regional Workshop

Zanzibar

April 26, 2016
Outline

I. Setting the scene – Fiscal and Monetary Policy
II. Cash Management
III. Cash Forecasting
IV. Treasury Single Account (TSA)

Comparison Fiscal versus Monetary Policy

<table>
<thead>
<tr>
<th></th>
<th>Fiscal Policy</th>
<th>Monetary Policy</th>
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<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Use of Revenues, Borrowing, Expenditures and Investment to influence the economy</td>
<td>Process of controlling monetary supply and use of interest rates to meet objectives of sustainable growth and stability in economy</td>
</tr>
<tr>
<td><strong>Principle</strong></td>
<td>Stimulate aggregate demand to achieve economic stability, sustainable growth and full employment</td>
<td>Money supply and interest rates impacting demand, influencing inflation, exchange rates, growth and unemployment</td>
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<tr>
<td><strong>Policy Maker</strong></td>
<td>Government</td>
<td>Central Bank</td>
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<tr>
<td><strong>Policy Tools</strong></td>
<td>Revenue Mobilisation; Trade facilitation; Public Investment Plan (PIP) linked to Medium Term Expenditure Framework (MTEF), linked to Program Based Budgeting (PBB); Public Investment; Natural Resource Revenue Management</td>
<td>Interest rates; reserve requirements; currency peg; discount window; quantitative easing; open market operations; signalling</td>
</tr>
</tbody>
</table>
Fiscal Framework and Tools

• Macro-economic planning and Medium Term Fiscal Framework (MTFF)
• Public Investment Plan (PIP), based on sectoral priorities
• MTEF – Recurrent and Capital linked to PBB – Annual Budget Appropriation
• Planning deficit/borrowing requirements within policy
• Revenue mobilization, collection and remittance
• Budget Execution:
  ➢ Budget (and Cash) releases
  ➢ Commitment and expenditure control
  ➢ Payments, controls, accounting, financial management, reporting, compliance and standards
• Effective cash management critical to budget implementation

Budget implementation

• Effective budget implementation:
  ➢ Must be based on the priorities as stated in the appropriated budget.
  ➢ Requires spending agencies knowing in advance the funds that will be allocated to them and those funds released in good time
  ➢ Dependent on good management of financial resources:
    • Revenues are collected on time
    • Invoices and claims paid according to contract terms
• In case of cash constraints, the plan for releasing funds must be revised and communicated to agencies
  ➢ Not sufficient or transparent to delay or reduce releases.
Common problems

• Underperforming revenue collections, such as:
  ➢ Unrealistic revenue forecasts/assumptions
  ➢ Shortfalls in donor contributions
  ➢ Delays in asset sales or implementing new tax measures
  ➢ External shocks

• Increased demands for expenditures, including:
  ➢ Natural disasters/other demands for budget reallocations
  ➢ Crystallization of contingent liabilities (guarantees, compensation)
  ➢ Unbudgeted commitments
  ➢ External shocks (exchange rate, oil prices) etc.

• Insufficient contingency funding

As a consequence, the approved budget cannot be implemented

Cash Management
Cash Management – definitions

• Cash management is:
  ➢ 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

• Cash management is necessary because of mismatches between the timing of payments and availability of cash.

• In short, efficient cash management is having the right amount of money in the right place at the right time to meet the government’s obligations in the most cost-effective way. (Storkey, 2003)

What is Cash Management?

Cash management are the arrangements that ensure that the government has

right amount  in the right place  at the right time

in the most cost effective way, so that all payment obligations can be made in at the lowest possible cost and with a low risk.
Cash Management is NOT......

The equivalent to or a substitute for:

• Budget and accounting control - which is concerned with checking compliance to budget and accounting rules and policies.
  - CM purpose is to manage government cash in a cost effective way that minimizes risk.

• Budget implementation planning — which is interested in notional budget appropriations for procurement and commitment.
  - CM interest is on physical movement and settlement of cash.

• Debt management — focuses on long-term government debt, financing the primary deficit and debt servicing.
  - CM focus on managing the short-term cash and cash balances (government liquidity).

Objectives of Cash Management

Ensuring cash is available to meet commitments

Overriding objective – other objectives must be subject to it

• Economising on cash within budget
  - Saving costs
  - Reducing risk

• Managing efficiently the government’s aggregate short-term cash flow
  - Both cash deficits and cash surpluses

• In such as way as also to benefit
  - Debt management
  - Monetary policy
  - Financial markets (market liquidity and infrastructure)
Linkages to wider Objectives

**Fiscal**
- Cash is available to line ministries and spending agencies to meet the government’s obligations (and commitments) and execute their budgets in most efficient manner
- Cash balances are managed effectively so that the government does not have “surplus” cash on hand and the cost of government borrowing (if any) is minimized

**Monetary**
- Neutralize the impact on the domestic banking sector of the government’s cash flows, ensuring that
  - there are no large and unpredictable changes in liquidity in the banking system
  - monetary policy is not undermined

Fundamental Features of Modern CM

1. Centralization of government cash balances and establishment of a TSA structure
2. Coverage of the cash planning framework
3. Ability to make projections of short term cash inflows and outflows
4. An adequate transaction processing and accounting framework
5. Timely information sharing between the treasury, revenue collecting agencies and spending ministries
6. Clear institutional arrangements and responsibilities
### Desirable Features of Modern CM

1. Utilization of modern banking, payment, and settlement systems
2. Use of short term financial market instrument for cash management
3. Integration of debt and cash management


### Effective CM - Functions and Features

<table>
<thead>
<tr>
<th>Management of government cash receipts and payments:</th>
<th>Cash Flow Forecasting</th>
<th>Management of government cash balance</th>
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<tr>
<td>Transaction processing &amp; accounting framework</td>
<td>Information system and data sharing</td>
<td>Treasury Single Account (TSA)</td>
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<td>Pre-authorization / commitment system</td>
<td>Comprehensive Forecasting</td>
<td>Efficient banking, payment and settlement systems</td>
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<td>Forecasting capacity</td>
<td>Coordination with Debt management</td>
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<td>Institutional arrangements and responsibilities</td>
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Good practices: Managing receipts & payments

• Transaction processing with few handling steps – reliance on electronic transactions and centralized systems:
  ➢ A comprehensive and shared chart of accounts
  ➢ Processes to ensure the timely capture of all cash transactions:
    • Receipts – budgeted revenues, debt issuance proceeds, grants, extra-budgetary receipts etc.
    • Payments – recurrent and development expenditures, debt servicing etc.
  ➢ Accounting rules, policies and common system (IFMIS).

• Pre-authorization/commitment of expenditures
  ➢ Rules, policies and processes to record and manage procurement and resulting commitments.
  ➢ But..... better that future commitments do not reserve current cash balances.
  ➢ Maximising Revenue Collections and Timely Remittance

Good practices: Cash flow forecasting

• Information system and data sharing
  ➢ Collection and maintenance of data on: historical receipts and payments; and up-to-date future commitments on receipts and payments.
  ➢ Real time information on balances

• Internal systems for comprehensive forecasting
  ➢ Models for forecasting future payments and receipts.
  ➢ Coverage of all significant government-controlled balances.

• Forecasting capacity
  ➢ Accurate and frequent forecasts essential for central bank (to manage money market liquidity) and ministries of finance to track potential movements in cash balance and use cash management tools to smooth the plan.
Good practices: Managing the cash balance

• Treasury single account – the centrepiece for effective CM:
  ➢ Allows for netting and aggregation of balances reducing idle cash and excessive borrowing,
  ➢ Basis for consolidated cash flow forecasting & monitoring

• Efficient banking, payment and settlement systems.

• Coordination with debt management:
  ➢ To strengthen transparency and predictability of debt issuance – effective cash management enables advance announcements of borrowing plan.
  ➢ Allows debt decisions to be planned/taken in context of government cash flows and that management of government cash flows supports debt management.

