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Summary

- Lead quant strategist, 13 years experience, managing quant teams to oversee $100+bn multi-asset portfolios
- Statistics, machine learning & AI for portfolio analytics, risk models and global markets quant research

Professional Experience

GIC Lead Quant Strategist, Senior Vice President, Global Markets Multi-Assets — Singapore, since 2023

- Lead and mentor a team of six quants on portfolio management and risk models, quant market research
- Design and implement portfolio construction and risk models for $100+bn multi-asset portfolios
- Architect portfolio risk tools: CVaR & DD limits, risk factors, stress-tests, early warning signals
- Steer quant research using Machine Learning/AI/LLM on rates, FX, and credit markets
- Design cloud platforms, automatize performance & risk reporting and engage with decision makers

ADIA Senior Quant Researcher, Portfolio Analytics & Market Research — Abu Dhabi, 2022-2023

- Portfolio construction and risk models, supporting CIO tactical tilts and FX / duration hedging
- Advanced macro research across global rates, FX, and commodity to identify opportunities and risk

International Monetary Fund Quant Financial Sector Expert — Washington DC, 2016-2022

- Bank stress-tests (FSAP) and technical assistance missions on quant modeling in 30+ EM countries
  - Solvency and liquidity stress-tests, capital adequacy, macro models for risk scenarios (Growth-at-Risk)
  - Risk and liquidity management frameworks, FX reserves management tools, financial stress indices
- Analytics: sovereign risk, macro stress-tests, nowcasting, inflation forecasting, debt projections

European Central Bank Portfolio Manager and Quant Researcher — Frankfurt, 2013-2016

- Managed RMB and JPY reserve portfolios and supported QE market operations
  - Portfolio management and risk modeling for ECB rates and FX portfolios

Education

Ph.D. Quantitative Finance, Peking University — Beijing 2013

Entire curriculum completed in Chinese Mandarin in Beijing

M.Sc. Quantitative Macro & Finance, Ecole Normale Supérieure de Paris-Saclay — Paris 2009

First-ranked at France's national entrance exam (Normalien, top 1% of national applicants)

M.Sc. Mathematics and Statistics, ENSAE Paris — Paris 2007

Undergrad Mathematics (CPGE) Henri IV — Paris 2005

Skills

- **Analytics:** Statistics & machine learning, AI & LLM, convex optimization, bootstrapping, density models
- **Tech stack:** Python, Github CI/CD, cloud computing (AWS & Databricks), Airflow schedulers, big data
- **Data:** Bloomberg, Macrobond, Haver, CEIC, Wind, Factset, alternative datasets
- **Risk models**: VaR/CVaR, stress-test, early-warning signals, rates & FX risk, sovereign risk, FSI
- **Risk factors systems**: Blackrock BRS, MSCI Barra, Axioma, PCA-custom risk factors
- **Languages:** English (fluent), Chinese (conversational), French (native)

Python Packages

- Distributional GARCH model to design VaR-based FX Interventions for Central Banks, varfxi repo
- Density Forecasting and Risk Modeling for Macro Series, gar repo
- Conditional Density Projection via Quantile Regressions, Resampling and Multifit Models, quantproj repo
- Robust Density Estimation via Over-Parametrized Gaussian Skewed Models, robustdensity repo
- Partial Least Squares Wrapper for Data Reduction based on Scikit, plswrapper repo
- Quantile Spacing- solving for quantile crossing, from Schmidt and Zhu (2016), quantilespacing repo
- Quantile Local Projections, quantileproj repo
- Granular Instrumental Variables - from Gabaix and Koijen (2020), granulariv repo
- Cluster Analysis Wrapper with Performance Metrics and Visualization Tools, clusterwrapper repo

Academic Research

- *Financial Conditions in Europe: Dynamics, Drivers, and Macroeconomic Implications*, IMF WP (2024)
- *Technology and the Geography of FX Markets*, Journal of International Money and Finance (2023)
- *FX Interventions: A Risk-Based Framework*, IMF WP (2020)
- *Predictive Density for Global Growth*, IMF WP (2020)
- *Growth at Risk: Applications in IMF Surveillance*, IMF WP (2019)
- *Can Countries Manage Their Financial Conditions Amid Globalization?*, IMF WP (2018)
- *Trading Without a View: Fast Trading, Entropy and Underreaction in the FX Market*, ECB WP (2018)
- *Household Savings in China : The Role of the Housing Market and Borrowing Constraints*, BdF WP (2014)

Policy Research

- *United Arab Emirates: TA Report - Liquidity Management and Forecasting*: IMF TA report (2022)
- *Jordan: TA Report - Forecasting Framework for Currency in Circulation*: IMF TA Report (2022)
- *House Price Synchronization: What Role for Financial Factors?*: IMF GFSR (2018)
- *Financial Conditions and Growth at Risk*: IMF GFSR (2017)
- *High-Frequency Trading, Information and Market Volatility: the Role of Dark Pools*: ECB FSR (2017)
- *The Role of Currency Invoicing for the Transmission of Exchange Rate Movements*: ECB IRE (2015)

Country Missions

Policy experience with 30+ country missions on technical assistance, policy negotiations and financial surveillance

Asia, Europe and LATAM

- **P.R. China**: Financial stress models (Mission Chief, 2019)
- **P.R. China**: ECB negotiations, RMB Eurosystem portfolio (2015)
- **India**: Sovereign risk models (2019)
- **South Korea**: FX reserves management (2020)
- **Hong Kong SAR**: FSAP, systemic liquidity and stress-testing (2021)
- **Philippines**: Sovereign risk models (2019)
- **Malaysia**: Sovereign risk models (2019)
- **Singapore**: Sovereign risk models (2019)
- **Albania**: IMF Article IV and post-program (2018, 2019)
- **Bosnia**: FX management (Mission Chief, 2022)
- **Peru**: FSAP, systemic liquidity and stress-testing (2017, 2018)

MENA and SSA

- **United Arab Emirates**: central bank operations (co-Mission Chief, 2021)
- **Jordan**: liquidity forecasting (Mission Chief, 2021)
- **Israel**: IMF Article IV, external sector (2019)
- **Morocco**: FX interventions (2020)
- **Algeria**: central bank operations (Mission Chief, 2022)
- **Tunisia**: liquidity forecasting (2020)
- **WAEMU**: FSAP, stress-testing (2021)
- **Mauritania**: central bank operations (2023)
- **Namibia**: liquidity forecasting (Mission Chief, 2021)
- **Djibouti**: liquidity forecasting (Mission Chief, 2021)
- **D.R Congo**: IMF program negotiations (2020)
- **Burundi**: central bank operations (2022)

Teaching

I taught financial modeling and financial operations to countries officials and central bankers around the world, often via IMF technical assistance centers.

- **Singapore**: FX Intervention Rules (2023)
- **Singapore**: liquidity forecasting (2022)
- **Ghana**: liquidity forecasting (2022)
- **Kuwait**: liquidity forecasting (2021, 2022)
- **Slovenia**: liquidity forecasting (2022)
- **IMF Washington DC**: density modeling (2021)
- **Kazakhstan**: liquidity forecasting (2021)
- **Guatemala**: liquidity forecasting (2021)
- **Austria**: density modeling (2021)
- **Malaysia**: density modeling (2020)
- **IMF Washington DC**: Python (2019)
- **Sciences Po and ENSAE Paris**: Econometrics and macroeconomics (2010-2012)