The Target Cash Buffer

Government Bond Market: Peer Group Dialogue

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The Wider Perspective

Need for cash buffers long understood: but the Financial Crisis drew attention to

- Liquidity risk; and risk that domestic markets, not only FX markets, can dry up
- Several countries increased their cash buffer (at least in Europe)

Recognised importance of a “financing continuity plan”

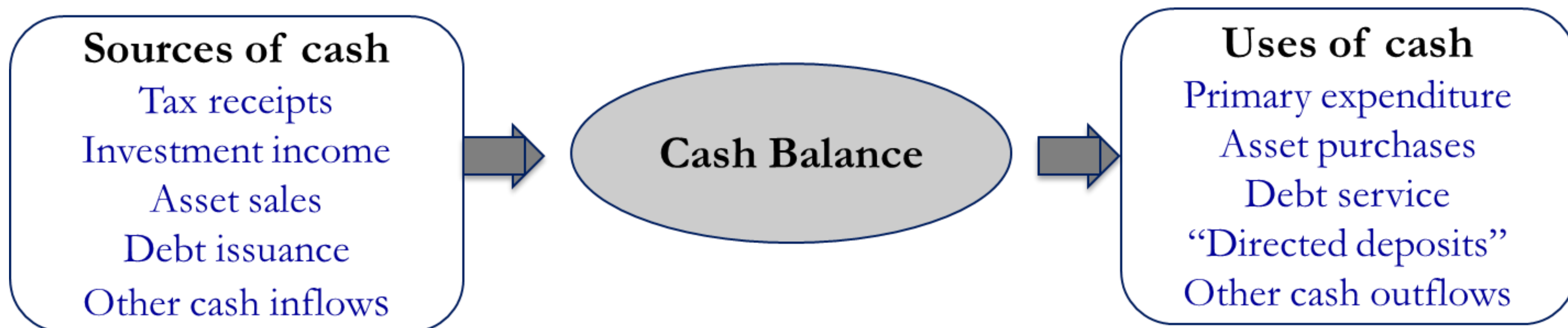
- Cash buffer is part of this – but so are:
  - » Improved cash flow forecasting
  - » Ability to issue Tbills at short notice
  - » Other borrowing safety nets (central or commercial banks)
  - » Understandings with central bank about money market operations

Cash buffers need to be seen and analysed in this wider context

=> there is no one-size-fits-all arithmetical technique

Cash Flows and Cash Balances

Effective cash management requires managing both flows and balances



Cash flow forecasting asks…

- During each period, how much cash do we have coming in and going out?
- As at the end of each period, how much cash do we have at hand?

Cash balance management asks…

- What actions do we take to ensure that we have the right amount of cash at hand?
- How do we best manage any cash balance

Why do we need a Cash Buffer?

