

Forecasting in Cash Management and Performance Measurement in Hungary

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Section 1

Cash Management in Hungary

Institutional Setup of Cash Management in Hungary



- ❑ Cash management of the state budget is done by co-operation between **ÁKK**, the Debt Agency and the **Hungarian State Treasury**
- ❑ ÁKK maintains the necessary balance of the Treasury Single Account by debt operations and executing money market operations (only ÁKK acts on the money and capital markets)
- ❑ Hungarian State Treasury has information about budget execution and other net financing needs and provides information about them
- ❑ A frequent information flow exists between the Hungarian State Treasury and ÁKK
- ❑ (Both ÁKK and the State Treasury are state organisations supervised by the MoF)

Cash Management in Hungary by ÁKK



- ❑ **Incorporated into the debt management strategy:**
- ❑ Maintains the required liquidity buffer level for adverse outcomes in financing (e.g. higher deficit, market shocks) to reduce financing risks. Forecast error of budget deficit is included in the calculation
- ❑ Liquidity buffer is maintained by the annual financing plan and if needed by daily cash management operations
- ❑ The TSA balance targets are included in the list of debt management benchmarks
- ❑ Reduce the fluctuations of the TSA balance (TSA balance moves opposite to the interbank market liquidity, managing the TSA may reduce this, stabilize short term market rates and helps monetary policy as well)
- ❑ Observe cost aspects of cash placements
- ❑ Support the domestic repo market activity by daily repo tenders

Liquidity buffer



- ❑ ÁKK calculates and proposes the level of the minimum liquidity buffer to be maintained in the next calendar year. This benchmark is approved by the Minister of Finance.
- ❑ **Methods of calculation:**
- ❑ The minimum TSA balance is calculated using the extreme daily Treasury expenditures. The minimum balance ensures that no budgetary payments had ever to be postponed due to lack of liquidity.
- ❑ The optimal TSA balance (to be targeted by the financing plan) based on the forecast error and financing risk in the annual financing plan on a 1-1.5 month time horizon (e.g. risk of higher deficit, risk of unsuccessful auctions, cash outflow in the retail debt program).
- ❑ During the year ÁKK can maintain higher balance (more reserve), while end of year TSA may be lower (because of debt reduction), but should cover early January expenditures.

Planning Framework, Forecasts



- ❑ **Budgetary planning:**
- ❑ Budget deficit and other net financing need forecasts are provided by the Ministry of Finance on a monthly basis.
- ❑ **Forecasts for liquidity planning:**
- ❑ ÁKK needs to know only the projected TSA balance to plan its cash management operations, no breakdown of the TSA balance is needed
- ❑ TSA balance forecasts are provided by
 - The State Treasury 2x / week, for 2-3 months ahead
 - The Central Bank 2x / week, for at least 3 months ahead
 - The Ministry of Finance 1x, 2x / week from 2023. It was introduced to reduce forecast errors
- ❑ Accuracy: it is the responsibility of the State Treasury. ÁKK takes the deviations into account in setting the TSA liquidity buffer level. Forecast error can be sizeable at times of large revenues or expenditures (e.g. VAT payments).
- ❑ Problem in forecasting: higher net financing need is forecast, with lower fact deficit; the actual cash balance is usually higher than planned (overfunding)

Liquidity Management Tools



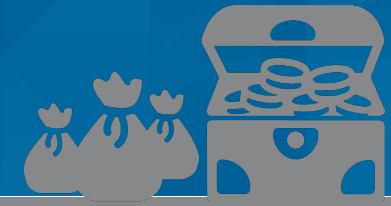
- ❑ **ÁKK's main tools of liquidity management:**
- ❑ Repos and reverse repos: 1-day (overnight, tom-next, spot-next) and 1-week (spot-week)
- ❑ 3-6-12 month discount T-bills (adjusted offered amount)
- ❑ Use of the FX deposits held at the CB by FX swaps
- ❑ Stand-by credit lines (from 2022)
- ❑ No credit line from the central bank (it existed in the 1990s, but was not used and prohibited well before joining the European Union)

- ❑ **Characteristics:**
- ❑ T-bills are used for rough tuning, repos for fine tuning, usage depends on the timeframe of the liquidity needs
- ❑ Cash placements are done only via reverse repos (no deposits to the market) – always collateralized, low counterparty risk, collateral can be HUF government securities only
- ❑ ÁKK holds repo tenders daily, usually two 1-day and one 1-week repo tenders in the morning, and an overnight repo in the afternoon (when more information is available about the day's closing TSA balance)