Improving CM - Typical components

• Component 1: Treasury Single Account
  ➢ integration of government accounts
  ➢ sweeping of overnight balances into single account at the central bank

• Component 2: Forecasting capability
  ➢ the development of a capability within the ministry of finance to monitor and forecast flows in and out of the government – i.e. changes in TSA balances at the central bank

• Component 3: Rough tuning
  ➢ the issue of Treasury bills (or other bills)
  ➢ issuance pattern designed to offset liquidity impact of net daily cash flows, i.e. to smooth the change in the TSA balance at the central bank
  ➢ some management of structural surpluses

• Component 4: Fine tuning
  ➢ more active policies, drawing on a wider range of instruments or institutional options, to smooth more fully the TSA balance at the central bank

..........improving budget implementation requires more than cash management reforms
Improving CM: Inter-related policies

In the absence of effective CM

- Short-term surplus funds sit idle
  - costly for the government

- Government’s debt program and overall debt structure are compromised
  - adding to the cost and risk of debt

- Central bank’s liquidity management becomes more difficult
  - complicating monetary policy implementation and possibly compromising financial stability

- Arrears are accumulated or there is out-right default on obligations
  - negatively affecting the government’s creditworthiness

- Government resorts to cash rationing
  - undermining the budget as a statement of priorities
  - Operation outside the prescribed system and controls
Cash Flow Forecasting

Cash Flow Forecasting - Overview

• Objective is to anticipate cash needs of government

• Forecasts needed of total net cash flow (hence, also cash balance), as distinct from “permissions to spend”
  ➢ Receipts and payments (“above the line”)
  ➢ Financing transactions (“below the line”)
  ➢ Focus is domestic currency
    • May need to identify foreign currency and donor flows separately (depends on TSA structure)

• Forecast information is needed for some period ahead
  ➢ Timing of future peaks and troughs must be identified to make decisions about the maturity of required borrowing or investing

• Frequency of forecasts:
  ➢ Monthly revenue and expenditure forecasts for the year
  ➢ More frequently for the upcoming 3 months: weekly or ideally daily
  ➢ Updated on a rolling weekly basis
Cash Flow Forecasting – Overview 2

• Annual budget the starting point:
  ➢ project the expected inflows and outflows – profiled budgets (monthly)

• Need for high quality forecast data:
  ➢ Avoid cash shortages and accumulation of payment arrears
  ➢ Plan cash position for borrowing and investment decisions
  ➢ Cash Management rather than Cash Rationing

• Involves input from many revenue institutions and spending agencies

• Use of IFMIS to support expenditure forecasting and additional IT tools for collating, aggregating and analysing forecast information

• Cash management unit critically reviews submissions to ensure high quality data

Revenue Forecasting

• Annual budget is the source reference:
  ➢ Initial budget revenue estimate must be backed by consistent, corroborating macroeconomic analysis........
  ➢ ... credible revenue projections critical to cash management and budget execution
  ➢ Profiled budgets showing seasonality of inflows – peaks and troughs by revenue category

• Revenue agencies should prepare monthly estimates, using the budget as the base
  ➢ Weekly or daily estimates of the monthly plan can be prepared using historical daily data lined up against payment due dates
  ➢ Breakdown by category of revenue, can analyze under/over performing areas
  ➢ Use of historic trends, known seasonality and other known indicators for collections
Revenue Forecasting (2)

• Material changes in the macroeconomic environment, the tax base, and tax rates must be reflected immediately in updates to the cash flow forecast

• Complicated tax regimes sometimes require more sophisticated models

• Analyze deviations and causes of deviations, update future forecasts to reflect known situation

• Conservative revenue forecasts/projections facilitate easier budget execution – revenue shortfalls affect available cash and impact on effective budget execution

• New dimension – natural resource revenue forecasting and management

Expenditure Forecasting

• Categorize by expenditure type and by nature of disbursement
  
  ➢ “Smooth” expenditures, e.g. Personal Emoluments, utilities, regular other recurrent operating costs
  
  ➢ Scheduled payment dates: e.g. debt servicing, ongoing/existing contracts, transfers, etc.
  
  ➢ Projects and other contract payments… new procurement, contract variation (amount and timing), etc.
  
  ➢ Emergency payments

• Consistent harmonised information for budget releases and cash forecasting but recognize lead times from commitment to payment

• Use of IFMIS in the MDAs to profile commitments and due payment dates

• Contracts database to manage project and large contract payments (and due dates)

• Spending and procurement plans inform the forecasts
Expenditure Forecasting (2)

- Monthly profiled budget estimates as a starting point to show peaks and troughs and potential borrowing requirements

- Annual budget and cash requirements plan from MDAs at the start of the year, updated on a monthly basis:
  - Updated activity and procurement plans
  - Updated commitment and payment due dates... need to know when current commitments will fall due
  - Focus – more detail on the largest items, e.g. large projects and contract payments

- Ensure availability of cash to meet all expenditure needs – cash management rather than cash rationing

Aggregate Cash Position

- Aggregate cash position for investment or borrowing decisions – identify future peaks and troughs in cash balance

- Use of cash buffers for smoothing

- Facilitated by use of the TSA

- Creates predictability in cash available to MDAs to implement their budgets and planned activities

- Avoiding cash rationing and accumulation of arrears
Review and Revise Cash Plans

- Based on actual outturns against forecasts
- Analyse deviations and identify their causes
- Build knowledge into future cash plans
- Focus on the largest (most material) categories of revenues and expenditures

Treasury Single Account (TSA)
Banking arrangements: Arriving at the current position

**Traditional Solutions**

- Large volumes of transactions
- Historically, weak budgeting and budget execution systems
- Geographically dispersed collecting/spending units
- Perceived power from holding cheque books
- Perceived autonomy of spending units, special funds and extra-budgetary funds.

**Creating weaknesses**

- Multiple bank accounts.
- Individual bank accounts and balances used as main tool for expenditure control.
- Bank accounts used to “ring fence” monies for specific purposes.
- Bank accounts used to increase an agency’s accountability for payments and collections.
- Numerous accounts with significant idle & unremunerated balances.
- Higher borrowing costs.
- Difficult to capture “full govt. cash position”.
- Impossible to prioritize and control expenditure disbursements.
- Bank reconciliation responsibilities dispersed
- Reliance on banking system for fiscal reports and budget performance information.

**Can Modern Technologies Help?**

Modern banking and IFMS technologies enable: reduction in bank accounts; smaller account (idle) balances; speedier transfers of funds; improved payment/deposit methods; less reliance on banking system to enforce budgetary controls.

### Banking structure design considerations

**Technology frameworks**

- **Banking technology**
  - Core banking applications (e.g. S24, Oracle Flexcube) able to support multi-layered bank account structures.
  - Reliable connectivity between commercial bank branches and their head offices; Real time connections to major centres.
  - RTGS, national payment systems.

- **IFMS functionality**
  - Cash management module functionality – supporting EFT, bank reconciliation, one or more bank accounts and multiple currencies.
  - Integration of budget and budget execution.
  - Purchase order/commitment: funds availability checking in IFMS.
  - Improved reporting, tracking, accountability, workflows and security.
The Treasury Single Account (TSA)

- The TSA is a unified structure of government bank accounts to give a consolidated view of government cash resources.
  - It aggregates all Government cash balances in one account or a set of linked accounts.
- A TSA has the following characteristics:
  - The banking arrangement is unified. The finance ministry/treasury has oversight of all government cash inflows, outflows and balances. The structure allows fungibility of cash resources.
  - No other government agency operates bank accounts beyond MoF oversight.
  - Consolidation of government cash resources is comprehensive and includes all government controlled cash (both budgetary and extra-budgetary).
- Having a legal requirement for establishing a TSA may assist.
  - Helps to ensure its robustness and stability.
  - Particularly relevant in countries where presumed autonomy of some institutions may present an obstacle to achieving full TSA status and benefits.

TSA: Objectives and benefits

- Primary objective:
  - to ensure control over the government’s aggregate cash balances;
- Other objectives:
  - Minimize transaction costs during budget execution;
  - Facilitating reconciliation between banking and accounting data;
  - Efficient control and monitoring of funds allocated to various government agencies; and
  - Facilitating better coordination with monetary policy implementation.
- The benefits of a TSA stem from its objectives:
  - Allows complete and timely information of government cash resources;
  - Improves appropriation control;
  - Improves operational control during budget execution;
  - Enables efficient cash management;
  - Reduces bank fees and transaction costs;
  - Facilitates efficient payment mechanisms;
  - Improves bank reconciliation and quality of fiscal data;
  - Lowers liquidity reserve needs.

Source: IMF Working paper on TSA (May, 2010)
### Pre-conditions for introducing a TSA

- An inventory of all existing government bank accounts – including their active status, purpose and flows.
- Political support to rationalize the government banking structure.
- Legal and regulatory requirements.
- Technological requirements:
  - IFMIS desirable but not essential.
  - Interbank settlement system – both high value and low payments.
  - Suitable core banking application
  - Appropriate interfaces between treasury and banking network
- Comprehensive chart of accounts:
  - Enabling appropriate levels of control and reporting; and
  - Ensuring transactional data not lost when bank accounts are closed.
- Capacity development of the TSA users.