To meet day to day volatility

To cope with forecasting errors

To tide over times of financial stress or crisis

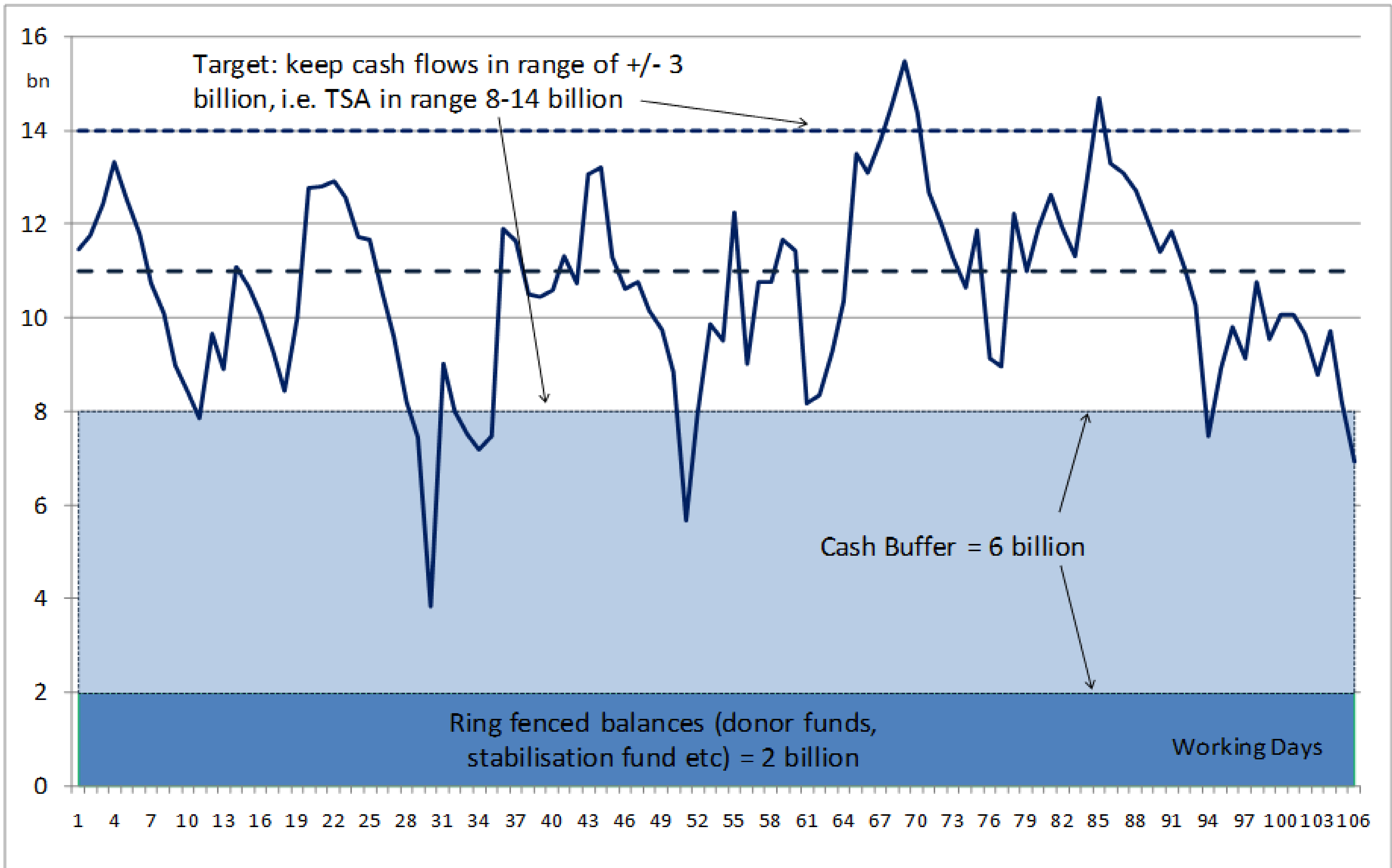
Define:

- *“The minimum level of cash balances to be sure of meeting day to day cash requirements, at all times, under all circumstances, taking into account the availability of other liquid resources”*

Cash buffer is separate from structural surpluses

- Cash managers control cash or investments needed in the short-term [less than 6 months?]
- Even if there is a structural surplus, it may still be cost effective to borrow to manage cash volatility (which brings wider benefits to money market)

Identifying the Cash Buffer



What Determines the Cash Buffer?

1. The volatility of daily cash flows
2. The ability to forecast those cash flows
    - The standard deviation of errors in the forecast will [should] be much less than standard deviation of outturn
3. The scope to manage unanticipated fluctuations and the timescale over which they can be managed
    - How soon can additional Tbills be issued?
4. Safety nets
    - Cash buffer
    - Emergency credit facilities
    - End of day borrowing from commercial banks
    - Short-term borrowing from central bank, where it is available

Note: Buffer has a cost of carry; but if there are limited safety nets available, cost of carry is less important than maintaining the minimum buffer

The Usefulness of Historical Volatility

If historical daily volatility is known, able to calculate relationship between size of buffer and chance that cash will always be sufficient. Example: buffer to give e.g. 99% confidence level that balance will not fall below zero over a month.[1] But:

- Underlying distributions are not normal
- It is distribution of forecast errors that is arguably more relevant
- Expect negative serial correlation (errors offset within the month – e.g. tax receipts or transfer payments may be delayed by a day, but still arrive/happen)
- Is there a way of dealing with the residual 1%? Do we worry about black swans?