Managing Forecast Error: Daily Overnight (O/N) Repo



- ❑ **Actual balance of the TSA can be different from forecast**
- ❑ Unexpected budgetary outlays or revenues
- ❑ Unexpected EU related payments
- ❑ Not planned debt related flows (e.g. retail program)
- ❑ **Overnight repo can manage this difference:**
- ❑ State Treasury provides an almost closing forecast for the balance of TSA (not detailed forecast)
- ❑ ÁKK initiates o/n repo or reverse repo to adjust
- ❑ Success depends on banks' demand for repos



Section 2

Performance Measurement

Cash and Debt Management Benchmarks



- ❑ Cash management benchmark (the minimum/optimum TSA balance) is the only benchmark about liquidity management. The other benchmarks are about debt management and set the structure of public debt (e.g. currency structure, fix/floating mix, duration)
- ❑ All benchmarks are formal, proposed by ÁKK and approved annually by the Board of Directors of ÁKK then by the Minister of Finance, daily measured by the Risk Management Department of ÁKK and reported quarterly to the Board of Directors. Any deviation should be reported promptly and explained
- ❑ While debt management benchmarks are measured using 90 days averages (not to react short term movements), cash management benchmark uses daily figures (the budget should be solvent every day)
- ❑ Debt management benchmark bands are public, included in ÁKK's publications, but minimum and optimum TSA balance targets are confidential
- ❑ 2 performance indicators are minimum and optimum TSA balance. The minimum level is binding, the optimum level is only to be reached with cost considerations

Development of Cash Management



- ❑ Original objective at start (back in 2003) was to maintain the balance of the Treasury Single Account in a band of HUF 100 billion (EUR 250 million) over the minimum balance and with the development of cash management to narrow the band
- ❑ This objective could not be reached due to forecasting error and the insufficient interest for repos by banks. Forecasting errors have not decreased and actually during COVID it increased due to more active government operations and much higher deficit (typical forecasting error is about in the magnitude of EUR 100 million, standard deviation)
- ❑ After the crisis of 2008-9 and the COVID pandemic liquidity risk became more important. The cash buffer was increased by overfunding and/or the use of the FX deposits
- ❑ At present the band is much wider between the minimum and the optimum level of TSA (HUF 500 billion or EUR 1.25 billion in 2023).

Performance of Cash Management I



- ❑ ÁKK must keep the end-of-day TSA balance above the minimum level and strive to keep the TSA close to the optimal level through liquidity management tools
- ❑ ÁKK borrows extra cash if the TSA balance were lower than the minimum level and initiates cash placement to the market if the TSA balance were higher than the placement threshold
- ❑ Asymmetric importance of financing/placement transactions: raising extra cash to meet the TSA minimum requirement is important to mitigate liquidity risk (non-performance is an important issue to report to the MoF), while placements are not an obligation, not an issue to report, here cost effectiveness is important
- ❑ The effectiveness of repo operations also depends on the demand of repo partners (banks) which depends on monetary policy:
 - ❑ - the interest rate of the TSA and bank deposits paid by the Central Bank
- ❑ 94% of the liquidity of the budget is on the TSA, 6% is in the banking system by short term repos.