### Location of the TSA

- In most countries the TSA resides in the central bank.
- In theory, the main TSA may be held at a commercial bank (e.g. in some Latin American countries it resides in large state-owned commercial banks).
- Establishing the TSA in the central bank has several advantages:
  - Provides a safe haven for government cash deposits which minimizes credit risk exposure.
  - Aids the efficient management of government liquidity; and facilitates the central bank's coordination of its monetary policy operations with the government’s cash and debt management functions.
  - Facilitates settlement of large payments.
  - Gives finance/treasury unambiguous control over all government balances
  - Avoids risk of affecting competition amongst banks.
- But, even where the TSA is held in the central bank, some government transactions will be handled by commercial banks.
Location of bank account balances - options

- The more account balances included within the computation of the TSA balance, the lower the volume of idle balances and overdraft/borrowing costs.
- Within the TSA, the lower the number of and volumes of earmarked funds, the greater the fungibility and the fewer inter-account transfers.
- The more government accounts and balances maintained within the central bank, the better the central bank’s liquidity.

Treasury Single Account (TSA)

- The ultimate TSA is a single bank account into which all public revenues flow and from which all payments are made.
- But this requires:
  - Robust financial management system (internal controls/security, workflows, roles and responsibilities, sanctions);
  - Centralized payment transaction processing;
  - Centralized bank reconciliation.

There are alternative models involving subsidiary accounts (Sub-TSA) and Zero Balance Accounts (ZBA).
TSA concepts: Subsidiary bank accounts

The concept of TSA subsidiary accounts allows for a TSA Head Account and one or more sub-accounts. TSA sub-accounts are not separate bank accounts but are sub-accounts or ledger accounts within the TSA Main. The structure represents an accounting arrangement within the banking system. Balances on these accounts may be aggregated to present the single cash position for cash management purposes.

Features of a sub-account:
- Unique account identifier.
- Vote signatories to authorize expenditures.
- Own cheques, EFT instructions, deposit slips and other necessary stationery.
- Capable of all normal transactional banking.
- Sub-account bank statements produced.
- Balances controlled to prevent negative balance (or to exceed a credit ceiling).
- Within the IFMS general ledger (IFMS), the cash book for each sub-

ZBA option 1 – Sweeping arrangements

- Cash releases are made to individual accounts at commercial banks continue to accompany fund releases.
- MDAs make payments not exceeding cumulative fund releases.
- At the close of each business day, the commercial bank transfers the balance on the account to the TSA.
- The TSA has access to the balance overnight to reduce its borrowing/overdraft requirements.
- At the start of the next business day, the unchanged balance is transferred back to the MDA bank account.
- A negotiated fee may be payable to the TSA at Central Bank.

TSA at Central Bank

Nightly transfer of balance on operational a/c to TSA, balances returned intact at start of next day.

Payments to suppliers and employees by cheque /EFT
ZBA option 2 – Disbursement Limit

- Credit ceilings issued to commercial bank simultaneous to periodic fund release approval.
- Credit limits are cumulative during Financial Year, reverting to zero at year end.
- MDAs make payments from bank accounts. Payments will reduce the amount of available credit. The bank prevents the credit limit being exceeded.
- At the close of each business day, the bank claims reimbursement from the TSA for payments honored during that day. The TSA effects a transfer to reimburse the bank account for payments made.
- The TSA retains all moneys until required to settle obligations.

Coverage and phasing

**KEY**
- Initial TSA
- Subsequent TSA extension

**Central Bank**

- TSA Head Account
- Consolidated Fund
- Special Funds 1, 2
- Other Funds
- Exchequer
- MDA
- Tax Collections
- Non Tax Revenues
- Deposit
- Suspense
- T.bill
- Transfers
- Projects
- AGAs/SAGAs

**TSA at Central Bank**

1. Credit ceiling to CB
2. Payments to suppliers and employees by cheque/EFT
3. CB claims for amounts disbursed
4. Transfer to replenish amounts paid
Aggregate cash position

- Balance calculated on aggregate TSA balance
- Temporary in-year overdraft for cash management purposes – compliant with EAMU conditions.
- Short term remunerated investments of surplus cash.

Sweeping of domestic revenue flows

- Taxpayer payments through commercial banks.
- Cleared payments credited to Cash Account.
- Central bank advise on value of next day Sweeping (T+1).
- Monthly allocations from one commercial bank’s cash to cover Revenue Authority’s operations and provision for refunds. Amounts agreed by Cash Flow Committee.
Efficiency considerations: Revenue transactions

- **Objectives include:**
  - Maximizing collections; and
  - Minimizing delays from when cash is received and when:
    - It becomes available to expenditure programs.
    - Accounting records in IFMIS and tax systems are updated.

- **Commercial banks (due to banking sector infrastructure) often better placed to collect revenues.**

- **Revenue offices can focus on tracking taxpayers/debtors, issuing assessments/invoices, monitoring payments, accounting and reporting results.**

Relations with commercial banks

- **Bank remuneration options:**
  - Float – banks authorised to retain revenue collections for a few days: avoids budgeting for fees; but inconvenient and lacks transparency as to opportunity cost.
  - Fees – more transparent, promotes competition, will need to be explicitly provided for in budget.

- **Sweeping eliminates the need for a float (idle balance)**
  - Except maybe for intra-day purposes.
  - Banks do not receive benefit of “free money”.
  - Requires:
    - Schedule of fees for services
    - Stringent rules, monitoring and penalties to ensure prompt transfers.
    - The arrangements and relationship to be set out in a formal contract or Service Level Agreement.
Initial Coverage of TSA – The Core

- Initial TSA implementation aggregating the balances of budgetary agencies:
  - Consolidated Fund
  - Locally denominated balances held in the central bank (or commercial bank if main TSA account hosted there)
  - Transactions processed through IFMIS
  - Revenues.
  - Recurrent expenditures – salaries, goods and services, statutory expenditures.
  - Locally funded development costs.
  - Debt servicing costs.
  - Transfers to autonomous bodies, local governments etc.
- TSA balance for overdraft or investment purposes calculated as aggregate of above accounts.
- The TSA implementation approach should critically review the number and purpose of existing bank accounts with a review to rationalization.

Extending coverage of the TSA

- Balances of sub-national governments
  - Pros. and cons
  - Dependent on degree of autonomy, compensation for use of balances, checks and balances to prevent abuse, and sound accounting system.
- Balances of public corporations
  - SOEs – commercially oriented not recommended; could interfere with their operational independence.
  - General parastatals – could be included.
- Project accounts
  - Domestic currency denominated accounts:
    - Abolish where feasible and rely on in-country systems and chart of accounts.
    - Retain as sub-accounts where donors insist on separate banking arrangements
  - Foreign currency denominated accounts:
    - Where feasible and no risk of overnight exchange losses include a ZBAs
- Extra-budgetary funds – include.
- Collection accounts – include. Remunerate commercial banks that act as collecting agents.

For many governments establishing a core TSA is within easy reach. Extending it to encompass all controlled cash balances is a greater challenge but brings...
Summary and Conclusions

• Traditional issues:
  - Insufficient attention to effective cash management.
  - Daily cash needs met by central bank
  - Focus on expenditure control but spending agencies not concerned with borrowing costs (or that idle cash had opportunity cost)

• Effective cash management increasingly important:
  - Costs of borrowing
  - Fact that credit granted to government by banking sector is a key macroeconomic target
  - Concerns to improve fiscal performance.

• Improving cash management should be viewed as project. In AFE countries, emphasis on incrementally:
  - Establishing a TSA
  - Developing cash forecasting capacity
  - Rough tuning the cash plan
  - Developing effectiveness of related functions
Conclusions - TSA

• Implementing an initial “core” TSA is achievable by most governments. Often:
  ➢ It can build on current banking and IFMIS arrangements but look to further exploit available technology.
  ➢ It requires minimal changes to business processes.
• A core TSA will result in immediate and tangible benefits,
• But, more significantly, it provides the platform for future benefits. Achieving these will depend on:
  ➢ Extending the TSA to include the balances of all government controlled public funds.
  ➢ Developing cash forecasting and cash management capacity.

Thank you
Questions?
Money Market and Government Debt
Market: Yield Curve

AFE WORKSHOP ON MONETARY AND
FISCAL POLICY

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The views expressed herein are solely the author’s and should not be attributed to the IMF, its
Executive Board, or its management.

Outline

1. Features of Money Markets
2. Requisites for Vibrant Money Markets
3. Challenges
4. Term Structure of Interest Rates (Yield Curves)
5. Debt Management, Monetary and Fiscal Policies- Coordination
   – Benefits of Building Government Debt Markets
6. Contrarian Perspective
1. Features of Money Markets

- **The main instruments:**
  1. discount market, which trades in treasury bills;
  2. commercial bills eligible for rediscount at the central bank;
  3. inter-bank market, which trades in temporary surpluses and deficits of the banking system;
  4. certificates of deposit, bankers’ acceptances etc. depending on the level of development market

Features and Contributions

- Facilitate the conduct of monetary policy through market-based instruments.
- Anchor the short end of the yield curve and support the other financial instruments and develop the foreign exchange market.
- Provide the authorities with better signals of market expectations.
- Enable banks to manage liquidity and strengthens competition in financial intermediation.
Features and Contributions

- Settlement period for money markets is one day-it is cash settlement handled through clearing arrangements.
- Money markets-a key facet of financial intermediation; arena for open market operations, which influences determines term structure of interest rates and the pricing of financial instruments; source of government funding.

