

Asset Class Mapping for Asian Market Quant Project

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1 Asset Class Mapping

This document outlines the asset class categorization for our cross-asset Asian markets project. We have categorized the tickers into five main asset classes for systematic analysis and risk budgeting.

Table 1: Asset Class Mapping for Asian Markets

Ticker Range	Asset Class	Currency	Comment
MXAP ...FMETF	Emerging-Asia equity indices	Mostly USD	Regional beta + macro sensitivity
GOLDS ...S	Commodities (Gold spot, Brent front-month, generic Softs, Philippines gold ETF)	USD	Adds inflation hedge, carry via roll
SPX ...NKY	Developed-market equity benchmarks	USD / JPY	Good stress-test proxies
USDPHP ...USDJPY	FX	USD notional	Carry + momentum rich
USGG5YR ...GTUSDPH5Y	Sovereign	USD	Duration + EM credit risk

2 Risk Budgeting Framework

Based on our asset class mapping, we propose the following risk budget allocation for portfolio construction. This allocation will be used in the hierarchical risk parity (HRP) overlay.

Table 2: Risk Budget Allocation

Asset Class	Allocation (%)
Equities	60.0%
Rates	20.0%
Fx	10.0%
Commodities	10.0%

3 Asset Class Descriptions

3.1 Emerging-Asia Equity (12 instruments)

Description: Emerging-Asia equity indices & ETFs provide broad exposure to regional equity markets.

- **Currency:** Mostly USD

- **Strategy Rationale:** Regional beta + macro sensitivity, liquid access to Asian growth
- **Instruments:**
 - MXAP Index - MSCI Asia Pacific Index
 - MXAPJ Index - MSCI Asia Pacific ex-Japan Index
 - MXAS Index - MSCI Asia Index
 - MXASJ Index - MSCI Asia ex-Japan Index
 - PCOMP Index - Philippines Stock Exchange Index
 - JCI Index - Jakarta Composite Index
 - FBMKLCI Index - FTSE Bursa Malaysia KLCI
 - SET Index - Stock Exchange of Thailand Index
 - STI Index - Straits Times Index
 - NU710465 Index - Asia Region Index
 - EPHE US Index - iShares MSCI Philippines ETF
 - FMETF PM Equity - First Metro Philippine Equity ETF

3.2 Commodities (3 instruments)

Description: Strategic commodity exposure through major benchmarks

- **Currency:** USD
- **Strategy Rationale:** Inflation hedge + carry opportunities via futures roll
- **Instruments:**
 - GOLDS Index - Gold Spot Price
 - CO1 Comdty - Brent Crude Oil Front Month
 - S1 Comdty - Generic Softs Contract

3.3 Developed Equity (2 instruments)

Description: Major developed market benchmarks

- **Currency:** USD/JPY
- **Strategy Rationale:** Global risk sentiment indicators + regime detection
- **Instruments:**
 - SPX Index - S&P 500 Index
 - NKY Index - Nikkei 225

3.4 FX Crosses (5 instruments)

Description: Major Asian currency pairs vs USD

- **Currency:** USD crosses
- **Strategy Rationale:** Carry opportunities + momentum signals
- **Instruments:**
 - USDPHP Index - USD/PHP Exchange Rate
 - USDMYR Index - USD/MYR Exchange Rate
 - USDIDR Index - USD/IDR Exchange Rate
 - USDSGD Index - USD/SGD Exchange Rate
 - USDJPY Index - USD/JPY Exchange Rate

3.5 Sovereign Yields (3 instruments)

Description: Government bonds and sovereign debt

- **Currency:** USD and local currency
- **Strategy Rationale:** Duration exposure + EM credit risk premium
- **Instruments:**
 - USGG5YR Index - US 5-Year Treasury Yield
 - GTPHP5yr Corp - Philippines 5-Year Government Bond
 - GTUSDPH5Y Corp - USD-denominated Philippines 5-Year Sovereign Bond

4 Portfolio Construction Process

4.1 Risk Budgeting Implementation

The portfolio construction process follows a hierarchical approach:

1. Asset Class Level (Stage 1)

- Apply risk budget weights to each asset class
- Emerging Asia Equity (35%) - Regional growth exposure
- Developed Equity (25%) - Global risk factors
- Sovereign Yields (20%) - Duration + credit exposure
- FX (10%) - Carry + momentum factors
- Commodities (10%) - Inflation hedge

2. Instrument Level (Stage 2)

- Within each asset class, apply hierarchical risk parity
- Account for correlation clusters
- Adjust for liquidity constraints
- Consider market microstructure

5 Implementation Roadmap

1. Data Engineering (Current Phase)

- Implement robust data cleaning pipeline
- Normalize all prices to USD
- Handle corporate actions and futures rolls
- Create standardized return series

2. Analysis & Signal Development

- Perform correlation regime analysis
- Develop asset-class specific signals
- Test signal stability and turnover
- Validate economic intuition

3. Portfolio Construction

- Implement hierarchical risk parity
- Apply risk budgeting overlay
- Develop rebalancing framework
- Create monitoring dashboard

4. Risk Management

- Design stress testing framework
- Implement risk limits
- Create performance attribution
- Monitor factor exposures