Possible to develop probabilistic models relating the optimal cash balance to the interest rate differentials (on overdraft compared to the rate on cash balances; and funding rate compared to the rate on cash balances). Measures cost of caution. But again assumes:

- Normally distributed errors
- Overdraft borrowing is available and acceptable

1 Multiply daily standard deviation (StDev) by [square route of number of days in month]*[value of normal distribution at a 2% confidence level (1% for each tail)] =StDev*(22^0.5)*2.33 = StDev*11

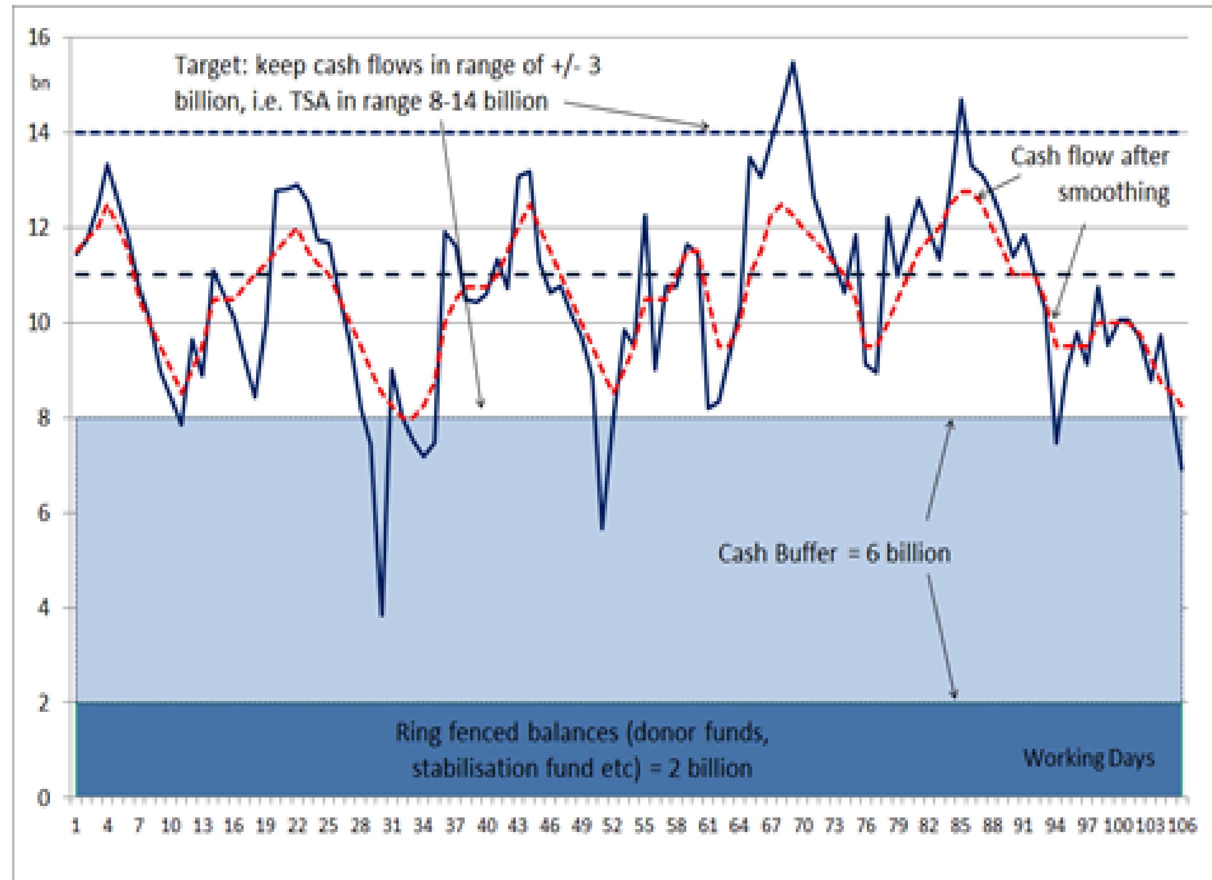
The Value of Forecasting

With a good forecast possible to plan a smoothing strategy

- Borrowing (Tbills) and investment

If forecasts are “perfect” and Tbill market sufficiently liquid no need for any cash buffer

