



X SEMINÁRIO ANUAL LATINOAMERICANO
SOBRE GESTIÓN DE TESORERÍAS PÚBLICAS

Integrated Management of Assets and Liabilities

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Agenda

- **A review of ALM principles in banking and finance**
- **Extending ALM to the national treasury**
- **A framework for applied ALM**

Introduction: Finance

- **The challenge of financial management is the coordination across time of contrary flows – inflows and outflows of cash - with limited control over either so that the accumulated net position or balance stays within a targeted range.**
- **Since these flows are derived from assets and liabilities, their management is critical to financial management.**

Defining ALM

- **Assets**
- **Liabilities**
- **A time dimension**

ALM in Banking and Finance

- **The Balance Sheet is the area of interest**
- **The risks in gaps and mismatches affect net earnings**
- **Some risks affect balance sheet values directly**
- **Note the importance of risk. ALM and risk mitigation are closely related.**

The national treasury

- **The treasury should serve as the steward and custodian of all public monies.**
 - Funds are held in a TSA
 - The treasury controls all public funds from the point of first deposit
- **It should be the sole entity with authority to draw funds from the nation's accounts**
 - Payments are made by the treasury on behalf of all spending units
 - Funds are **NOT** transferred to intermediate entities while awaiting final

Addressing Risks

- **Liquidity risk: is cash available?**
- **Interest rate risk: do I have a carry cost?**
- **Market risk: what is available and at what price?**
- **Exchange rate risk: can one be caught in a vise between two currencies?**
- **Credit risk: how do others' credit affect my risks?**

Risks (1) - Liquidity Risk

- **In a firm or a bank, it is possible to have invested funds in a way that cannot be converted back to cash to meet payment obligations.**
 - **The firm may be solvent, but it is illiquid.**
 - **When banks experience runs, this is the usual situation.**

Liquidity Risk applied to treasuries

- **It is the task of the treasury to maintain sufficient funds to meet all legal payments when they are due.**
 - **The assets of the government, including its value as a going concern, are likely sufficient to cover all liabilities.**
 - **But turning these assets into cash may be impossible.**
 - **Therefore, maintaining an adequate cash balance becomes a strategy against liquidity risk.**

Risks (2) – Interest Rate Risk

- **For a bank, the common strategy is:**
 - to hold assets with a long-term and
 - to take on liabilities with a shorter term
- **Yield curve has an upward slope so there is a profit margin**
- **A bank can get caught by differential rate changes**

Interest Rate Risk applied to treasuries

- **Capital projects: is their expected yield greater than cost of capital?**
- **Is there any yield calculation for operations?**
- **Can interest rates be taken as given or is there an attempt to limit them?**

Risks (3) – Market Risk

- **Prices can be volatile**
 - **Supplies and commodities can vary in price**
 - **Variable interest rates can move against the firm**
 - **These affect earnings and balance sheet**
- **Address these with derivatives: hedges, options, futures, and forwards**

Market Risk applied to treasuries

- **Supplies and other costs may vary from budget estimates because of market forces**
- **The principal risk lies in capital markets and changes in market appetite for a treasury product: debt**
 - **Will the market have capacity to absorb new debt issues?**
 - **This is the rollover risk that treasuries must face**

Risks (4) – Exchange Rate Risk

- A serious mismatch can occur if assets and liabilities are denominated in different currencies.
- An example can be seen in borrowing in one currency to lend in another to undertake a “carry trade.”
- These can be hedged with derivatives

Exchange Rate Risk applied to treasuries

- **The main risk is borrowing in foreign currencies**
 - This was quite easy to do in the aftermath of the 2008 Crisis
 - Some countries also issue debt domestically in foreign currencies
- **The effect of an adverse exchange rate movement is to greatly increase the effective yield on the borrowed funds.**

Risks (5) – Credit Risk

- Financial institutions count loans to other parties among their assets
- Care is needed to evaluate the credit risk of all loans
- There is credit risk as well in other investments.
- The firm needs an overall credit review policy

Credit Risk applied to treasuries

- **On-lending**
 - Many governments engage in it
 - Are they asking for adequate guarantees from sub-national entities?
- **Contingent liabilities**
 - The treasury often directly underwrites the risk in other entities
 - Do not structure these risks as a put option from the treasury.

