STI Course on FX Interventions
General Introduction

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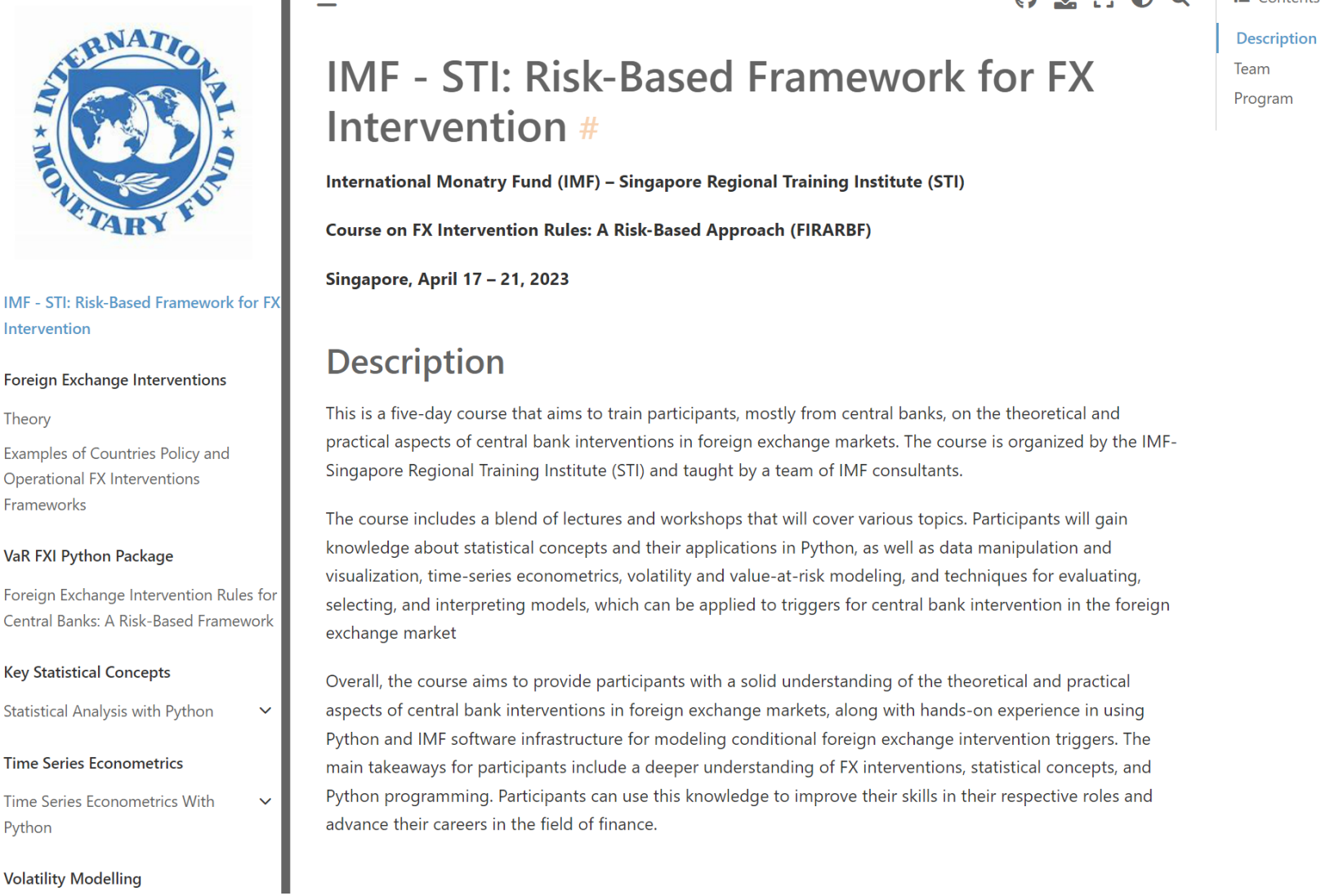
The Course Website

Available via: ▸ Course Website



IMF - STI: Risk-Based Framework for FX Intervention

Foreign Exchange Interventions

Theory

Examples of Countries Policy and Operational FX Interventions Frameworks

VaR FXI Python Package

Foreign Exchange Intervention Rules for Central Banks: A Risk-Based Framework

Key Statistical Concepts

Statistical Analysis with Python

Time Series Econometrics

Time Series Econometrics With Python

Volatility Modelling

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IMF - STI: Risk-Based Framework for FX Intervention

