The Colombian Approach to International Reserves Management

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April 15th, 2021

*All opinions are from the author, and do not compromise the Banco de la República or its Board.
Adequate level of reserves → Tranches → Maximization of returns → Active vs. Passive & # of active managers
Adequate level of international reserves

- International reserves + FCL > current account deficit + next year external amortizations + estimated outflows from non-residents and residents in a stressed period (depreciation of COP + low local prices)
2 tranches since 2015

Objective: increase returns with a medium-term tranche

**Short-term tranche (56%)**

- Size: potential needs in the next year (adapted IMF’s ARA methodology for Colombia considering the variables together: not treating them as independent)
- Currency composition: reserve currencies* that replicate the import price index + external debt payments
- Objective: maximize returns. Subject to: probability of losses in the next year <= 5%; CoVaR<=1%; currency composition.

**Medium-term tranche (44%)**

- Size: reserves – short-term tranche
- Objective: maximize returns in USD. Subject to: probability of losses in the next 3 years <= 5%; CoVaR<=1%

*With positive interest rates, the BR should be able to invest directly, constrained to the BR not being a big player in the market (participation < 5%).
Eligible assets for the index

**US**
- Treasury notes and bonds
- TIPS
- Agencies MBS

**Australia**
- Treasury notes and bonds

**New Zealand**
- Treasury notes and bonds

**Canada**
- Treasury notes and bonds

**Norway**
- Treasury notes and bonds

**UK**
- Treasury notes and bonds

**Korea**
- Treasury notes and bonds

**Others**
- Supra and government’s agencies bonds
- Gold
Maximization of returns

• Black Litterman

• Phase 2: expectations for interest rates derived from derivatives contracts (2021)
Size of active portfolio (30%-35%) and # of active managers (7-9)

Max

\[ E[IR_{net}] = E\left[\frac{\text{xrgross}}{TE_{tot}}\right] = \frac{\sum_i w_i E[\text{xrgross}_i - \text{fee}_i(m) - \text{intcost}_i(n)]}{TE_{tot}(n)} \]

\( w_i = \text{active portfolio size (\%)/n.} \quad n: \# \text{ of active managers} \)

\[ E[\text{xrgross}_i] = p_{good} \cdot \text{xrobjective} + (1 - p_{good}) \cdot \text{xnogood} \]

\[ = p_{good} \cdot \text{xrobjective} \approx 20bp \]

\( \text{TE}_{tot} \) given by risk taken by manager \( \text{(TE}_{\text{maxallowed}}:100 \text{ bp)} \) and the correlation among \( \text{xr} (\rho_{ij} = \rho \text{ for } i \neq j). \quad n \uparrow \rightarrow \downarrow \text{TE} \)

s.t: i) total portfolio (passive + active) loss probability < one year index loss probability, ii) active portfolio size < Kelly portfolio size
Internal and External Management

GRAPH 2. PORTFOLIOS

- **Gold**: 0.47%
- **BIS Funds (Medium Term)**: 1.42%
- **Passive (Medium Term)**: 12.00%
- **ACTIVE (Medium Term)**: 30.53%
- **PASSIVE (Short Term)**: 53.39%
- **Working Capital (Short Term)**: 2.19%

**INHOUSE**: 4.01%
**DWS**: 4.01%
**GOLDMAN**: 4.81%
**JPMAM**: 5.63%
**UBS**: 4.02%
**PIMCOLLC**: 4.83%
**SSGA**: 3.23%
Portfolio duration evolution

Medium term tranche inception

Short term interest rates in US increase

Short term interest rates in US decrease

COVID-19

Duration

Portfolio duration

Benchmark duration
Note: The graphs for the medium term tranche and the investment portfolio do not include investments in BIS funds.
Thank you