Analyzing ALM mismatches

- **Funding Gaps**
- **Sensitivity analysis - shocks**

Mismatch of Revenue and Expenditure

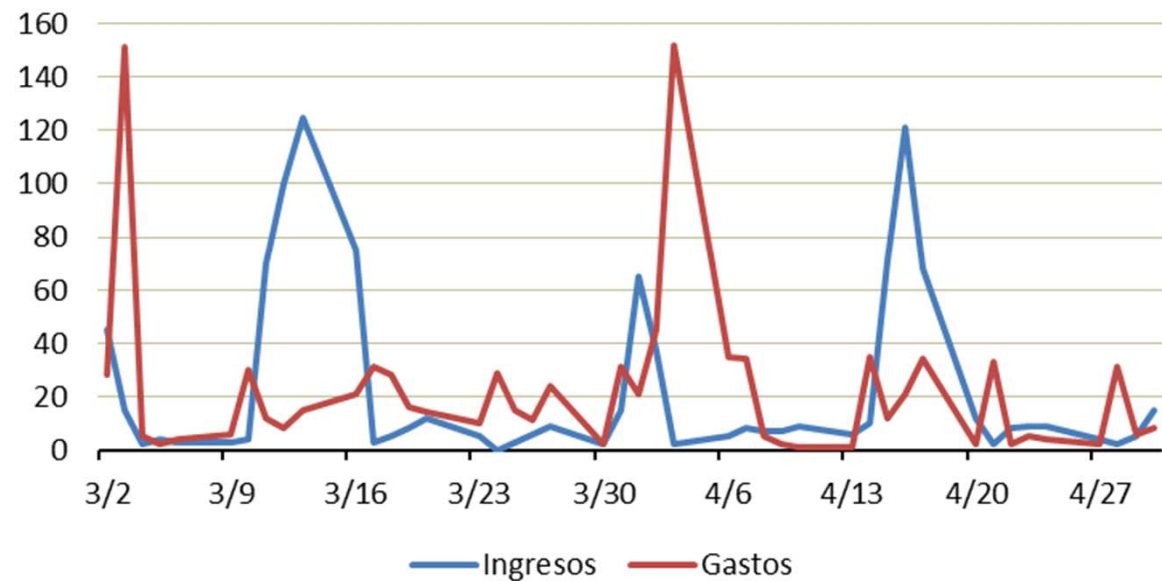
We know the effect of the mismatch of timings for revenue and expenditure. Such mismatches are very common, almost universal. They constitute the essential cash management problem.

Consider a country with revenues generally earned about mid-month with small amounts coming in at other times.

Let there be weekly outlays (for salary?) and a large payment at the beginning of the month with various small payments daily.

Look at these two series for the period 1 March to 30 April.