International Monatry Fund (IMF) – Singapore Regional Training Institute (STI)

Course on FX Intervention Rules: A Risk-Based Approach (FIRARBF)

Singapore, April 17 – 21, 2023

Description

This is a five-day course that aims to train participants, mostly from central banks, on the theoretical and practical aspects of central bank interventions in foreign exchange markets. The course is organized by the IMF-Singapore Regional Training Institute (STI) and taught by a team of IMF consultants.

The course includes a blend of lectures and workshops that will cover various topics. Participants will gain knowledge about statistical concepts and their applications in Python, as well as data manipulation and visualization, time-series econometrics, volatility and value-at-risk modeling, and techniques for evaluating, selecting, and interpreting models, which can be applied to triggers for central bank intervention in the foreign exchange market

Overall, the course aims to provide participants with a solid understanding of the theoretical and practical aspects of central bank interventions in foreign exchange markets, along with hands-on experience in using Python and IMF software infrastructure for modeling conditional foreign exchange intervention triggers. The main takeaways for participants include a deeper understanding of FX interventions, statistical concepts, and Python programming. Participants can use this knowledge to improve their skills in their respective roles and advance their careers in the field of finance.

Overview of the Course

1. Conceptual framework and academic literature on FX interventions
   - With a few country cases, illustrating the diversity of objectives and operational frameworks
2. New risk-based IMF/MCM framework to time FX intervention rules from Lafarguette and Veyrune (2021) ▸ link
   - Using the new Python package developped by Lafarguette and Raboun (2023) ▸ link
3. Training on volatility modeling and the econometrics of time series
4. Training on programming with Python

Objectives

- Our objective is to be **as helpful as possible**

- Very pragmatic, hands-on approach to use quantitative tools for central banks operations
  - It goes beyond only FX interventions
  - Can be used for market monitoring, modeling, forecasting, etc.
  - Build good foundations for your central bank and your career
  - See our other STI course on liquidity forecasting

- The tools we use are at the **best industry standards among quants**
  - **Python**, the leading **free and open-source** programming language for data science and modelization (among other uses)
  - **Jupyter notebooks and book** for full reproducibilty and easy deployment
  - We **deploy our package on pypi**, for easy maintenance and update
  - **Course website** deployed with Github workflow: ▸ Link

The Team

- **Romain Lafarguette, Ph.D.**: currently buy-side quant at ADIA (the sovereign wealth fund of Abu Dhabi) Q team
  - Former IMF expert and ECB market operations expert (10 years)
  - Missions to more than 25 countries, including as mission chief, modeling publications, teaching, etc.
  - Mission coverage includes China PBoC, Reserve Bank of India, Hong Kong Monetary Authorities, Israel, Peru, Morocco, Tunisia, Algeria, Bosnia, WAEMU, etc.

- **Amine Raboun, Ph.D.**: buy-side quant at ADIA Q team
  - Specialized on financial modeling and market microstructure
  - Author of articles and a ▸ book on financial economics and econometrics

- **Zhuohui Chen**: research analyst at the IMF, Monetary and Capital Markets department, central banks operation division.
  - In charge of deploying quantitative tools to central banks, a dozen of countries missions (and more to come !)

Organization

- We have opted for a blend between **plenary sessions** and **workshops**
- The workshops will provide the opportunity to gain and apply modeling and programming knowledge
- The idea is really to help participants developing useful, ready-to-use skills for their tasks at their central bank
- **Don't hesitate to ask questions, we are here to help**
  - We will adjust the pace of the course depending on participants, please let us know

Program

- **Monday**: Theory and country cases on FX interventions (morning), introduction to Python (afternoon, with workshop)
- **Tuesday**: Fundamentals of statistics (theory and workshop), fundamentals of time-series econometrics (theory and workshop)
- **Wednesday**: Fundamentals of volatility modeling (theory and workshop), forecasting evaluation
- **Tuesday**: Risk-based framework for FX interventions: theory and workshop with test on real countries data
- **Friday**: Participants deployment of the codes, interpreation and reporting on their own country data