Features

- As in the case of government debt, active markets in short-term instruments support the development of longer-term corporate bond markets.
- An efficient money market stimulates the development of more active debt securities markets by lowering liquidity risk premiums and enabling investors to hold larger portfolios of longer-term instruments.
Features

• One of the key positive externalities of market development is the lowering of government borrowing costs over time. Contrast this with trying to develop the market when the funding need becomes desperate.

2. Requisites for Vibrant Markets

• A well functioning money market requires the fulfillment of three key conditions:
  i) A shift from direct to market-based (indirect) methods of implementing monetary policy (including the elimination or significant reduction of central bank accommodation of the liquidity needs of individual banks).
Requisites

ii) Reliable liquidity management and forecasts that provide reliable estimates of future Government cash flows and forecasts of aggregate bank liquidity.

iii) An active interbank market with incentives for banks to transact with each other and not use the central bank as the lender of first resort. This encourages banks and other financial institutions to develop efficient liquidity and risk management services.

Requisites

• Allowing direct access to the money market by nonfinancial corporations and other investors increases incentives for liquidity management.

• Why bother with liquidity and management risk if central bank facilities are readily accessible
Requisites

- An efficient money market also requires:
  i) Clear market conventions on pricing formulas; trading conventions; settlement procedures; the disclosure of information on market activity; and modern technical and legal infrastructures; and a neutral taxation regime on different institutions, instruments, and transactions.

  ii) The adoption of standardized master repurchase (repo) agreements and the enforceability of netting and closeout provisions contribute to the smooth functioning of money markets.
3. Challenges

- Interbank and money markets often not well developed in some middle and low-income countries.
- Resort to direct instruments of MP in such cases not uncommon e.g. RR or credit ceilings reminiscent of the era of financial repression less common now.

Challenges

- Liquidity management can be complicated by use of direct instruments.
- Central banks might not hold adequate quantities of marketable securities to conduct Monops and sterilization operations.
- May suffer from negative capital positions and thus be operationally constrained.
Challenges

• In countries where the exchange rate is used as the nominal anchor and monetary policy is implemented through foreign exchange intervention, money market rates can be too rigid, with the central bank providing accommodation on demand to banks with liquidity needs.

Challenges

• Even when an interest rate corridor is used, its upper or lower bounds can become the binding constraints that determines the level of central bank accommodation.

• In such circumstances, banks and other intermediaries tend to have little incentive to develop treasury operations for liquidity management purposes.
Challenges

• The structure of the banking system can also discourage the development of active money markets—challenges of structural excess liquidity for prolonged periods—often exacerbated by large inflows of foreign capital (from foreign donors or through foreign direct investment and/or commodity booms).

Challenges

• The banking system might be dominated by state-owned banks or private banks belonging to families—such groups have little incentive to pursue profitable opportunities by offering modern liquidity management services.

• Widespread use of foreign currencies in financial contracting (“dollarization” or “euroization”) and the strong presence of foreign banks can limit the demand for local currency-denominated money-market instruments.
Government Funding

• Government funding strategy- a key factor in developing securities markets and should incorporate a broad and open market base, transparency in operations and market principles, and a sound regulatory framework.

• The development of government benchmark securities is crucial not only for the government debt market, but these liquid issues also serve as benchmarks for the market pricing of other financial instruments.

4. Term Structure of Interest Rates - Yield Curves

• A graphical depiction of the relationship between the yield on bonds of the same credit quality, but different maturities is known as the yield curve.

• Term structure of interest rates may be defined as the relation between yield to maturity of zero coupon securities of the same credit quality and maturities of those zero-coupon securities.
Yield Curves

- Yield-to-maturity on zero-coupon securities for different maturities is also the spot rate for that maturity. Therefore, term structure of interest rate may also be defined as the pattern of spot rates for different maturities.
- The term structure of interest rates is of fundamental importance in macroeconomics because monetary policy affects short-term interest rates, but investment depends on long-term interest rates.

Treasury securities as a basis

- The yield on Treasury securities is a benchmark for determining the yield curve on non-Treasury securities. Consequently, all market participants are interested in the relationship between yield and maturity for Treasury securities.
Shapes of Yield Curves

• While a yield curve is typically constructed on the basis of observed yields and maturities, the term structure of interest rates is the relationship between the yield on zero-coupon Treasury securities and their maturities.
• Therefore, to construct term structure of interest rates, we need the yield on zero-coupon Treasury securities for different maturities.

Shapes of Yield Curves

• Zero-coupon Treasuries are issued with maturities of six-months and one-year, but there are no zero-coupon Treasury securities with maturity more than one-year.
• There are different shapes of the yield curves-examples of which could be stylized as: upward sloping, downward sloping; humped; and inverted.
• The average yield curve is upward sloping and concave – time value of money.
All Main Types combined

Features of Yield Curves

- The shape considered a normal yield curve (see above) has lower short-term interest rates than long-term interest rates.
- An upward sloping yield curve is generally a healthy signal for the economy.
- Flat and humped yield curves often signal an economic slowdown ahead.
Yield Curves

- With inflation fears quelled, investors tend to buy longer-term duration instruments thereby lowering yields.
- Inverted yield curves, sloping downwards, are often a harbinger for a recession since high short-term interest rates can choke off the money supply.

Yield Curve

- Understanding the slope of the yield curve is crucial for monetary policy, fiscal policy and debt management.
- The slope of the yield curve is determined by two factors: a) expected future monetary policy and b) the risk premium.
- Monetary policy affects both factors, because current monetary policy has full control of the current and future interest rates at the very short end of the yield curve.
Yield Curves

- The uncertainty associated with future monetary policy determines the component of risk premium associated with the volatility of future policy rates.
- The risk premium is also affected by fiscal policy and debt management to the extent that the yields on longer term assets reflect the risk of debt repudiation or default.

Yield Curves

- Theories about the term structure of interest rates thus become theories about the connection between monetary policy and investment.
- Most models of interest rate behaviour incorporate elements of liquidity preference, loanable funds, inflation and real interest rationales
Theories Underlying Yield Curves

• Three main theories underlying the term structure (yield curve): i) Expectations Hypothesis; ii) Liquidity Preference theory; and iii) Segmentation or preferred habitat theory
• There are some differences in the applicability of these rationales for interest rate behaviour, depending on time frame, the maturity they are complimentary rather than competitive

Yield Curves

• i) Expectations Hypothesis—suggests that long-term interest rate is a geometric average of expected future short-term rates assumes that forward yields are equal to expected future spot yields.
Yield Curves

• ii) Liquidity Preference theory—a rising yield curve arises from investors’ preference to remain liquid. Given that borrowers prefer to borrow long while lenders prefer to lend short, investors have to be compensated by a liquidity premium, which increases with term to maturity.

Yield Curves

• iii) Segmentation or preferred habitat theory—suggests that bond market is segmented by maturity ranges and therefore the yield curve is determined by the demand/supply conditions in each segment e.g. commercial banks demand bonds with short maturities while pension funds demand long maturities.
Factors Influencing Yield Curves

• Government policy in the form of public sector borrowing, debt management and open market operations can influence the shape of the yield curve.
• An increase in the public sector requirement can lead to an increase in yields in all maturities.

Factors Influencing Yield Curves

• OMO can influence the yield curve- i) in the short-term by tilting the curve both upwards and downwards; ii) in the long run resulting changes in the money supply can influence inflationary expectations, which in turn affect the level of the yield curve.
Factors Influencing Yield Curves

- Debt management - most government debt of this nature is rolled over - however the maturity of the replacement debt can influence the yield curve in the form of e.g. humps in the market segment in which the debt is placed – to be attractive to investors, debt must be placed at relatively low price and a relatively high yield.

5. Benefits of Building Government Debt Markets

- Government bonds are the backbone of most fixed-income securities markets in both developed and developing countries.
- They provide a benchmark yield curve and help establish the overall credit curve.
Benefits

• Government securities markets can also strengthen the transmission and implementation of monetary policy, including the achievement of monetary targets or inflation objectives, and can enable the use of market-based indirect monetary policy instruments.

Benefits

• A shift toward market-oriented funding of government budget deficits will reduce debt-service costs over the medium to long term through development of a deep and liquid market for government securities.
Benefits

• At the microeconomic level, development of a domestic securities market can increase overall financial stability and improve financial intermediation through greater competition and development of related financial infrastructure, products, and services.

• As government and related private-sector securities markets develop, they force commercial banks to develop new products and intermediate credit more competitively.