Mismatch: Rev's and Exp's



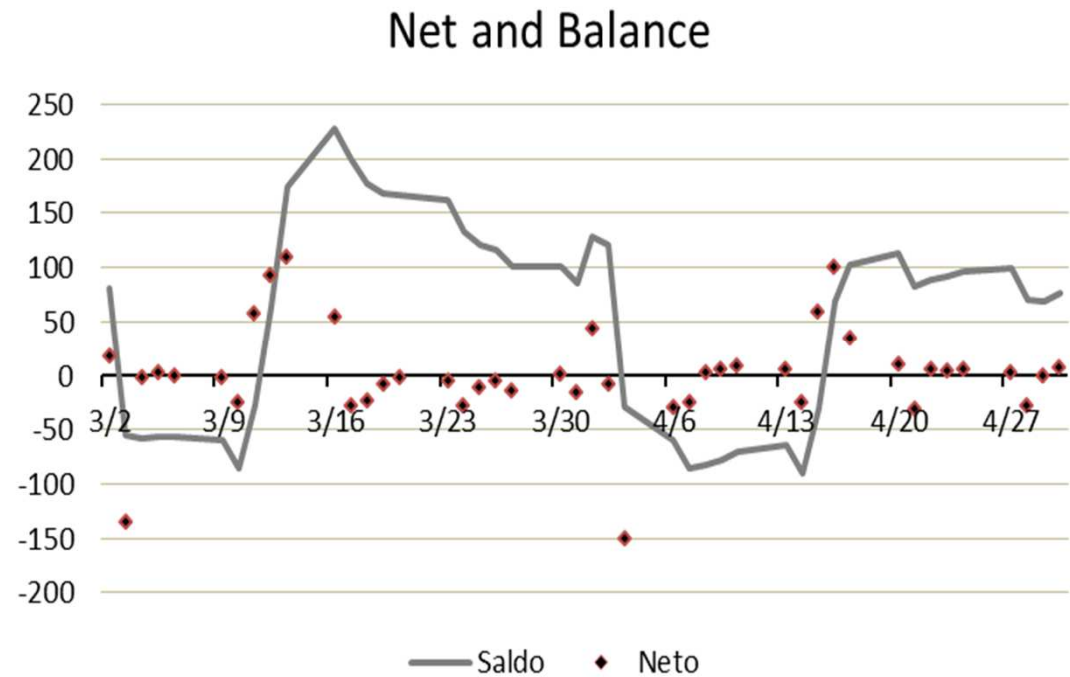
Impact of Mismatch on TSA Balance

We can see the impact of these mismatches on the resulting TSA balance.

The small markers show the size of the mismatch for each day. The line shows the resulting cash balance of the treasury.

As expected, the treasury is in a negative cash position for the first half of the month and has a surplus in the second half.

It will be necessary to address the mismatches in order to meet all payments when due.



Analyzing Shocks: "The best laid plans..."

- How do you test the robustness of your plans?
 - Stress testing could look at the balance sheet and income statement impacts of variations in the timing of cash flows or in their value.
 - Model your cash position with a simple spreadsheet.
 - What happens if taxes are lower than budgeted?
 - What are the impacts on debt service and cash of higher interest rates? Of worsening exchange rates? Of reduced market appetite for your debt?
- Do not use arbitrary shocks: make sure they are at the boundaries of historical experience.

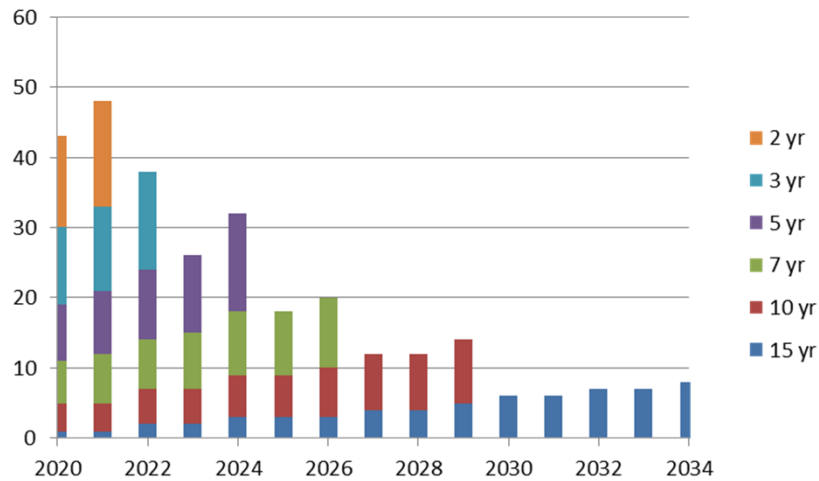
Instituting a policies to address ALM risks

