Decision Making Process and Active Management in an Uncertain Environment: The Central Bank of Peru Approach

Marylin Choy

Central Manager / Financial and Monetary Operations
Central Reserve Bank of Peru (BCRP)

XIII Meeting on International Reserves Management
Lima, September 11-13, 2019
CEMLA-BCRP
AGENDA

1. Institutional and Investment Framework
2. Active Asset Management Process
3. Tools for Active Asset Management
4. Main Alpha Generating Strategies
1. Institutional and Investment Framework
1. Institutional and Investment Framework

**Investment objective**
- Safety, liquidity and return, in that order, according to article 71 of BCRP Charter Law.

**Management by tranches**
- 1. Working Capital
- 2. Liquidity
- 3. Intermediation
- 4. Investment
- 5. Diversification and Special Investments

**Strategy and Execution**
- Prudent control risks to achieve the objectives, and generate adequate risk-adjusted returns.
1. Institutional and investment framework

*The internal governance structure has a clear allocation and separation of responsibilities, and accountability with appropriate hierarchical levels.*
2. Active Asset Management Process
2. Active Asset Management Process

BCRP’s benchmark composition

By Currency

- USD: 91%
- Other currencies: 9%

GBP
CAD
AUD
CNH

By Maturity

- USD Benchmark
  - Short term investment (maturity less than a year): 35%
  - Long term investment (maturity more than a year): 65%

By Securities

- USD Benchmark
  - Förbis: 63%
  - US Agencies: 35%
  - Treasuries: 2%
2. Active Asset Management Process

**Allowed Deviations**

- **Allowed Asset Classes**
  - Banks (Term deposits)
  - Supranationals and Sovereign backed (including Agencies) up to 10 yrs
  - Callable Bonds

- **Allowed Strategies**
  - Buy/Sell Securities
    - Unhedged currency exposure for benchmark currencies
    - Hedged positions in other currencies
    - Futures for duration management

**Limits**

- **Credit Risk**: Limits to: bank exposure – Credit Rating
- **Liquidity**: Concentration Limits
- **Market Risk**: Duration Deviations

*Note: The chart shows the largest maturity of bonds held in USD.*
2. Active Asset Management Process

Strategic Objective: Generate excess return over benchmark for a given investment horizon
2. Active Asset Management Process

Quarterly Strategy Process

- Scenario Construction
- Risk Factors Forecast
- Risk Factors Expected Return/Risk
- Black Litterman Model
- Tactical Asset Allocation
- Chronos

Ex Post
- Monitoring of TAA
- TAA Review
- Best / Worst Scenario Review
3. Tools for Active Asset Management
3. Tools for active asset management

Forward Looking Approach

Risk Factors Forecast

Yield Curve
Breakeven Inflation
Main Spread sectors (SSA, GA)
Implied Volatility

Scenario Construction
Macro Variables
Qualitative factors: Political, Geopolitical, etc

No Active currency Exposure

Risk Factors Expected Return/Risk
3. Tools for Active Asset Management

Implied Curve Expectations (ICE) Model

Implied market pricing

How many hikes or cuts the market (sovereign yield curve) is actually pricing, based on an implied 1 day forward curve

Reverse engineering

Turn our views into monetary policy forecasts by extrapolating the entire yield curve
3. Tools for Active Asset Management

Black Litterman Model

Risk Factors Exposure

- USD: UST rates AG/SSA spreads Breakeven
- GBP: Gift rates SSA spreads
- CAD: Govt rates Prov/SSA spreads
- AUD: Govt rates SSA Spreads

Forward Looking Approach

Set of Views:
Forecast of Proxy Risk Factors Securities (Conditional)

- BL Expected returns
- BL Covariance Matrix
- Securities Profiles: (Prior)
- Ex Ante historical implied Expected Return / Covariance Matrix

Optimized Weights
- Optimized KRD Gaps

Weights

Optimized KRD Gaps

Expected returns
BL Covariance Matrix
Posterior

Posterior
3. Tools for Active Asset Management

Cronos

Full Valuation Approach
• We project the cash flows of our investment portfolio in order to discount them using their corresponding curve (Treasuries, sovereign bonds, government agencies, SSAs, TIPs, callable bonds, etc.)
• Projection of the value of the different currencies portfolios for the next quarter.

Performance Attribution Forecast
• Calculation of the main alpha contributing factors of the projected portfolio value such as:
  • Carry
  • Duration/Price effect
  • Spread duration

Stress Testing
• This tool basically takes the ICE model forecasted rates as an input, but it can incorporate any shock the user wants to test by shocking the initial yield curves and spreads.
• That way, we can assess the performance of our portfolios in different and extreme scenarios.

Scenario Analysis Internal System

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3. Tools for Active Asset Management

Weekly monitoring of the strategy

**Impact of macroeconomic variables**
- Interest rate levels
- Slope of the curve
- Spreads

**Impact of financial variables**
- S&P Financial Sector
- Economic Surprise
- Option Volatility Estimated Index
- Chicago Board Options Exchange Volatility Index (VIX)

**Internal Rate Light System**
- S&P - Remuneración mensual (sorpresa)

**Internal Risk Aversion Indicator**
- Modelo indicadores volatilidad (rezagos: -1)
4. Main Alpha Generating Strategies
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Asset allocation

A tactical deviation is proposed based on the allowed exposures by our Investment Guidelines: Duration, yield curve positioning, spread duration, inflation linked and embedded option bonds.

- **Investment tranche**
  - **Short Term**
    - Term deposits, Money Market instruments & Short term fixed income instruments.
  - **Long Term**
    - Sovereign bonds, government agencies & Supranational bonds.
    - Deviation in duration, KRDs, spread duration and strategies with callables and TIPS.
    - FX swaps for carry / yield enhancement strategies.
Duration and KRDs

We manage our duration gap according to our expectations of UST yields and market momentum, so we have been systematically increasing our duration gap as we expected UST yields would keep decreasing.
4. Main Alpha Generating Strategies

Spread instruments

In different currencies, spreads have been an attractive investment. They have offered the highest reward for risk compared to government bonds.

*Duration-adjusted weekly returns. Calculated using weekly data of BofAML Bond Indices. Volatility is the standard deviation of weekly returns.*
SSA spreads did not widened even during the risk off events over the the lasts quarters, but instead continued to tighten even more.
THANKS