• Securities and credit markets and a related benchmark yield curve enable the introduction of new financial products, including repurchase agreements (repos), money market instruments, structured finance, and derivatives, which can improve risk management and financial stability.
Benefits

- Development of a securities market entails creation of an extensive informational, legal, and institutional infrastructure that has benefits for the entire financial system.

6. Contrarian Perspective

- Some argue that it is not always necessary to create the markets: i) when government makes surpluses continuously; ii) too small to afford the infrastructure;
6. Contrarian Perspective

iii) existence of alternative channels; iv) the size of the economy, and the maturity of the financial sector, there may be better options (including private placements of securities, development of retail markets, or even regional solutions).

Contrarian View

• Such steps will reduce government funding costs over the medium to long term, as the risk premia embedded in yields on government securities fall.

What are your views?
Coordination of Debt and Cash Management and Monetary Policy Operations

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The views expressed herein are solely the author’s and should not be attributed to the IMF, its Executive Board, or its management.

Outline

• How to operationalize the MTDS?
  – Annual Borrowing Plan (ABP)
• Relationship to Monetary Policy Operations
• Determining the borrowing plan (ABP)
  – Illustrative example
  – Domestic financing
• Challenges and Takeaways
Debt Management

Manage the composition of the debt portfolio.

Fiscal Policy

Manage the composition of spending and taxation.
Manage the levels of deficits and debt.

Monetary Policy

Manage monetary anchor through interest rate, exchange rate or money aggregates.

In an ideal world, the three authorities can implement independent policy without affecting each other...
Debt Management

Fiscal Policy

Monetary Policy

• Exchange rate and interest rate policies affect the risks of foreign currency debt and floating rate debt. Nature of inter-relations differ depending on FX regime.
• Poor debt structures can jeopardize the CB’s ability to tighten interest rate or to depreciate / devalue.

• High and volatile inflation and interest rate may reduce government revenue by slowing down economic activity of the private sector. Sterilization and quasi-fiscal deficit can directly increase the level of debt.
• Poor fiscal management and high levels of debt can increase inflationary expectations and cause interest rates to rise, and/or the currency to depreciate.

How does debt management fit in?

Public debt management is the policy that examines the debt composition which minimizes the variability of debt service/GDP relative to primary surplus/GDP, subject to cost, thereby minimizing the risk of jeopardizing fiscal sustainability.

Alternatively: What is the debt composition which minimizes the risk, subject to cost, that either the fiscal or monetary authority will have to switch their policies?
Cost risk trade-off in DM implies different fiscal policy may be desirable

• Higher cost today, lower risk tomorrow
• But, paying insurance premium today means higher budget deficit today. If risk premium is pro-cyclical, this limits the ability of fiscal authorities to carry out counter-cyclical fiscal policy
  Require tighter fiscal policy than tax smoothing for macro consistency
• If not, under monetary dominance, will require fiscal policy switching in the future
• Under fiscal dominance, monetary policy will have to give in and inflate

Types of fiscal policy rules

• Balanced budget
  • Annual balance
  • Balance over cycles - Tax smoothing
• Debt and deficit rules
  • Stability and Growth Pact
    • Tight monetary policy combined with deficit and debt targets
    • Indirectly sets parameters for debt management
  • Fiscal Responsibility Act
  • IMF conditionality
Motivation

• Once debt management strategy is determined, it needs to be implemented
  – Requires an Annual Borrowing Plan (ABP)
    • that is consistent with debt management strategy
    • covers immediate budgetary period

Key linkages
ABP needs to be adjusted within the year

External factors
- State of the market
- Shift in preferences of investors
- Changes in the macroeconomy
- Disbursement delays

Internal factors
- Cash considerations
- Liability management
- Other policy objectives

Annual Borrowing Plan (ABP) and MTDS - key differences

ABP helps operationalize the MTDS
- Granularity
  - ABP for each borrowing
  - Generic vs. specific instrument
- Scope/coverage
- Time horizon
  - ABP runs for 1 year; MTDS has a span of 3-5 years
Determining the borrowing plan

- Annual funding need is determined through the budget process
- But distribution of the funding need intra-year will depend on the government cash flows
  - Need meaningful government cash forecasts
  - Need meaningful information on market
- Total amounts to be raised are determined based on the strategy
  - External / domestic split determined
  - Long-term / short-term split determined
  - Fixed / Variable split determined
  - Loans / securities split determined

Determining the borrowing plan (1)

- Link to government cash management
  - Timing requires forecast of anticipated cash needs on a high frequency
  - Facilitated by TSA
- Inputs
  - Anticipated spending and revenue plans from departments
  - Debt servicing requirements
  - Expected disbursement of pipeline official sector loans
  - Other factors (e.g., starting balance of TSA)
Determining the borrowing plan (2)

- Typically, separate plans will be formulated for domestic and external market borrowing
  - Operate in very different environments
  - Domestic borrowing plan needs to be communicated to market participants
  - Domestic borrowing – more discretion to choose timing of operations
- Shortfalls in auctions and revenues inflows are possible
  - May need to rely on short-term financing to temporarily fill gaps

Domestic financing: Overview

- May be more discretion over timing in domestic market
- May have market development objectives
  - Requiring predictability and regularity of issuance
- Other instruments available to bridge gap to planned financing operations?
  - Short-term money market instruments, access to CB overdraft facility, delaying expenditures, etc.
Determining the Domestic Borrowing Plan

- Target - 9,000
- Strategy split
  - T-bonds: 50% (or 4,500)
  - T-bills: 50% (or 4,500)
- Consider evolution of projected balance on TSA
  - But allow for some uncertainty

Issuance plan: Bonds ...

- Market development considerations mean following constraints are adhered to:
  - **Standard amounts:** Minimum size of an auction is 150, maximum is 400, increments of 25
  - **Frequency:** Maximum frequency of every two weeks
  - **Seasonal factors:** No auctions are scheduled in August or December
Issuance plan: An illustration

• Implications:
  – Max of 22 auction dates available
  – Implies an average auction size of 205 to meet issuance target.
    • Minimum issuance size constraint is met, but increment size is not! Need to adjust …
  – Could aim for 225 across 20 auctions
• But, seasonal factors mean government in deficit in first half of year … then tax receipts start coming in … broadly balanced in the second half of the year …
  – Front load issuance

Issuance plan: An illustration

• Assume issuance every two weeks for first half of year – 12 auctions
  – Target to achieve 80% of financing target by end-June (i.e., 3,600)
  – Auction size set initially at maximum of 400, then reduce
• Reduce auction frequency to once a month from Sept onward
  – Implies 6 auctions left (i.e., (4,500-3,600)/150)
  – Impact on market participants?
Auction calendar

<table>
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<td>200</td>
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<td>300</td>
<td>17-Oct</td>
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<tr>
<td>2-May</td>
<td>200</td>
<td>14-Nov</td>
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</table>

T-bill issuance plan: An illustration

3-m Treasury bills
- Market development considerations mean following constraints are adhered to ...
  - Regular issuance: 3-month T-bills are issued every Wednesday
  - Standard amounts: Minimum issuance size of 100. Week-to-week change in issuance size maximum of 50

1-m Treasury bills
- Aim to use 1-month bills flexibly to maintain a positive, but small, balance on TSA
- Assume market for 1-month bills fairly robust, with variable capacity
  - Regular issuance: 1-month T-bills are issued every Wednesday
  - Standard amounts: Minimum issuance size of 50
T-bill auction calendar (Q1)

<table>
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<td>13-Feb</td>
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Challenges

- Unexpected increase in inflation rate will increase the average cost of funding
  - Desirability of long-term, fixed rate debt
  - May initially rely on floating rate debt
- Dealing with uncertainty may warrant pre-funding
  - Effective cash management
  - Liquidity buffers and their design
- Instruments available need to take into account downside risks
  - Credit lines
  - Short-term programs
ABP output

- ABP should be public to allow investors to prepare their investment plans and reduce uncertainty
  - External borrowing
  - Domestic borrowing
- Domestic market financing
  - Timing
  - Instruments
  - Maturities
  - Auction frequency
    - Primary market design

Policy Interaction

- Financing strategies that are selected, in turn have implications for fiscal, monetary and exchange rate policy as well as for debt market development.
- Provide the markets and the public in general a clear and transparent framework for monetary policy, debt management and reserve management.
  - A framework consistent with stability-oriented macroeconomic policies
Macroeconomic Framework and Debt Management: Overview of Linkages

Macroeconomic Framework and the MTDS

- The five key linkages with the macroeconomic framework:
  1. The primary fiscal balance drives future borrowing
  2. Monetary and exchange rate policies influence the types and costs of available sources of financing (e.g., monetary policy effects the inflation risk premium, roll-over risk is higher under a peg, etc.)
  3. Balance of payment (BoP) gaps may require external financing
  4. Adverse BoP developments may signal currency depreciation
  5. High growth and real appreciation may reduce debt burden
Baseline Projections: 4 Sectors – Key Macro and Market Variables