Debt Management

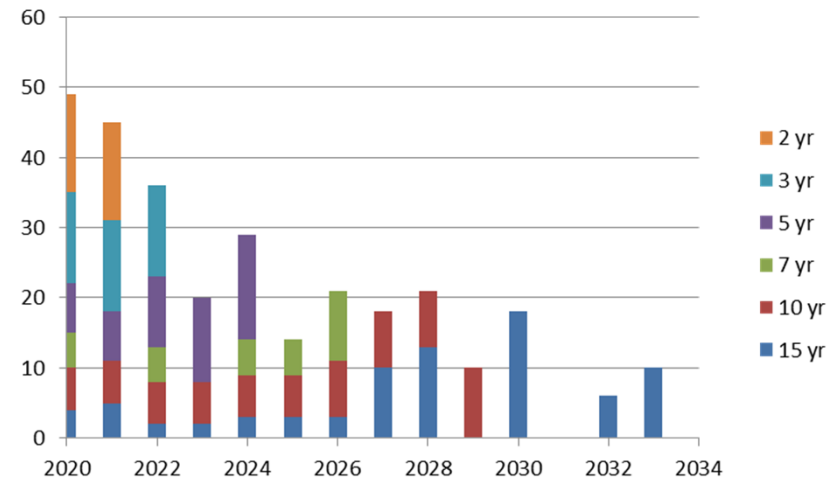
- **What are your guidelines for funding sources?**
- **What is your maturity profile?**
- **What are your guidelines for benchmarks?**

Borrowing Patterns Drive Maturities

Structured Maturities



Opportunistic Maturities



The Cash Flow Forecast

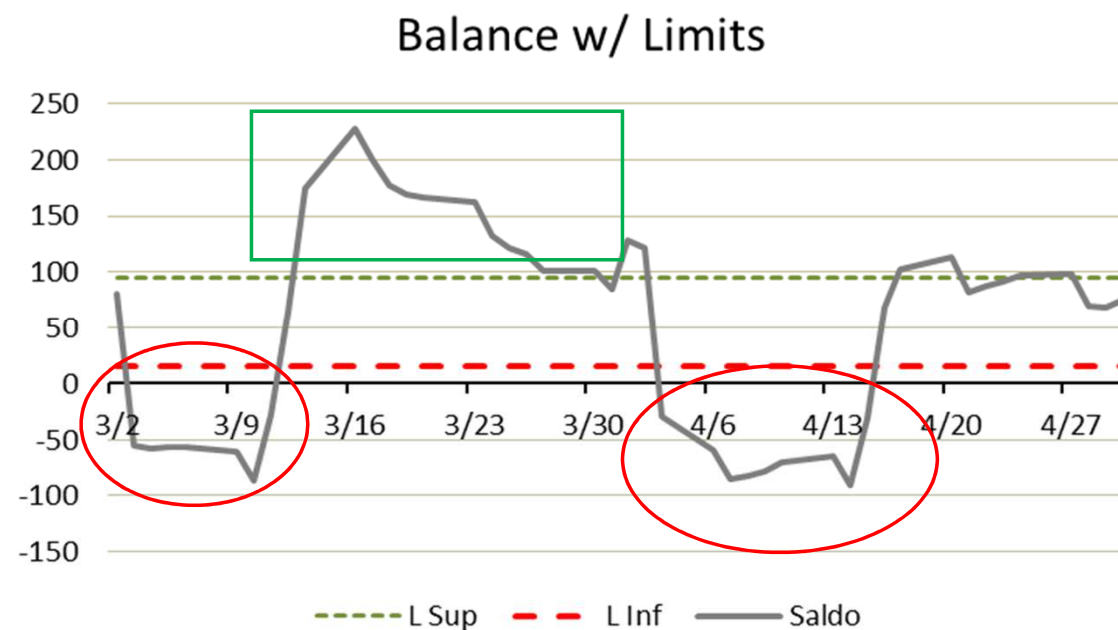
- **Decisions made across time for allocations and investments**
- **A cash flow forecast is essential for decision-making**

Applying the Forecast

The trajectory of the cash balance was shown in earlier slides as a pattern seen in retrospect. Consider the pattern of cash balances now as the result of a forecast taken before the period charted.

Now, the mismatches are anticipated flows and their impacts will be seen as warnings of where action is needed.

Establish limits within which the TSA balance may range. Values outside that range call for actions to access credit or show opportunities for investment.



Linking the Forecast with Debt Management

“Borrow short and lend long” is the major risk facing financial institutions.

Nor should governments borrow long for short-term needs

The cash flow forecast should identify temporary shortages to be covered with short-term credit

Structural deficits should be covered with longer-term debt.

The forecast helps differentiate between the two.