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Summary

I am a Ph.D. quantitative researcher in macro-finance, fluent in Chinese Mandarin, English and French. I work for ADIA, the sovereign wealth fund of Abu Dhabi.

I am part of ADIA's quant team ("Q"). I work on assets allocation and quantitative total portfolio, as well as on macro-signal generation for systematic trading.

I use alternative and standard data, statistics (frequentist and Bayesian), and machine learning, mostly in the time series space. I develop Python tools for macro-financial signals generation and portfolio construction.

Professional Experience

Abu Dhabi Investment Authority, Quantitative Researcher and Developer — Since 2022

Buy-side macro-quant, ADIA quant team ("Q")

Development of quantitative tools to address the specific needs of dynamic asset allocation and total portfolio management for a large sovereign wealth fund

Dynamic asset allocation against a policy portfolio under a risk budget

- Estimation of macro-regimes and cycles to anchor asset allocations based on diversification/performance
- Assets space includes fixed income, FX, commodities, equity, ETF
- Macro-factors timing for dynamic assets allocation using nowcasting and forecasting models on a wide range of countries
- Portfolio construction reflecting custom risk-returns utility function, non-Gaussian expected returns, liquidity and risk constraints, stable allocation and minimal rebalancing costs

Articulation between discretionary investment and quantitative models

- Developing explanaible models in performance/risk attribution, including local interpretation, to decompose the performance drivers and risks factors
- Integration of priors/views from senior management in quantitative models using Bayesian tools and density-based models
- Portfolio construction integrating non-gaussian views via modified Black-Litterman and goal-based optimization
- Presentation of models outcomes to the senior management in an intuitive, non-technical way with clear actionable recommendations

Integration of alternative data and machine-learning into macro-modeling

- Mixed frequency modeling to integrate high-frequency alternative data with standard macro indicators
- Dealing with limited historical depth, data attrition, unbalanced samples
- Using events and NLP-based signals to enhance nowcasting and forecasting

International Monetary Fund, Quant Economist & Technical Assistance Mission Chief 2016-2022

Quant, Monetary and Capital Markets (MCM) department

Development of quantitative tools for portfolio management, risk modeling, stress-testing and forecasting for central bank operations

Mission chief, leading teams of 3 to 7 people on technical assistance missions

Missions to 25 countries including P.R. China, India, Singapore, Hong-Kong, Israel, Malaysia, Peru, etc.

- Foreign reserves management and foreign exchange interventions
- Liquidity management, including liquidity forecasting and demand for reserves estimation
- Risk models for systemic risk and banks' stress-testing
- Training of central bank staff on monetary and financial modeling under Python
- Interaction with senior policymakers, including central bank governors/deputy governors and ministers

European Central Bank, Quant Economist & Portfolio Manager 2013-2016

Portfolio manager, Eurosystem FX reserves portfolio (RMB & JPY)

Portfolio management and tactical allocation, under liquidity constraints

Development of Python tools for the team on portfolio optimization, risk modeling and forecasting

Education

Ph.D. in Financial Economics, Peking University and Paris School of Economics
Six years in Beijing, entire curriculum taught in Chinese Mandarin

M.Sc. Quantitative Financial Economics, Ecole Normale Supérieure de Paris-Saclay

Normalien, ranked first at France's national competition entrance exam

M.Sc. Applied Mathematics and Statistics, ENSAE Paris

Master thesis on density modeling, numerical simulations, resampling and bootstrapping

Undergrad - CPGE, Henri IV Paris

Skills

Languages: Chinese Mandarin (fluent), English (fluent), French (native)

Programming: Python (including package deployment, testing, environment management, remote deployment on AWS, etc.), R, Matlab, SQL, Git (including CI/CD), AWS Cloud Computing, Linux, LateX, Emacs

Financial Platforms and Databases: Bloomberg, Macrobond, Haver, JPMaQS, CEIC, Wind, Refinitive, GFD, OE

Country Missions

Bosnia and Herzegovina Mission chief, team of six people (2022)

Technical assistance to the central bank on foreign reserves and risk management, risk modeling

Burundi (2022)

Technical assistance to the central bank on liquidity forecasting, monetary framework, monetary operations

Algeria Mission chief, team of five people (2022)

Technical assistance to the central bank on liquidity forecasting

United Arab Emirates Co-mission chief, team of seven people (2021)

Technical assistance on the calibration of monetary operations, financial modeling and liquidity forecasting

Namibia Mission chief, team of four people (2021)

Technical assistance to the central bank on liquidity forecasting

Jordan Mission chief, team of four people (2021)

Technical assistance to the central bank on liquidity forecasting

Djibouti Mission chief, team of four people (2021)

Technical assistance to the central bank on liquidity forecasting

Hong-Kong SAR (2021)

Financial Sector Assessment Program: systemic liquidity modeling and stress-testing

West African Economic and Monetary Union (2021)

Financial Sector Assessment Program: scenario design, solvency stress-tests, etc.