1. Real Sector:
   • GDP
   • Inflation

2. Fiscal policy:
   • Primary balance = Revenues – Non-interest Expenditure

3. External sector:
   • Nominal and real exchange rates
   • Assumed public sector net disbursement
   • Reserves accumulation

4. Monetary policy:
   • Commercial/central bank gross/net credit to the government
   • Interest rates
   • Tbills and Cbills

Longer-term Structural Factors

- Long-term structural factors influence the debt strategy through their effects on the baseline macro scenario (notably real exchange rate & real interest rates)
- Examples of structural factors:
  - Structural changes in monetary policy (a move toward inflation targeting)
  - Development of domestic debt markets (reforms)
  - Changing trends in prices of commodities
  - Trends in real effective exchange rate (productivity)
  - Trade or other macro reform
  - Quality of governance change
• Choice of strategy can reduce liquidity risk and therefore, reduce the likelihood of crisis:
  • Longer debt maturity helps reduce fiscal vulnerabilities; reduces roll-over risk and slows the effect of increasing spreads for credit risk spreads related to funding uncertainty
  • More domestic funding reduces foreign exchange rate risk exposure
  • Similarly, reducing variable rate debt can reduce budgetary uncertainty and exposure to credit risk

• Lengthening external debt maturities reduces roll-over and potential drain on reserves/BOP vulnerabilities through capital flight (especially under a peg)
• Debt management should coordinate with monetary authorities (e.g., before engaging in buybacks of external debt or switching funding), given the impact on exchange rates/reserves
• Longer domestic debt maturities may help reduce the conflict between monetary and debt management objectives
  • CB can more freely set high nominal short-term interest rates to achieve monetary objectives
• Public debt management can help develop efficient fixed-income markets
  • Improves transmission mechanism of monetary policy
  • Facilitates move to indirect instruments of monetary policy

• As a result, debt management should be coordinated with monetary policy in order to avoid policy inconsistency
• Debt manager should take account of the impact of its operations on liquidity conditions and interest rates and coordinate them with the central bank
  • Large build-up of domestic public debt would increase the risk of higher inflation in the future, causing interest rate to increase
  • A premature unwinding of quantitative easing (QE) may result in higher bond yields and reduced appetite to hold government securities
• Given the **typically large holdings of public debt by banks**, public debt management can influence the robustness of the financial system
• Improving the overall robustness and ease with which the government can meet its debt obligations, will improve the quality of the banks’ balance sheets
  • longer maturity structures would help reduce financial system vulnerabilities
  • containing the probability of a sovereign default would help reduce financial system vulnerabilities

• More generally, public debt management can effectively improve the functioning of the financial system
  • Facilitating corporate debt markets
    • Providing a benchmark for the private sector
    • Providing scope for securitization of banks’ assets
  • Facilitate repo market development
    • Improving liquidity of banks’ balance sheets
  • Facilitate development of derivatives markets
    • Allowing for more effective risk management within the economy
Broader Policy Conclusions

• Policy separation
• Coordinate to ensure policy mix that is sustainable.
• If some probability exist that the policy mix may not be sustainable, then specify policy switching rule.
• May restrict conducting counter-cyclical fiscal policy
  • Risk premium is pro-cyclical
  • Debt management strategy should embody objective of not jeopardizing sustainability
• The greater the vulnerability, the lower the target Debt/GDP may have to be

Conclusions

• The overall aim of public debt management is to minimize costs to the budget, taking account of potential vulnerabilities
  • Composition of debt stock can help mitigate vulnerability of budget to shocks – thus enhancing macroeconomic stability
• To achieve its intended objectives, public debt management should be performed in close coordination with the rest of the macroeconomic policy, and in conformity with the country’s macroeconomic targets
• Despite public debt management’s policy impact on macroeconomic stability, financial stress and crisis may still occur
  • However, if public debt management is appropriately performed, the amplitude and length of such events would tend to be reduced (as opposed to exacerbated)
Microstructure Issues

• Debt Managers have more discretion over timing of domestic borrowing
  – But may want to adhere to market norms/conventions

• Trial and error exercise … many ways to “skin a cat”!
  – Consider seasonal factors – may imply front-loading
  – Also allow scope to accommodate any deterioration in budget performance during the year …
  – Consider whether to maintain a precautionary buffer on TSA
Important Features of Primary Markets and Medium–term Debt Strategy MTDS

AFE WORKSHOP ON MONETARY AND FISCAL POLICY

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The views expressed herein are solely the author’s and should not be attributed to the IMF, its Executive Board, or its management.

Outline

1. Primary Markets
2. Auction Formats
3. Debt Management and Debt Markets
4. Medium Term Debt Strategy (MTDS)
5. Policy Linkages and Interactions
6. Challenges
1. Primary Markets

- Financial markets can be classified in various ways: physical vs over-the-counter; continuous vs call markets; money vs capital markets; primary vs secondary markets and stock vs flow markets.
- This discussion abstracts from infrastructure and design issues as many countries already have in place some form of TB issuance.

Primary market

- The primary market is the new issues market and for government securities auctions are commonly used as the modality for selling.
- Concerns about fragmentation arise when both the central bank and the government issue securities with similar maturities.
- Importance of benchmark issuances.
2. Auction Formats

• Vickrey’s classification has two main dimensions: i) Auctions can be distinguished according to whether successful bidders are required to pay their individual bid or; ii) rather, the minimum price that exhausts the whole issue.

Auction Formats

• The appropriate choice of auction format is a matter of great practical concern and auction theory has not provided unambiguous answers.
• Auction theory provides limited answers to many questions concerning auctions of government securities that scholars and debt managers may be most interested to ask.
Auction Formats

- A basic taxonomy of auctions was proposed by Vickrey (1961) and it still represents the starting point for most subsequent research on auctions.

- The theoretical debate has focused primarily on the choice between uniform and multiple price auctions and, even in this limited field, definite answers are lacking.

Auction Formats

- A number of important questions include:
  - Who should be permitted to participate in the auctions?
  - How could potential bidders be screened, in order to guarantee their ability to meet their commitments?
  - Should central banks be allowed to participate in auctions, and under what terms?
Auction Formats

• How frequently should auctions be held, and should securities of different maturity, be auctioned with different frequency?
• How many bids should each bidder be allowed to submit, and should the amount of securities awarded to each bidder be subject to a ceiling?

Auction Formats

• Should the treasury enjoy discretion to alter the terms of the auction after bids have been tendered? For example, should the treasury be allowed to vary ex post the stock of securities initially placed on sale?
• Absent clear theoretical guidance on auction formats much work has relied on actual country practices through surveys.
Auction Formats

• There are examples of countries moving from one form of auction to the other e.g. US 1991, from multiple to uniform; Mexico, Italy etc.
• Observations of country practices are a pragmatic approach to answering how government securities markets could be organized by resort a "revealed preference" mode.
• In practice multiple price auction formats seem to be prevalent concerns about cornering and collusion - enduring.

Auction Formats

• However, arguments in favor of switching to a uniform price auction include:
  i) probability of increased competition and revenue on the premise that the winners’ curse associated with the multiple price auctions would be muted and thus lead to more aggressive bidding; and
• ii) believed to be economically efficient by eliminating socially suboptimal information gathering, which only benefits bidders.

Auction Formats

• A major disadvantage is that uniform price auctions are more prone to collusion than multiple price auctions.
• Therefore recommendations to be country specific. If a fairly active (competitive) market exists, a uniform-price auction would seem appropriate, since collusion is minimized and there could be some gain to society from less suboptimal information acquisition.
Auction Formats

• If the market in a particular country is thin and subject to collusion, a multiple auction system would seem more appropriate. The benefits in such cases would exceed the loss implied by excessive information gathering.

• In an immature market, information collecting encouraged by the multiple/discriminatory format may be useful in the initial stages of market development;

Auction Formats

• But in the absence of concerns about collusion, a later shift to a uniform format would be desirable.
3. Debt Management and Debt Markets

• “Public debt management is the process of establishing and implementing a strategy for managing debt to achieve the government’s financing, risk, cost objectives and other goals, such as developing the domestic debt market”


Government Securities Market

• International financial crisis has heightened the need to develop domestic debt markets as sources of financing for governments many initiatives.

• Government debt management is closely linked to government securities market.

• Many challenges to developing government securities markets not least of which sound market infrastructure.
Government Securities Market

• Government bonds are the linchpin of most fixed income markets in both developed and developing countries.
• They provide a benchmark yield curve and establish the overall credit curve.
• The market provides the link between issuers having long–term financing needs and investors willing to place funds in long-term interest bearing securities.