The better the forecasts, the less the buffer



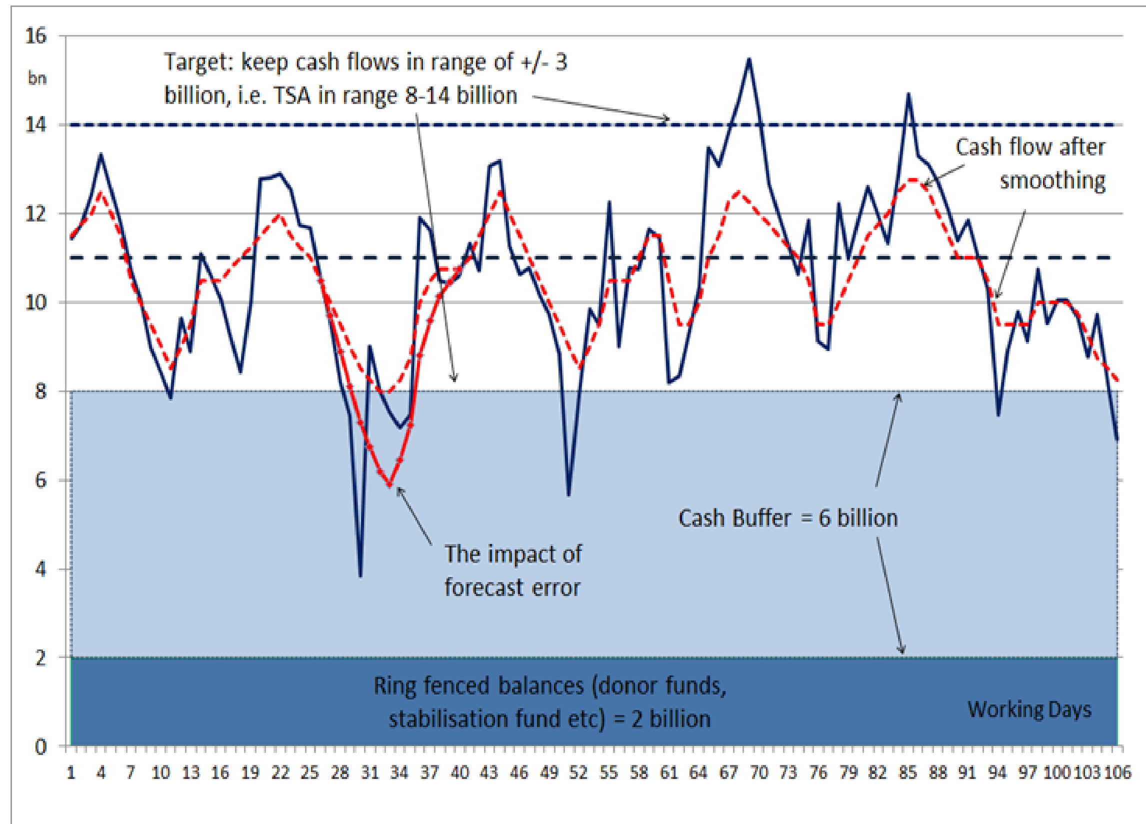
Impact of Forecast Errors

Standard deviation of the errors in the forecast << standard deviation of the outturn