Performance of Cash Management II



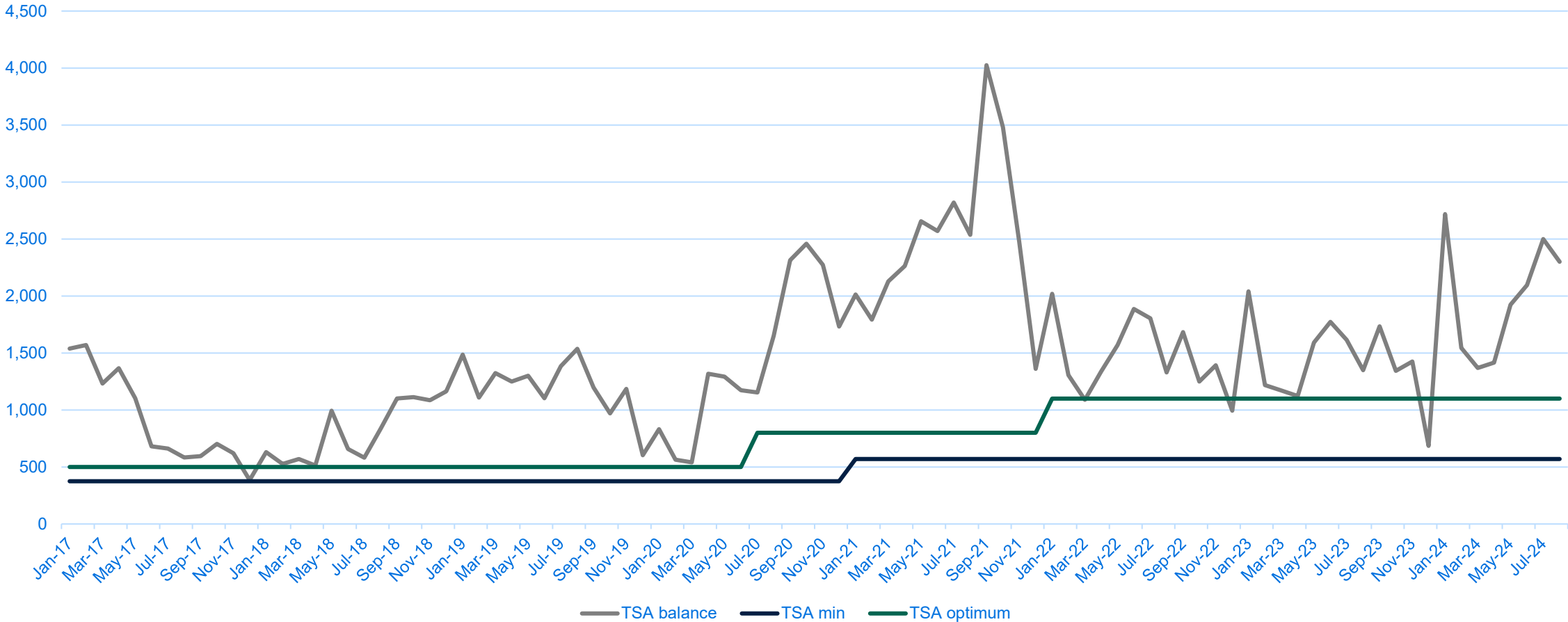
□ Performance measures, indicators

- Success rate of keeping the TSA balance above the minimal level
 - Binding benchmark
 - Usually 100%
 - Non-compliance is due to short term forecasting errors about large budget expenditures when ÁKK's possibilities for repo transactions are already limited (insufficient market demand)
 - In 2023 there was only 1 non-compliant day, without repos it would have been 5 days, not such event during the previous 5 years
- Keeping the TSA balance above the optimal level
 - Not a binding benchmark, theoretically could be reached any days by repos, but it can be costly
 - Performance and non-performance is also included in the quarterly reports, but not an issue for the Board of Directors
 - ÁKK usually target the optimal level by debt financing but at year end or during period of high deficit or debt maturities it is not viable
- (minimum TSA less than 1% of GDP, optimum TSA about 1.5%, average TSA balance 2%, gross public debt 75% of GDP)

The Balance of the TSA



The balance of the TSA
end of month, HUF billion



Performance of Cash Management III



□ Performance measures, indicators

- Reducing the fluctuation of the TSA balance; decreasing very high TSA levels by cash placements (Improve the liquidity of the money market)
 - In 2023 repos reduced the average TSA balance by 12% and the standard deviation (fluctuation) of the TSA balance by 31%; the st.dev./avg. ratio decreased from 35% to 28%
- Compliance with repo acceptance rules (acceptable interest)
 - These rules are observed by the internal IT system used for repo tenders, so normally there can be no repo deals against these rules
- Overall costs of repo transactions
 - Cash placement via repos is done only if achieving at least the interest rate that the Central Bank pays after the TSA balance
 - In case of raising cash with repos cost is of secondary importance, but still only market-conform interest rate levels are accepted
 - The net cost is usually positive for the central government, but it varies from year to year (depending on the market demand, the interest rates, monetary policy etc.)



Section 3 Summary

Summary



- ❑ Cash management benchmark consists minimum and optimal TSA level
- ❑ Sufficient cash is important to ensure continuous solvency of the budget
- ❑ After the crisis of 2008-9 and the COVID pandemic liquidity risk became more important. The cash buffer was increased by overfunding, less active lending to the money market and the use of foreign currency deposits
- ❑ Main performance indicators: success rate of keeping the minimum TSA balance daily – reached almost 100%; measuring the reduction of the TSA balance's fluctuation; compliance with repo acceptance rules; overall costs of repo transactions (against the interest paid by the Central Bank after the TSA balance)

THANK YOU!