Requisites for the development of Government Securities Markets

• Credible and stable macroeconomic environment.
• Sound fiscal and monetary policies.
• Effective legal, tax & regulatory infrastructure
• An active interbank market.
• Secure settlement arrangements.
Requisites

- Operation of the primary market should be transparent and predictable and maximize competition among investors to obtain the best possible results for the government.
- Primary market should be open to and accessible by, the largest possible number of participants.
- Relevant and timely information on the government’s finances and funding operations.

Issuing Techniques

- Issuing techniques, including public subscription, auction (uniform-multiple price common), and syndication, should be market based and transparent.
- More advanced operations, such as reopening of issues, buyback programs etc could be used when markets become more sophisticated.
Issuance

• Taking into account the government’s cost-risk targets, issuing strategies seek as far as possible to promote benchmark issues in key maturities that facilitate the growth of secondary markets.
• The appointment of primary dealers with well-defined privileges and obligations can be beneficial when there are a large number of investors, especially institutional investors, provided the risk of collusion can be minimized.

Issuance

• Effective forecasting and management of aggregate liquidity by the central bank and reliable government cash management is critical for successful auctions and for stimulating adequate competition among market participants.
4. Medium Term Debt Strategies and Debt Markets

- MTDS document outlining how the Government will achieve its financing goals while achieving an appropriate balance between cost and risk, and
- Supporting secondary objectives such as development of the domestic debt market.
MTDS

Medium-Term Debt Strategy
Cost and risk of different financing options — with a given primary balance

Debt Management
- Structure of debt
- Cost and risks of debt portfolio

MTDS STEPs

1. Objectives and scope of the strategy
2. Cost and risk of existing debt
3. Potential sources of finance
4. Medium-term macro-policy and market environment
5. Broad structural factors and risks
6. Analysis of alternative debt management strategies
7. Review with fiscal, monetary and market authorities
8. Propose and approve strategy
LINKING MTDS TO ANNUAL BORROWING PLAN

GROSS FINANCING REQUIREMENT FOR THE BUDGET YEAR AHEAD

- Marketable instruments
- Non-marketable instruments
- International bonds
- Domestic securities

DOMESTIC SECURITIES
- Primary balance
- Interest payments
- Redemptions
- Amortizations
- Consistent with the MTDS (e.g., instruments, portfolio composition)

- Repeated market activity
- Establishment of yield curve
- Developing the domestic market important

Borrowing Options

Domestic borrowing options
- Marketable debt instruments
- Overdraft facilities (emergency/exceptional)
- Non-marketable instruments
- Pre-funding

External borrowing options
- Official sector flows
- Access to market sources
- Financing from reserves (fall back)
- Financing secured from FX market

Issues
- Market development objectives
- Fiscal dominance?

Issues
- Difficult to forecast timing of disbursements
- Need for sterilization, bridge financing?
- Identifying the matching liability
5. Policy Linkages and Interactions

- Debt Management, Fiscal Policy, Monetary Policy, and Financial Regulation and Supervision are all interlinked in supporting financial stability.
- In recognition of this fact, Stockholm Principle #6 urges communication among debt managers and monetary fiscal and financial regulatory authorities.

Links with Cash management and Monetary Policy
Debt and Money Market Interactions

Debt and cash management tools
- INTERBANK MARKET
  - Clearing / settlement balances
- OVERNIGHT MARKET
  - Overnight funds
- TREASURY MARKET
  - Maturities 2 days to 1 year
  - Bills, CDs, term deposits & repo
- BOND MARKET
  - Maturities 2 to 10 years

MONEY MARKETS
- Maturities 10 years

ALL in Support of Financial Stability

Debt Management

Financial Stability

Fiscal Policy

Monetary Policy

Financial Regulation & Supervision
DM Interaction with other Policies

• Debt management choices can interact with monetary and financial conditions in mutually reinforcing or conflicting ways.

• MP that steepens the yield curve can shift incentives for the debt manager to issue short-term paper and thus increase refinancing risk to the detriment of financial stability.

DM Choices

• DM choices regarding the proportion of inflation-indexed or floating rate bonds may differ from the proportion that is appropriate for underpinning the credibility and time-consistency of a central bank’s commitment to price and financial stability.
DM Choices

- DM choices on the maturity structure and risk characteristics of outstanding government debt can affect the propagation of stress through the financial system.

6. CHALLENGES

- Shallow domestic debt markets
- Weaknesses in primary market operations
- Potential conflicts with monetary policy framework
- Limited availability of concessional financing

Implementation
Challenges

• Coordination of monetary, fiscal, and public debt management policies, and integration of central bank liquidity and government cash management, represent difficult technical challenges for most developing and emerging-market countries.

• Reliance on nonmarketable debt and extensive recourse to central bank credit and captive sources of finance are not conducive to market development.

• Further complications when for example sterilization operations are needed to remove surplus liquidity.

• The costs of sterilization operations, which reflect the cost of conducting monetary policy, constitute a fiscal burden.

• However, failure to establish appropriate cost-sharing arrangements can lead to disputes and strain relations between the monetary and fiscal authorities.
Challenges

• Complications also arise when central banks issue their own instruments for sterilization.
• Monetary and fiscal authorities must consult about auction dates and issuance volumes, especially when central bank and government securities fall in the same maturity range.

Challenges

• The potential conflict could extend to longer maturities when central banks suffer from quasi-fiscal deficits and need to fund their negative net capital positions with longer-term debt.
• Extensive coordination between the monetary and fiscal authorities on the timing of their respective funding operations becomes essential.
Fostering the Development of the Secondary Market

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Outline

- Background
- Sources of funding: marketable debt (domestic, international)
- Types of investors in marketable sovereign debt
- Secondary Market Development – Market Making
Background: Developing & Implementing a Strategy

- Developing and implementing a public debt management strategy
  - to operationalize debt management objectives
  - sets out the government’s preference for cost and risk

- Sound debt management strategy
  - pursuant to the objectives, specifies the scope of the strategy, as well as the cost and risk of existing debt
  - identifies potential sources of financing
  - takes into account macroeconomic policies, macro and conditions, and potential risks
  - selects a strategy after analyzing alternative debt management strategies (which may include diversification of funding sources)
Background: PDM and the investor base

• To minimize cost and risk over medium to long term
  – develop an efficient government securities market
  – strive to achieve a broad investor base for domestic and foreign securities
• Output of analysis of plausible strategies
  – highlights the cost-risk trade offs
  – deepening the domestic market or broaden the investor base, may come at cost in the short-term
  – helps debt managers and policy markers to make informed decision
• A diversified investor base provides flexibility to the issuer and establishes resilience to shocks
  – varied preferences by instrument (short, medium, long) and purpose (ALM, trading profit, etc.)

Overview of Potential Sources of Funding

<table>
<thead>
<tr>
<th>Non-marketable</th>
<th>Marketable</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Concessional loans</td>
<td>• International bonds</td>
</tr>
<tr>
<td>• Semi-concessional loans</td>
<td>• Domestic securities</td>
</tr>
<tr>
<td>• Commercial loans</td>
<td></td>
</tr>
<tr>
<td>• Other non-marketable sources</td>
<td></td>
</tr>
</tbody>
</table>
Why Develop the Domestic Debt Market?

- Enhances supply of financing to government
  - Through the use of wider range of instruments possible to attract wider investor pool
  - Reduces the need for direct (and potentially damaging) monetary financing
  - Lowers the cost of financing in the medium to long term
  - Avoids heavy reliance on FX denominated debt
- Greater resilience at time of financial crisis
  - Mitigates risk of “sudden stops” (e.g. capital outflow from non-residents)
  - Enhances diversification of financing sources
- Broader economic benefits
  - Provides benchmark yield curve and help establish DX credit curve
  - Strengthens monetary policy implementation and transmission
  - Encourages efficient allocation of capital through development of related financial products (promoting growth)
  - Deep and liquid markets reduce cost of capital more generally

Domestic Market Development (1)

Key prerequisites for liquid government bond market
- Well-functioning and competitive primary market
  - Stable macroeconomic environment
  - Sound fiscal and credible monetary policies
  - Transparent and effective legal, tax and financial regulatory framework
  - Effective clearing and settlement systems
  - Establish market credibility (e.g. MTDS, engage with key stakeholders)
  - Resilient banking sector and financial system
  - Strong investor base
  - Distinguish between monetary policy operations and fiscal financing
- Market infrastructure to facilitate secondary market
  - Benchmark securities
  - Establish mechanism to make market in government securities
  - Trading platforms
  - Real-time pricing
  - Market surveillance
  - Mix of market participants
- Market development is a dynamic process
Domestic Market Development (2)