- but they will not be zero
- It is the cumulative error that is important

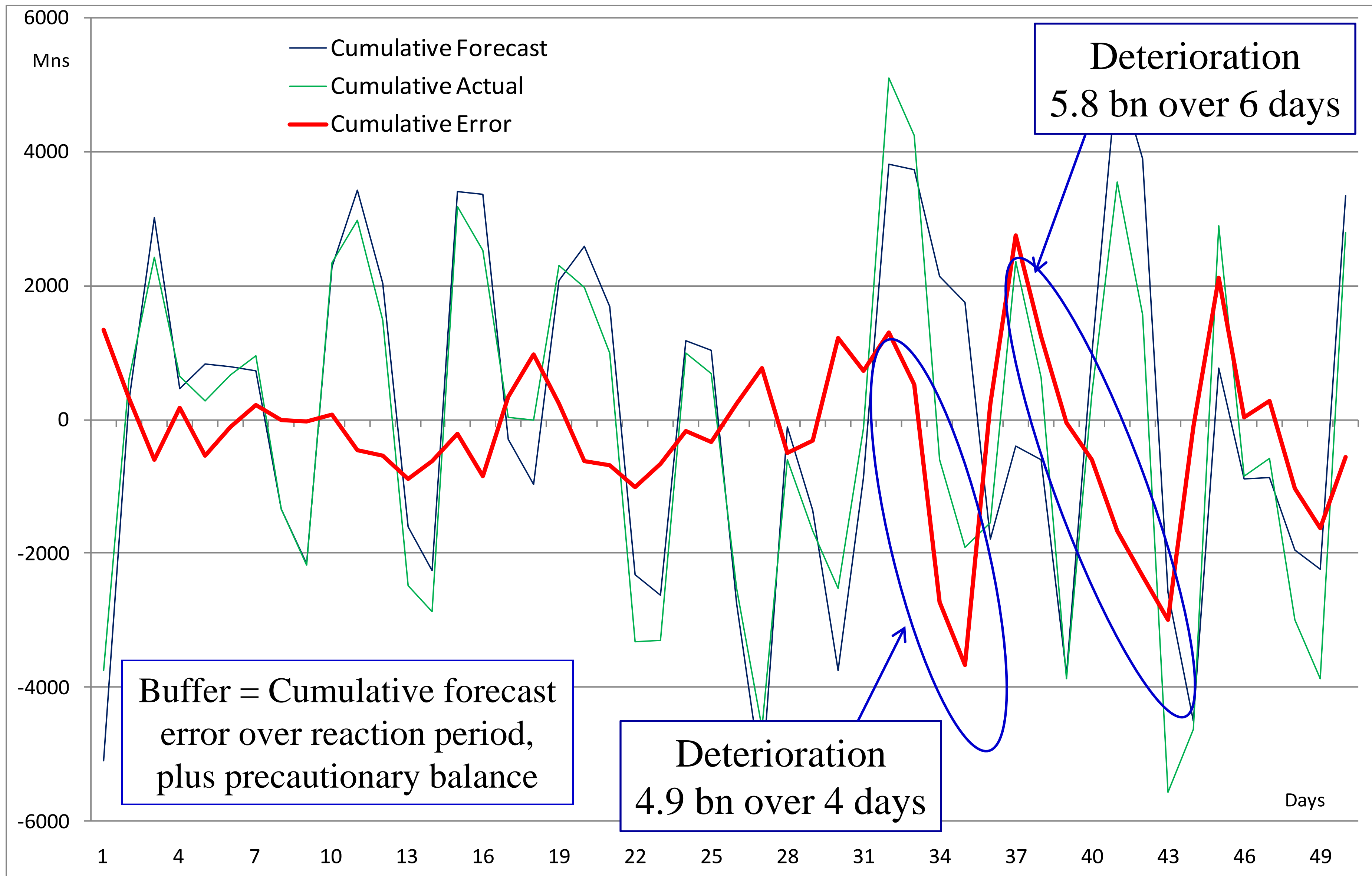
Identify: <u>the maximum unanticipated fall in the cash balance over any period where intervention is no longer practical</u>

- In this context, the timescale over which unanticipated fluctuations can be managed is important.
- In countries that issue Tbills regularly that is probably between one and two weeks