Tunisia (2020)

Technical assistance to the central bank on liquidity forecasting

South Korea (2020)

Technical assistance to the central bank on foreign reserves management and portfolio management

Morocco (2020)

Technical assistance to the central bank on foreign exchange interventions and FX modeling

Democratic Republic of Congo (2020)

IMF program negotiations: monetary economist for the Rapid Credit Facility (RCF) program

People's Republic of China, mission chief (2019)

Technical assistance to the PBoC on financial modeling and risk analysis

Hong Kong SAR (2019)

Financial Sector Assessment Program: systemic liquidity modeling and stress-testing

India, Philippines, Malaysia, Singapore (2019)

Teaching density modeling to staff of central banks and the Asian Development Bank

Israel (2019)

IMF Article IV, dealing with the balance of payments and teaching density modeling to the Bank of Israel

Albania (2018-2019)

IMF Post-Program Monitoring and Article IV, dealing with the monetary, financial and real sectors

Peru (2018)

Financial Sector Assessment Program: systemic liquidity modeling, stress-testing and financial modeling

People's Republic of China (2015)

ECB negotiations with the People's Bank of China to build the RMB portfolio of the Eurosystem

Academic Research

Technology and the Geography of the Foreign Exchange Market (2023)

Journal of International Money and Finance, 131-2023, with B. Eichengreen (Uni. Berkeley), A. Mehl (ECB) and M. Minesso (ECB)

A Comprehensive Framework for Central Banks Liquidity Forecasting (2023)
with A. Panagiotelis (Univ. Sydney) and K. Moriya (IMF) - *soon*

Macrofinancial Feedback, Bank Stress Testing and Capital Surcharges (2023)
with T. Adrian (IMF) and J. Berrospide (US Federal Reserve Board) - *soon*

Foreign Exchange Interventions Rules for Central Banks: A Risk-Based Framework (2020)
IMF Working Paper No. 21/32, with R. Veyrune (IMF)

Predictive Density for Global Growth (2020)
IMF Working Paper No. 20/78, with F. Caselli, F. Grigoli and C. Wang (all IMF)

Growth at Risk: Concept and Application in IMF Country Surveillance (2019)
IMF Working Paper No. 19/36

Can Countries Manage Their Financial Conditions Amid Globalization? (2018)
IMF Working Paper No. 18/15, with N. Arregui, S. Elekdag, G. Gelos and D. Seneviratne (all IMF)

Trading Without a View: Fast Trading, Entropy and Underreaction in the FX Market (2018)
ECB Working Paper No. 2300 with G. Corsetti (Cambridge) and A. Mehl (ECB)

Thick vs. Thin-Skinned: Technology, News, and Financial Market Reaction (2016)
IMF working paper No. 17/91, with B. Eichengreen (Uni. Berkeley) and A. Mehl (ECB)

Understanding Household Savings in China : The Role of the Housing Market and Borrowing Constraints (2014)
MPRA Paper No. 44611 with M. Bussiere, Y. Kalantzis (Banque de France) and T. Sicular (Uni. Western Ontario)

Policy Publications

United Arab Emirates: TA Report - Liquidity Management and Forecasting (2022)
UAE: IMF TA Report, July 2022

Jordan: TA Report - Forecasting Framework for Currency in Circulation (2022)
Jordan: IMF TA Report, April 2022

House Price Synchronization: What Role for Financial Factors? (2018)
IMF Global Financial Stability Report, April 2018

Financial Conditions and Growth at Risk (2017)
IMF Global Financial Stability Report, October 2017

Are Countries Losing Control of Domestic Financial Conditions? (2017)
IMF Global Financial Stability Report, April 2017

High-Frequency Trading, Information and Market Volatility: the Role of High-Frequency Quoting and Dark Pools (2016)
ECB Macroprudential Bulletin, October 2016

The Role of Currency Invoicing for the Transmission of Exchange Rate Movements (2015)
ECB, The International Role of the Euro Report, July 2015 (with J. Grab)

Open-Source Statistical Applications under Python

Full description: https://romainlafarguette.github.io/software/

Distributional GaRCH model to design VaR-based FX Interventions for Central Banks
https://github.com/romainlafarguette/varfxi Package available on pypi

Density Forecasting Using Growth At Risk: Python Codes and Excel Interface
https://github.com/IMFGAR/GaR. With technical appendix and documentation

Conditional Density Projection via Quantile Regressions, Resampling and Multifit Models
https://github.com/romainlafarguette/gar

Robust Density Estimation via Over-Parametrized Gaussian Skewed Models
https://github.com/romainlafarguette/robustdensity

Partial Least Squares Wrapper for Data Reduction based on Scikit
https://github.com/romainlafarguette/plswrapper

Quantile Spacing - from Schmidt and Zhu (2016)
https://github.com/romainlafarguette/quantilespacing

Quantile Local Projections
https://github.com/romainlafarguette/quantileproj

Granular Instrumental Variables - from Gabaix and Koijen (2020)
https://github.com/romainlafarguette/granulariv

Cluster Analysis Wrapper with Performance Metrics and Visualization Tools
https://github.com/romainlafarguette/clusterwrapper

Teaching

FX Intervention Rules: A Risk-Based Framework , IMF Singapore Training Institute (STI) (2023)

29 participants from 14 central banks; 1-week training in Singapore

Modeling under Python, with a package we developped with Amine Raboun: pypi link. Link to the course

Forecasting Framework Central Bank Systemic Liquidity IMF Singapore Training Institute (STI) (2022)
16 participants from 12 central banks; 1-week training in Singapore

Modeling and forecasting under R

Density Forecasting and Modeling (2021)
IMF Institute of Capacity and Development, Washington D.C.

Liquidity Forecasting for Central Banks Operating Fixed Exchange Rate Arrangements (2021)
IMF Middle East Center for Economics and Finance, Kuwait

Foreign Exchange Interventions Strategies for Central Banks (2021)
IMF Joint Vienna Institute (Caucasus, Central Asia, Belarus, Moldova and Mongolia Practionners), Vienna

Forecasting with Quantile Regressions (2020)
South East Asian Central Banks (SEACEN) Research and Training Centre, Kuala Lumpur

Density Forecasting and Modeling (2019)
IMF Institute of Capacity and Development, Washington D.C.

Python for Macroeconomists (2019)
IMF, European Department, Washington D.C.

Linear and Non-Linear Econometrics, Statistics, Macroeconomics (2010-2012)
ENSAE and Sciences Po, Paris