- Key prerequisites for liquid government bond market
  - Transparent and effective legal and financial regulatory framework
  - Clarity of taxation rules on traded securities
    - Avoid regulations and practices that distort investment decisions (e.g., below market rate funding through captive investors)
  - Effective clearing and settlement systems
  - Clear accounting rules (e.g., internationally recognized such as IFRS)
  - Attracting non-residents
    - Coordination with capital account liberalization (as volatility in the capital account)
  - Eligibility as collateral in central bank’s operations
  - Availability of hedging instruments
  - Development of the futures market

Domestic market development (3)

- Requires development on a number of fronts:
  - Supply side issues
    - Debt manager has lead role here
  - Demand side issues
  - Intermediaries
  - Market infrastructure, regulatory and tax framework
    - Debt manager can support efforts here

- In general, keep it simple
  - Step by step; avoid complexity
  - Value of transparency and predictability
Supply Side Issues: 
Instrument Design

- Standard Design
  - Enhances familiarity
  - Reduces costs – for both issuer and investor

- Benchmarks
  - Fungible issues/re-openings
  - Enhances liquidity in secondary market
  - But it increases roll-over risk
    - Can be managed by buy-backs, pre-funding and other liquidity management techniques

- Market conventions (Act/Act; coupon
Supply Side Issues: Issuance Techniques

• Market-based – willingness to accept market rates
• Auctions most typical
  • Uniform price
  • Multiple price
• Transparency
  • Issuance calendar
  • Publication of results and other key data
  • Price dissemination
  • Sharing of debt management strategy
  • Provide a forum to facilitate dialogue with market participants

Demand Side Issues: Investor Base

• Diversification helps liquidity and reduces volatility
  – Different time horizons, risk preferences and trading motives

• Commercial banks often dominant investors
  – Inhibits development of demand for longer term securities
  – Risks to banking system
  – High margins (compensate for maturity transformation)
  – Banks useful as intermediaries – brokers, market makers
Robust Financial Market Infrastructure

- Clarity and fairness in regulatory and legal framework builds confidence in the integrity of the market
  - Requirements include:
    - Adequate and well-enforced contracts
    - Insolvency procedures
    - Accounting and disclosure standards
- Appropriate market infrastructure
  - Efficient settlement, custody and payments systems
  - Efficient and well-regulated market place
- Non-distortionary taxation regime

DEMAND SIDE ISSUES
Sequencing the Development

- **Phase 1:**
  - Initial priority to strengthen short-end of market
  - Emphasis on market related issuance techniques
  - Development of domestic investor base
  - Development of intermediaries and market infrastructure

- **Phase 2:**
  - Benchmark bonds
  - Gradual move to longer-term instruments
  - Ensure interaction with development of
    - Money market, especially the repo market (source of financing and demand)
    - Secondary market liquidity

Types of investors
Types of investors: commercial banks

- Strong demand for securities
  - Particularly for short-term securities (for their liquidity management needs)
  - If the repo market is well established, commercial banks may also provide strong support for longer-term securities
  - A competitive banking industry (with less involvement of public sector banks and central bank intervention) is more conducive to the development of active money and bond markets
  - Presence of strong foreign banks can support the development of financial markets

Types of investors: pension funds and insurance companies

- Pension funds and insurance companies
  - Preference to hold long-term government securities for their liability management
  - Engage in “buy and hold” strategies
  - Represent a significant source of investable funds
  - Benefit from economies of scale and have access to highly professional asset management services
  - Diversification is important:
    - Avoid treating as captive sources of government funding
    - Make an effort to reduce reliance on a few public-sector pensions entities
    - Compulsory investment requirements should be guided by ALM consideration (e.g. pension regulation)
Types of investors: non-financial corporations and retail

• Non-financial corporations
  – interested in placing their funds in short-term instruments

• Retail investors
  – tend to prefer investing in short-term securities or in medium-term securities
  – targeting the household sector may represent a feasible transition strategy for debt managers trying to reduce the bank and institutional investors’ share in their portfolios
Secondary market Organization

INTERMEDIARIES

- Commercial Banks
- Discount Houses
- Merchant Banks

- Offshore investors
- Central Bank
- Commercial Banks
- Retail investors
- Speculators
- Institutional investors

Secondary markets
Primary dealers obligations

- Market making
- Promotion of debt among investors
- Assisting in the development of the government securities market
- Providing government securities closing prices and volumes
Secondary markets
Market making

• Parties agree to make prices to each other for the purchase and sale of financial assets.
• Prices are made:
  – during pre-agreed times
  – in agreed volumes
  – with agreed buy / sell spreads
  – Quality of pricing should be monitored on an ongoing basis

Secondary markets
Market making

• Market making is a risky business - assets can be bought / sold at short notice
  – Events may result in loss of liquidity
  – In turbulent markets spreads widen, and in extreme cases price making may cease
• Not all financial institutions may have the capacity to be market markets
  – Two-tier system
• Important to define when quotes can be suspended
  – Monitoring the bond market on an ongoing basis
Pre-trade information and Liquidity

The greater amount of pre-trade information (order information) initially increases competition among the market makers, narrowing bid/offer spreads. However, the narrower spreads will also constraint the market makers’ ability to make market, resulting in a less liquid market.*

A delicate balance between the degree of pre-trade information and the level of market development


Market making Initiating

- It may be necessary to offer incentives to Primary Dealers (although this is not ideal in the long term)
- Incentives may include:
  - Access to non-competitive bids
  - Securities lending
  - Access to buybacks/switches
  - Backstop facilities (should be carefully designed)
  - Access to interdealer broker
  - Direct remuneration for Market making?
**Market making**

**Non-competitive bids**

- Preferential access by primary dealers to ensure that they will get debt stock
  - Ratio of non-comp bids ranges from 0 to 40%
  - May be in the form of an “option to buy” the day(s) post auction
- Retail distribution in auctions
  - Labor intensive
  - May require prepayment
- Central bank

**Market making**

**Securities lending**

- Allowing short positions can reduce dealer inventories and sustain business during rising interest rates
  - Debt manager creates stock and retires
  - Pricing of facility
  - Can be made cash-neutral by receiving collateral of other government securities
  - Collateral practices may need to be strengthened when transaction volume increases an MRA is important
Market making
Buybacks/switches

- Buybacks
  - Used to manage refinancing risk by reducing maturity concentration
  - Change debt portfolio composition
- Switches
  - Offered at the discretion of the debt manager or by reverse inquiry
  - Sophisticated debt management tool
- Buybacks and switches increase secondary market activity
  - Requires a transparent debt management strategy
  - Avoid speculative/manipulative behavior at all costs

KEY CHALLENGES AND IMPLEMENTATION
Market making
Impediments to development (1)

• Tap issues
  – If securities are freely available on tap or if auctions are frequent, there is little incentive to trade on the secondary market
• Investor base
  – Small institutional investor base not motivated to manage their risks or a reasonable sized investors base but concentrated

Market making
Impediments to development (2)

• Small number of dominant market participants
  – possible collusion
• Weak financial capacity of market participants
• Poor payment and settlement systems
  – high settlement risks deter trading
• Interbank credit lines too small for trading
  – irregular and uncertain issuance pattern
  – difficult for investors to form expectations about future supply
Market making
Impediments to development (3)

• Poor price discovery mechanisms
  – developed markets have published prices, much in the
    same way as for shares.
• No hedging mechanisms
  – no access to rental securities
  – undeveloped repo markets
• Poorly defined trading conventions
  – no codes of conduct
• Taxes
  – For example taxes based on original discount value,
    transaction taxes, withholding taxes

Secondary markets
Impediments to development (4)

• Payment and settlement infrastructure
• Low capitalization of primary dealers
• Issues related to monetary policy implementation
• Unrealistic obligations and lack of incentives for
  primary dealers
• Weak investor base
Reforms (1)

- Market-based instruments (Treasury bills and Treasury bonds in key maturities (3, 6, 12-months) and (2, 3, 5, 10-years))
- Establishment of a primary dealer system with rights and privileges evaluated by criteria
- Money Market and horizontal repo market
- Providing clear operational structure for the market and trade reporting

Reforms (2)

- Encouraging a Master Repurchase Agreement
  - To reduce the credit and operational risk of horizontal repurchase transactions
- Increasing volume and frequency of trading in the money market
  - To allow market participants to manage their short-term liquidity well in the cash market and foreign exchange market
Reforms (3)

- Diversifying the investor base
  - Pension reforms
  - Development of non-bank financial institutions
  - Establishment of money- and fixed-income mutual funds
  - Non-resident investors that will reduce the one-way nature and create demand for the use of secondary market mechanisms

Reforms (4)

- Consider an initiative to educate investors and market participants on mutual funds
- Upgrade the Central Depository System (CDS) to reach full DVP
- Encourage market participants to follow best practice in their treasury operations
- Consider setting up a securities lending facility for the primary dealers