Concept of transactions buffer

Transaction Buffer: Illustration

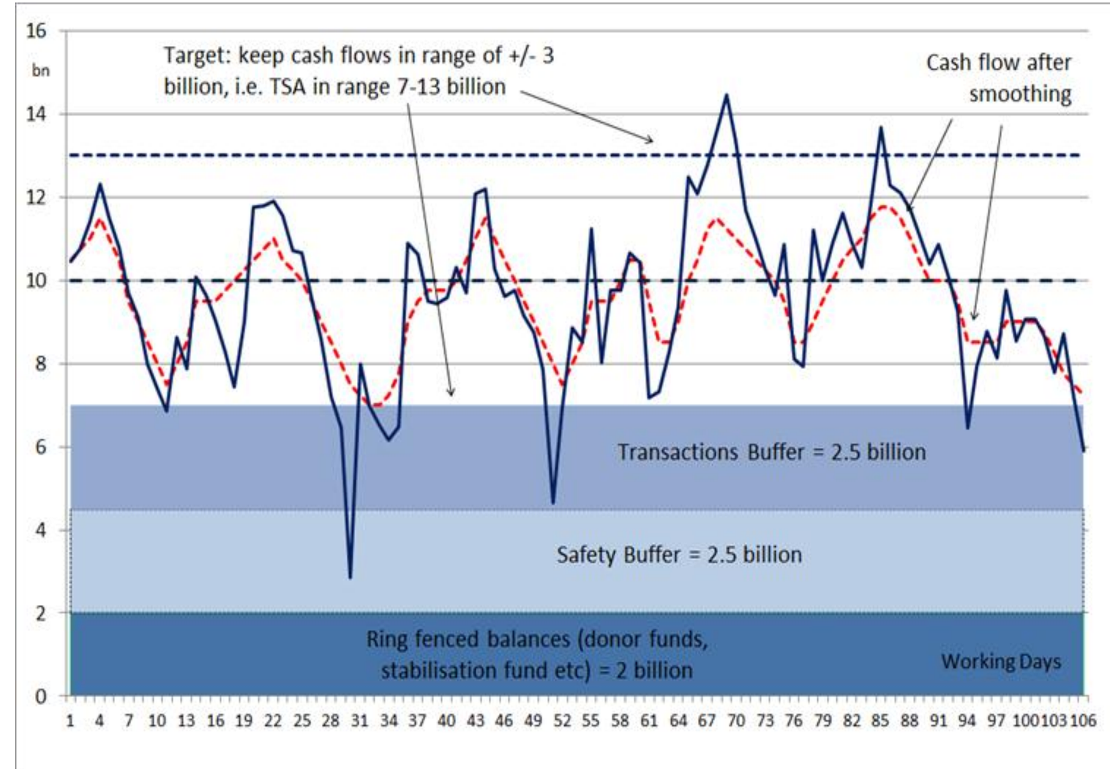


Safety Buffer

Options

- Maximum amount of financing needed if the capital market was disrupted for [1-2] months and no bond issuance could take place in that month
- Some countries allow explicitly for a failed government securities auction

Transactions and safety tranches have some parallels in motives traditionally identified for holding cash, i.e. the transactions and precautionary motives



Cash Buffers in Practice

Several northern European countries operate with cash balances in the central bank << 0.1% annual central government expenditure

- But they have liquid money markets, sophisticated active cash management. Some plan to be long of cash and on-lend only when position is secure
- Drying up of liquidity in financial crisis led some to be more cautious

Some other approaches – the importance of signalling prudence:

- Target balance calculated as a safety reserve in event of adverse market conditions – depends on expected time to return to normality
- Maintaining balances at least as great as the debt redemptions due in the following month, implicitly allowing for a failed auction
- To guarantee budget execution or debt service for [X] months
- In Italy used to be (until 2011) a legal requirement for balances to exceed €10 billion – the peak of cumulative net outflows reached in any period

But the buffer has an opportunity cost – there is a trade-off with caution

Messages from the Survey

Benefits of a buffer generally recognised (9 responses)

- But motives vary
- Different emphasis as between transactions/volatility and financial stress
- Cash also retained to support debt management operations – e.g. buy-backs – or to reduce refinancing risk

Some countries have no formal buffer

- May be because either too much cash or not enough cash!
- Some have access to short-term borrowing or other safety nets

Some questions arising

- Where do the rules of thumb come from – are they arbitrary?
  - » Why 3 months or 12 months of debt servicing – why not 6 months?
  - » In responding countries financial crisis did not lead to an increase (unlike Europe)
- Does there need to be a separate FX buffer?

Investing the Buffer

Normal presumption is that the buffer is held in the Central Bank

- Part of the Treasury Single Account – as seems to be the case from the survey
- Avoids any credit or liquidity risk
- If cash managed actively to keep TSA close to the buffer, no adverse implications for monetary policy
- Should be remunerated at risk-free market rate (close to the policy rate) – reflects opportunity cost and to give the right incentives

There are other options

- Deposits with commercial banks; but beware of
  - » credit risk unless collateralized (or as reverse repo)
  - » liquidity risk unless very short term (breaking term deposits incurs a penalty)
- Money market funds – but claimed liquidity may be a chimera
- Credit lines – may evaporate at times of financial stress

Such options may be more appropriate for a cash reserve fund over and above the buffer (next slide)

Handling Cash Surpluses above the Buffer

Sums above the levels of the buffers, and not associated with the daily fluctuation, should normally be managed separately

- Structural cash reserve, stabilization fund, sovereign wealth fund

Cash managers have responsibility only for short-term investments that are part of the cash flow smoothing process

- Mostly deposits or repos with a maturity < 3-months

Management of structural surplus subject to different criteria, involves different people and subject to different governance framework

May still insist any cash reserve fund is invested in relatively short-term assets

- Especially if money market is thin or volatile
- Comprises a reserve source of liquidity if cash management becomes problematical for any reason

Some Conclusions

Cash buffers just one part of the ”financing continuity plan”

Need to consider:

- Underlying volatility
- Ability to forecast
- Ability to react
- Safety nets

Distinguish between a transactions buffer; and a safety or precautionary buffer

Avoid formulaic approaches: identify the drivers and consider the opportunity cost

Are there signalling advantages from telling the market?

Thank You!